BIDDING DOCUMENTS

FOR SUPPLY, INSTALLATION & COMMISSIONING OF MEDICAL EQUIPMENT ON TURKEY BASIS FOR GOVT. MEDICAL COLLEGE AND HOSPITAL, PURNEA BIHAR.

Bid Reference No.: BMSIC/2021-22/ME-215

Bihar Medical Services And Infrastructure Corporation Limited
4th Floor, Bihar State Building Construction Co. Ltd, Hospital Road, Shastri Nagar, Patna - 800023 (Bihar) India

Bihar Medical Services And Infrastructure Corporation Limited
4th Floor, Bihar State Building Construction Co. Ltd, Hospital Road, Shastri Nagar, Patna - 800023, (Bihar) India

Telephones: 0612-2219634 e-mail: md-bmsicl-bih@nic.in

INVITATION FOR E-BIDS FOR

SUPPLY, INSTALLATION & COMMISSIONING OF MEDICAL EQUIPMENT ON TURNKEY BASIS

[Modify as appropriate to indicate general description of items under procurement]

Tender Reference No.	**BMSIC/2021-22/ME-215**
Date and time for downloading of bid document	Up to 19th July 2021 till 18:00 Hrs.
Date of Pre- Bid Meeting	06th July 2021 at 15:00 Hrs in Conference hall of BMSICL. 4th Floor State Building Construction Corporation Limited, Hospital Road, Shastri Nagar.
Last date and time of submission of online bids	20th July 2021 up to 18:00 Hrs.
Last date and time for submission of original documents of EMD, Document Fee and technical bid.	22nd July 2021 till 14:00 Hrs.
Date, Time and Place of opening of Technical Bid	22nd July 2021 (at 15:00 Hrs.) on the website of www.eproc.bihar.gov.in in the office of BMSICL
Date and time of opening of financial Bids	To be announced later on www.eproc.bihar.gov.in
Validity of Tender	180 Days
Cost of the tender document	Rs. 10,000/- (Ten Thousand Rupees only) Non- refundable.
Bid Processing Fee	Rs 1180/-

1. To participate in e-Tender, the tenderer will have to be registered with E-Tendering service provider. For this help desk first floor, M/22, Bank of India building, Road no.-25, Sri Krishna Nagar Patna-800020, Tele Phone no.-0612-2523006, Mobile No. - 7542028164 can be approached.

2. The cost of tender document is acceptable in the form of Bank Draft issued by any nationalized bank / Scheduled bank in favour of Managing Director, Bihar Medical Services and Infrastructure Corporation Limited, Patna and payable at Patna and it is non-refundable.

3. The required amount of Earnest Money is acceptable in the form of Bank Draft/Bank Guarantee issued by nationalized / schedule bank in favour of Managing Director, Bihar Medical Services and Infrastructure Corporation Limited, Patna and payable at Patna. The Earnest Money deposited in any other form shall not be accepted.

4. The Tender Inviting Authority reserves the right to extend the schedule of tender or to reject the tender without assigning any reason.

5. The fee for bid processing is to be deposited by the tenderer through net banking i.e. RTGS/NEFT/Debit Card. The tenderer must ensure the payment before schedule time otherwise the Corporation will not be responsible for any delay.

6. It is essential to deposit the original copies of Tender fee, EMD as specified in Section-IV (Schedule of Requirement) in a sealed envelope at Bihar Medical Services Infrastructure Corporation Limited, Patna by 22nd July 2021 **till 14:00 Hrs.**

7. Note: Please number the documents with serial number on each and every page and do mention the total number of pages of bidding document. In the technical Bid also assign the corresponding page numbers of supporting documents. Any discrepancy or misrepresentation in this aspect will not be entertained.

8. All queries and questions regarding the tender should be addressed to MD BMSICL (either through letter or through e-mail: - md-bmsicl-bih@nic.in and/or bmsicl.equipment@gmail.com or contact no. 0612-2219634/35) up to 7 days before of closing of online bid registration.

9. All communication, addendum/corrigendum related to this tender will be uploaded on the website of www.eproc.bihar.gov.in

10. Managing Director, BMSICL reserves the right to reject any or all the applications without assigning any reason.

Managing Director
BMSICL, Patna

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INVITATION FOR E- BIDS (IFB)

For Supply, Installation & Commissioning of Medical Equipment on Turkey Basis for Govt. Medical College and Hospital, Purnea, Bihar

By Managing Director,
Bihar Medical Services And Infrastructure Corporation Limited
4th Floor, Bihar State Building Construction Co. Ltd, Hospital Road, Shastri Nagar, Patna (Bihar) India

Bid Reference No.: BMSIC/2021-22/ME-215 Date**: June 2021**

1. The Bihar Medical Services and Infrastructure Corporation Limited, Patna (name of purchaser) on behalf of the Government of Bihar, invites e-bids from sole bidder as defined in section-II of this tender document / OEM of any one of the equipment listed in the schedule of requirement for Supply, testing, Demonstration, Installation and Commissioning of Medical Equipment and related services as listed below on Turnkey basis for Govt. Medical College and Hospital, Purnea, Bihar

Schedule No.	Brief Description of Goods and Services on turkey basis	Qty./No.	Delivery Schedule (in days)	Earnest Money Deposit (EMD) in Indian Rupees
1	**Supply, Installation & Commissioning of Medical Equipment on Turnkey basis for Govt. Medical College and Hospital, Purnea, Bihar, as mentioned in section -IV**	(As mentioned in section –IV) of the bid document	45 days	1,26,00,000/- (One Crores Twenty-Six Lakhs only)

2. The qualification criteria, Detailed Technical Specifications, Scope of Work, Cost of Tender Document, Earnest Money Deposit and other conditions can be seen in the tender document to be downloaded from the website of www.eproc.bihar.gov.in.

3. The bids must be uploaded (e-mode/ online) at the address given at page 2 on or before 18:00 hrs. of 20th July 2021 All bids must be accompanied by an Earnest Money Deposit (EMD) as specified in the bidding document. Bids submitted after 18:00 hrs. of 20th July 2021 shall be rejected.

4. The Pre-bid meeting shall be organized at the purchaser's office on 06th July 2021 at 15:00 Hrs. In the Pre-bid meeting, the prospective bidders may seek clarification on any issues related to the terms, conditions and technical specifications given in the bidding documents.

5. Technical bids will be opened (in e- mode) at Bihar Medical Services & Infrastructure Corporation Ltd., , 4th Floor, Bihar State Building Construction Co. Ltd, Hospital Road, Shastri Nagar, Patna (Bihar) on 22nd July 2021 at 15.00 Hrs. on the website of www.eproc.bihar.gov.in. The bidder's representatives may attend the bid opening meeting.

6. The Purchaser reserves the right to cancel / annul the bidding process without assigning any reason thereof.

7. In the event, the dates specified for the bid receipt and opening are declared as holidays for purchaser's office, the due date for submission of bids and opening of bids shall be the immediate following working day at the appointed time.

Sd/-
Managing Director
BMSICL, Patna

SECTION I- INSTRUCTION TO BIDDERS (ITB)

INSTRUCTIONS TO BIDDERS

A INTRODUCTION

1. SCOPE OF BID

The Bihar Medical Services and Infrastructure Corporation Limited, Patna (name of purchaser) on behalf of Government of Bihar, invites e-bids from sole bidder / OEM (Original Equipment Manufacturer) of any one of the equipment listed in schedule of requirement for Supply, testing, Demonstration, Installation and Commissioning of Medical Equipment on turnkey basis for Govt. Medical College and Hospital, Purnea, Bihar as specified in the Schedule of Requirements.

2. FRAUD AND CORRUPTION

2.1 It is required that the Purchasers as well as Bidders/Suppliers/Contractors observe the highest standard of ethics during the procurement and execution of Contracts. In pursuance of this policy, the Purchaser:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in Contract execution; and

(ii) "fraudulent practice" means a misrepresentation of facts and / or concealment of fact in order to influence a procurement process or the execution of a Contract to the detriment of the Purchaser; it includes collusive practices among bidders (prior to or after bid submission) designed to establish bid prices at artificial, noncompetitive levels and to deprive the Purchaser of the benefits of free and open competition

(b) will declare a firm ineligible and debar the firm, either indefinitely or for a stated period of time, to be awarded a Contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract. In such cases, appropriate legal action as per court of law shall be initiated for which the concerned bidder shall be solely responsible.

2.2 Furthermore, bidders shall be aware of the provision stated in Sub-Clauses 19.4 and 22.1.d. of the General Conditions of Contract

3. ELIGIBLE BIDDERS

3.1 The eligible bidder should be a legal entity and have satisfactorily completed works of similar nature in the last 07 (Seven) years till the date of bid opening according to any one of the following requirements.

Three similar completed work of cost not less than the amount equal to 40% of the estimated cost (Rs 63 Crores) put to tender
or

Two similar completed work of cost not less than the amount equal to 60% of the estimated cost (Rs 63 Crores) put to tender
or
One similar completed work of cost not less than the amount equal to 80% of the estimated cost (Rs 63 Crores) put to tender.

Similar Works" shall mean supply, installation and commissioning of medical equipment' like CT, MRI, various laboratory equipment's for various department for a Medical college like Anatomy, Physiology, biochemistry, Pathology, microbiology, pharmacology, Opthalmogy, Medicine etc. on turnkey basis in Government, Semi-Government, PSU or reputed Private hospitals/firms / Organizations/Cancer institute/Life Science Research/Biotech Laboratory or similar R & D facilities (for Hospitals).
The completion certificate shall be issued by employer not below the rank of Executive Engineer or Project Manager or equivalent. In case of private client, the completion certificate issued by employer should be certified by CA.

3.2 A firm declared ineligible by the Purchaser in accordance with ITB Sub-Clause 2.1 (b) and GCC Sub-Clause 19.4 shall be ineligible to bid for a contract during the period of time determined by the Purchaser.

3.3 Pursuant to ITB Clause 12, the Bidder shall furnish, as part of its bid, documents establishing, to the Purchaser's satisfaction, the Bidder's eligibility to bid.

3.4 The sole bidder must have average annual turnover of Rs 100 Crores (average of last 5 years). Bidder must submit copies of audited balance sheet and profit and loss statement detailing the same. Joint ventures and consortiums are not allowed for bidding.

4. ONE BID PER BIDDER

A firm shall submit only one bid. The firm to quote for all equipment as listed in the schedule of requirement as amended. Part Bids will not be considered. Joint ventures will not be considered.

5. COST OF BIDDING

The bidder shall bear all costs associated with the preparation and submission of the bid. The Purchaser will, in no case, be responsible or liable for these costs, regardless of the conduct or outcome of the biding process.

6. ALTERNATIVE TENDER

Alternative Tenders are not permitted. However the Tenderers can quote Two alternate Models/Make meeting the tender specifications with single EMD.

B. THE BIDDING DOCUMENTS

7. CONTENTS OF BIDDING DOCUMENTS

7.1 The goods required to be supplied; bidding procedures and contract terms and conditions are prescribed in the Bidding Documents. The Bidding Document include the following:
Section I Instructions to Bidders (ITB)
Section II General Conditions of Contract (GCC)
Section III Special Conditions of Contract (SCC)
Section IV Schedule of Requirements (SOR)
Section V Technical Specifications
Section VI Sample Forms

7.2 The "Invitation for Bids" does not form part of the Bidding Documents and is included as a reference only. In case of discrepancies between the Invitation for Bid and the Bidding Documents listed in 7.1 above, said Bidding Documents will take precedence.

7.3 The Bidder is expected to examine all instructions, forms, terms and specifications in the Bid Documents. Failure to furnish all information required as per the Bid Documents or submission of the bids not substantially responsive to the Bid Documents in every respect will be at the bidder's risk and may result in rejection of the bid.

8. CLARIFICATION OF BID DOCUMENTS

8.1 A prospective bidder, requiring any clarification on the Bid Documents shall notify the Purchaser in writing or by FAX/e-mail at the Purchaser's mailing address indicated in the invitation of Bid.

8.2 Any clarification issued by the Purchaser in response to query raised by prospective bidders shall be published on the website of BMSICL and shall form an integral part of bid documents and it may amount to an amendment of relevant clauses of the bid documents.

9. Pre-bid Meeting

9.1 The bidder or his representative is invited to attend a pre-bid meeting, which will take place in the office of BMSICL Patna on 06th July 2021 up to 15:00 Hrs.

9.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

9.3 The bidder may submit any query in writing or by FAX/ e-mail to reach the purchaser well before the time to be considered during the pre-bid meeting and not after 48 hours since the pre-bid meeting.

9.4 Any modification of the bidding document listed in ITB Clause 7.1 which may become necessary as a result of the pre-bid meeting shall be made exclusively through the issue of an Addendum pursuant to ITB Clause 10 and not through the minutes of the pre-bid meeting &

the same will be uploaded at www.eproc.bihar.gov.in & or www.bmsicl.gov.in.

9.5 Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

10. AMENDMENT OF BIDDING DOCUMENTS

10.1 At any time, prior to the date of submission of Bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, or pursuant to ITB Clause 9, modify bid documents by amendments.

10.2 The amendments shall be notified by uploading the same at www.eproc.bihar.gov.in and/or website of BMSICL i.e. www.bmsicl.gov.in

10.3 In order to afford prospective bidders a reasonable time to take the amendment into account in preparing their bids, the purchaser may, at its discretion, extend the deadline for the submission of bids suitably.

11. LANGUAGE OF BID

The bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in English language. However, the purchaser as well as bidder may correspond in Hindi language also.

12. DOCUMENTS CONSTITUTING THE BID

The bid prepared by the bidder shall comprise the following components:

(a) A Bid Form and a Price Schedule completed in accordance with ITB Clauses 13 and 14;

(b) Documentary evidence established in accordance with ITB Clause 15 and 16 that the Bidder is eligible and qualified to perform the contract if its bid is accepted;

(c) Documentary evidence established in accordance with ITB Clause 17 that the goods and ancillary services to be supplied by the Bidder conform to the bidding documents.

(d) Earnest Money Deposit (EMD) furnished in accordance with ITB Clause 18.

(e) Tender Document fee in the form of Demand Draft in favour of Managing Director, Bihar Medical services and Infrastructure Corporation Ltd. Payable at Patna.

13. BID FORM

The bidder shall complete the Bid Form and appropriate Price Schedule, indicating the goods to be supplied, brief description of the goods, quantity and prices as per section VI.

14. BID PRICES

14.1 The bidder shall give the total composite price along with price of each equipment exclusive of GST but inclusive of Customs duty, packing, forwarding, freight, octroi/entry tax and insurance etc. Price should be as per the price schedule given in Section VI. No Foreign exchange will be made available by the purchaser.

14.2 Break-up of the prices indicated in the Price Schedule shall be entered in the following manner:

(i) The Unit price should be inclusive of, Excise duty, Sales Tax, Freight, octroi/entry tax Forwarding, Packing, Insurance and any other Levies/Charges etc.
(ii) The supplier shall quote as per price schedule given in section VI for all the items given in schedule of requirement.

14.3 The price quoted by the bidder shall remain fixed during the entire period of contract and shall not be subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non - responsive and rejected.

14.4 The prices quoted by the bidder shall be in sufficient detail to enable the Purchaser to arrive at the price of material/goods offered.

14.5 "DISCOUNT, if any, offered by the bidders shall not be considered unless specifically indicated in the price schedule. Bidders desiring to offer discount shall therefore modify their offers suitably while quoting and shall quote clearly net price taking all such factors like Discount, free supply, etc, into account".

14.6 The price approved by the Purchaser for procurement will be FOR destination which will be inclusive of all Taxes, Levies, packing, forwarding, freight and insurance as mentioned in Para 14.1, above.

15. DOCUMENTS REQUIRED TO BE SUBMITTED

15.1 The bidder shall furnish, as part of the bid documents, the documents as called for in the Check List (Annexure – 13).

15.2 The offered product may be required to be type approved / demonstrated at the time and place of installation. The supplied product would be evaluated for its ability to meet the technical specifications, manufacturability, reliability, testability, ease of installation, maintainability etc. Necessary documents to substantiate these attributes will have to be submitted at the time of application for approval by the supplier for obtaining type approval.

Or

Products can be demonstrated only at Site during installation and commissioning at Govt. Medical College Purnea.

Or

In case goods offered have already been type approved/ validated by the Purchaser, documentary evidence to this effect shall be submitted by the bidder.

16. DOCUMENTS ESTABLISHING BIDDER'S QUALIFICATION

16.1 Pursuant to ITB Clause 12, the bidder shall furnish, as part of its bid, documents establishing the Bidder's qualification to perform the Contract if its bid is accepted.

16.2 The documentary evidence of the Bidder's qualifications as per eligibility criteria to perform the Contract shall establish to the Purchaser's satisfaction that:

a) The bidder should furnish the information on past works and satisfactory performance for being eligible in accordance with eligibility for the bidder in the Performa given under Section VI, Form No.6 and provide self-attested copies of Orders for the works for which performance certificate in form no 6 is being provided.
b) The Bidders shall invariably furnish documentary evidence in support of the satisfactory completion of works in the form of performance certificates issued by those end users whose purchase orders are referred in the performance statement as submitted in Annexure- VI by the bidders ". The completion certificate shall be issued by employer not below the rank of Executive Engineer or Project Manager or equivalent. In case of private client, the completion certificate issued by employer should be certified by CA.

c) The bidder should furnish authorization in the prescribed format given at Section VI, assuring full guarantee and warranty obligations as per GCC Clause 14 for the equipment offered

d) The bidder must have average turnover of Rs 100 Crores (average of last 5 years). Bidder must submit copies of audited balance sheet and profit and loss statement deatiling the same in support of its financial standing

16.3 Submission of Manufacturer's authorization for the equipment manufactured by other than the bidder in Annexure-V is mandatory at the time of supply. However this may not be compulsory in case of low cost equipment.

17. DOCUMENTS ESTABLISHING GOODS CONFORMITY TO BIDDING DOCUMENTS

17.1 Pursuant to ITB Clause 12, the Bidder shall furnish, as part of its bid, documents establishing the conformity to the bidding documents of all goods and services which the Bidder proposes to supply under the contract.

17.2 The documentary evidence of conformity of the goods and services to the bidding documents may be in the form of literature, drawings and data, and shall consist of :

(a) A detailed description of the essential technical and performance characteristics of the goods;

(b) An item-by-item commentary on the Purchaser's Technical Specifications, demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.

17.3 For purposes of the commentary to be furnished pursuant to ITB Clause 17.2 (b) above, the Bidder shall note that standards for workmanship, material, and references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

18. EARNEST MONEY DEPOSIT (EMD)

18.1 Pursuant to ITB Clause 12, the bidder shall furnish, as part of his bid, an Earnest Money Deposit (EMD) for an amount of mentioned in Section IV – Schedule of Requirements in the form of Demand Draft/Bank Guarantee.

18.2 The Earnest Money Deposit (EMD) is required to protect the purchaser against the risk of bidder's conduct, which would warrant the forfeiture of Earnest Money Deposit (EMD) pursuant to ITB Clause 18.7.

18.3 The Earnest Money Deposit (EMD) shall be in the form of Bank Draft/Bank Guarantee issued

by a Nationalised / Scheduled Bank in the favour of Purchaser here it is Managing Director, BMSICL Patna.

(i) The bank guarantee of adequate amount covering the requirement of EMD should be valid for a period of 30 days beyond the validity of Bid.

(ii) Bank Draft/BG issued to cover the requirement of EMD that should be issued from Nationalized Bank/ Scheduled Bank.

(iii) The BG/Bank Draft should be submitted in the technical bids in a separate cover. The cover should be subscribed as **"EMD for tender no. BMSIC/2021-22/ME-215".**

(iv) In case where the document of Earnest Money Deposit (EMD) is not submitted in the manner prescribed above, the commercial, technical offers SHALL NOT BE OPENED AND THE BID SHALL BE REJECTED.

Note :- Bank Guarantee to be provided in the format provided in Annexure- 4

18.4 A bid not secured in accordance with para 17.1, and 17.3 shall be rejected by the Purchaser being non-responsive at the bid opening stage and returned to the bidder unopened.

18.5 The Earnest Money Deposit (EMD) of the unsuccessful bidder will be discharged/returned as promptly as possible, but after finalization of tender. No interest will be paid against EMD and or performance security deposited by the bidders and no presentation will be allowed in this case.

18.6 The successful bidder's Earnest Money Deposit (EMD) will be discharged upon the bidder's acceptance of the advance purchase order satisfactorily in accordance with GCC Clause 5 and furnishing the performance security.

18.7 The Earnest Money Deposit (EMD) may be forfeited:

(a) If the bidder withdraws his bid during the period of bid validity as specified in this bidding document

(b) In the case of successful bidder if the bidder fails:

(i) To sign the contract in accordance with ITB Clause 30 or

(ii) To furnish performance security in accordance with GCC Clause 5.

19. PERIOD OF VALIDITY OF BIDS

19.1 Bid shall remain valid for 180 days from the date of opening of bids prescribed by the purchaser pursuant to ITB Clause 25.1. A bid valid for a shorter period shall be rejected by the purchaser being non-responsive.

19.2 In exceptional circumstances, the purchaser may request the consent of the bidder for an extension to the period of bid validity. The request and the response there to shall be made in writing. The Earnest Money Deposit (EMD) provided under ITB Clause 18 shall also be

suitably extended. The bidder may refuse the request without forfeiting his Earnest Money Deposit (EMD). A bidder accepting the request and granting extension will not be permitted to modify his bid.

20. PREPARATION OF BID

20.1 The Bid shall be submitted online and in physical form in parts / covers as mentioned below:

(i) Tender Fee, EMD (Both Online & Physical).
(ii) Tender Processing Fee (Only Online)
(iii) Technical Bid (Both Online & Physical)
(iv) Price Bid (Only Online).

20.2 Bidders are requested not to submit the hard copy of Financial Bid, along with the physical documentary evidence of submission of Tender Fee, EMD of tender, Technical bid, and sample of quoted item. In case the hard copy of financial bid is submitted the tender shall be straightway rejected.

20.3 Also, uploading of the price bid in prequalification bid or technical bid will result in rejection of the tender.

20.4 The entire Document which will become part of the tender (Online, Physical) should be either typed or written in indelible ink and the same shall be signed (& with official seal) by the tenderer or by a person(s) who has been duly authorized to bind the tenderer to the contract.

20.5 The tender shall be duly signed at the appropriate places as indicated in the TE documents and all other pages of the tender including printed literature, if any shall be initialed by the same person(s) signing the tender. The tender shall not contain any erasure or overwriting, except as necessary to correct any error made by the tenderer and, if there is any such correction; the same shall be initialed by the person(s) signing the tender. The entire document being part of tender document should be page numbered.

20.6 A person signing (manually or digitally) the tender form or any documents forming part of the contract on behalf of another shall be deemed to warranty that he has authority to bind such other persons and if, on enquiry, it appears that the persons so signing had no authority to do so, the purchaser may, without prejudice to other civil and criminal remedies, cancel the contract and hold the signatory liable for all cost and damages.

20.7 In case Bidder is clamming for exemption from payment of Earnest Money, in accordance with SCC clause, then documentary evidence must be submitted in both Physical and in Online Mode.

(a) Prices are to be quoted in the attached
(b)Price Bid format online as per the directions on the official website.

Note: - It is the responsibility of tenderer to go through the TE document to ensure furnishing all required documents in addition to above, if any.

21. METHOD OF BIDS SUBMISSION

21.1

a) The tender shall be submitted in online and in physical form as mentioned in ITB clause 20.
b) Technical bid should contain the clause-by-clause compliance statement for the quoted goods vis-à-vis the technical specifications in the tender enquiry in addition to other required document as mentioned in TE Document.
c) Technical bid should contain the brochure, catalogue of offered/ quoted items which should reasonably explain in detail about the quoted items & it should also confirm the clause –by-clause compliance of technical specification as asked in TE Document and other technical details incorporated by the purchaser in the TE documents to establish technical responsiveness of the goods and services offered in its tender.
d) In case there is any variation and/or deviation between the goods & services prescribed by the purchaser and that offered by the tenderer, the tenderer shall list out the same in a chart form without ambiguity and provide the same along with its tender.
e) If a tenderer furnishes wrong and/or misguiding data, statement(s) etc. about technical acceptability of the goods and services offered by it, its tender will be liable to be ignored and rejected in addition to other remedies available to the purchaser in this regard.
f) Failure in complying above mentioned clause 21.1 (a) – (e)., may lead to rejection of tender.
g) Bidders are requested not to submit the hard copy of Financial Bid, along with the physical documentary evidence of submission of Tender Fee, EMD of tender, Technical Bid. In case the hard copy of financial bid is submitted in physical form, the tender shall be straightway rejected.
h) Also, uploading of the price bid in prequalification bid or technical bid will result in rejection of the tender Unless otherwise specified, the tenderers are to submit its tender online and deposit the physical form of tenders (Tender Fee, EMD, Technical bid and if applicable documentary support for seeking exemptions of EMD as per SCC clause are to be submitted in physical form, no other documents are required to be submitted in physical form) in sealed envelope to the purchaser address.

21.2. The envelopes shall be addressed to the purchaser at the following address:

a) Bihar Medical Services and Infrastructure Corporation Limited, 4th Floor, Bihar State Building Construction Co. Ltd, Hospital Road, Shastri Nagar, Patna (Bihar).

b) The envelope shall bear (the name and address of the Purchaser), the tender number and the words 'DO NOT OPEN BEFORE' (due date & time) & may be sent by registered post or delivered in person on above mentioned address (address is given in Clause 21.2 (a) above). The responsibility for ensuring that the Sealed envelope containing documentary evidence of Tender Fee, EMD and / documentary support for seeking exemptions of, EMD as per SCC clause are delivered in time would vest with the bidder and The purchaser shall not be responsible for any delay. In the event of the specified date for physical submission of tender falls on /is subsequently declared a holiday or closed day for the purchaser, the tenders will be received up to the

appointed time on the next working day.

c) The Physical form of tender shall be delivered upto **22nd July 2021 by 14:00 Hrs Bihar Medical Services And Infrastructure Corporation Limited, 4th Floor, Bihar State Building Construction Co. Ltd, Hospital Road, Shastri Nagar, Patna -800023 (Bihar) India** if delivered elsewhere will be rejected.

d) Venue of bid opening- 22nd **July 2021 by 15:00 Hrs** on the website of www.eproc.bihar.gov.in at BMSICL, Patna**,** If due to administrative reason, the venue of Bid opening is changed, it will be displayed prominently on the notice board of the Purchaser's office/at the Website address https://www.eproc.bihar.gov.in

Note: - If the envelopes is not sealed and marked as required at ITB Clause 21.1 and 21.2, the bid shall be rejected.

22. DEADLINE FOR SUBMISSION OF BIDS

22.1 Bids must be received by the Purchaser at the address and up to the due date and time specified under ITB Clause 21.2.

22.2 The Purchaser may, at its discretion, extend this deadline for the submission of bids by amending the Bid Documents in accordance with ITB clause 10 in which case all rights and obligations of the purchaser and bidders previously subject to the deadline will thereafter be subjected to the deadline as extended.

23. LATE BIDS

Any bid received by the purchaser after the deadline for submission of bids prescribed by the purchaser pursuant to ITB clause 22, shall be rejected and the physical form of technical bid will be returned unopened to the bidder.

24. MODIFICATION AND WITHDRAWAL OF BIDS

24.1 No bid may be modified subsequent to the deadline for submission of bids. The bidder may modify or withdraw its bid after submission, provided that written notice of the modification or withdrawal is received by the purchaser prior to the deadline prescribed for submission of bids along with a written power of attorney authorizing the signatory of the withdrawal.

24.2 The bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched as required in the case of bid submission in accordance with the provision of ITB Clause 21. A withdrawal notice may also be sent by FAX/ e-mail but followed by a signed confirmation copy by post not later than the deadline for submission/ uploading of bids.

24.3 Bids requested to be withdrawn in accordance with ITB Clause 24.1 above, shall be returned unopened to the Bidders.

24.4 No bid may be withdrawn in the interval between the bid submission deadline and the expiration of the bid validity period specified in ITB Clause 19. Withdrawal of a bid during

this interval may result in the forfeiture of the Bidder's Earnest Money Deposit (EMD), pursuant to ITB Clause 18.7

E. BID OPENING AND EVALUATION

25. OPENING OF BIDS BY PURCHASER

25.1 The purchaser shall open the technical bids in the presence of bidders or their authorized representatives who chose to attend, at the due date and time of bid opening. The bidder's representatives, who are present, shall sign in an attendance register. Authority letter to this effect shall be submitted by the bidders before they are allowed to participate in bid opening (A Format is given in Section VI).

25.2 A maximum of two representatives of any bidder shall be authorized and permitted to attend the bid opening.

25.3 The bidder's names, modifications, bid withdrawals, requisite Earnest Money Deposit (EMD) and such other details as the purchaser, at its discretion, may consider appropriate will be announced at the time of opening. No bid shall be rejected at the time if bid opening, except for late bids, bids without Tender Fee, EMD (except in case where exemption of EMD has been requested in pursuant to Special condition of Contract) & for such rejected bid no further evaluation will be done.

25.4 The price bids of bidders whose Technical bids are found technically responsive and comply with the bid documents will only be considered for financial evaluation. The date of opening of financial bids shall be communicated to such bidders, whose Technical bids are found technically responsive. The bidder's representative may be present at the time of opening of price bid at the pre-appointed time, date and venue.

25.5 The date fixed for opening of bids, if subsequently declared as holiday by the Government, the revised date of schedule will be notified. However, in absence of such notification, the bids will be opened on next working day, time and venue remaining unaltered.

26. CLARIFICATION OF BIDS

To assist in the examination, evaluation and comparison of bids, the purchaser may, at its discretion ask the bidder for the clarification of its bid. The request for the clarification and the response shall be in writing. Unless the purchaser asks for change in price due to clarifications sought, the bidder is not permitted to alter the price Bid (online submission only).

27. PRELIMINARY EVALUATION

27.1 Purchaser shall evaluate the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed and whether the bids are generally in order. Bids from representatives, without proper Authorization from the manufacturer as per Section VI, shall be treated as non-responsive

27.2 Arithmetical errors shall be rectified on the following basis. If there is a discrepancy between the unit price and total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected by the purchaser. If there is a discrepancy between words and figures, the amount in words shall prevail. If the supplier does not accept the correction of the errors, his bid shall be rejected.

27.3 Prior to the detailed evaluation pursuant to ITB Clause 28, the Purchaser will determine the substantial responsiveness of each bid to the Bid Document. For purposes of these clauses, a substantially responsive bid is one which confirms to all the terms and conditions of the Bid Documents without material deviations. Deviations from or objections or reservations to critical provisions such as those concerning Performance Security (GCC clause 5), Warranty (GCC clause 14), Force Majeure (GCC clause 21), Applicable Law (GCC clause 28) and Taxes and duties (GCC clause 30) along with deviation in Technical Specifications will be deemed as material deviation. The purchaser's determination of bid's responsiveness shall be based on the contents of the bid itself without recourse to extrinsic evidence.

27.4 A bid determined as substantially non-responsive will be rejected by the purchaser and shall not be subsequent to the bid opening be made responsive by the bidder by correction of the non-conformity.

27.5 The Purchaser may waive any minor infirmity or non-conformity or irregularity in a bid which doesn't constitute a material deviation, provided such waiver doesn't prejudice or affect the relative ranking of any bidder.

28. EVALUATION AND COMPARISON OF SUBSTANTIALLY RESPONSIVE BIDS

28.1 **Financial bid shall be considered for opening of whose technical bid which has been found eligible by the technical evaluation committee**. The Purchaser shall evaluate in detail and compare the bids previously determined to be substantially responsive pursuant to ITB Clause 27.

28.2 The purchasers evaluation of bid will take into account, in addition to the bid price (ex-factory/ex-warehouse/off-the-shelf price of goods offered from India, such price to include all costs as well as duties and taxes paid or payable on components and raw materials incorporated or to be incorporated in the goods, and excise duty on finished goods if payable) and price of incidental services, the following factors, in the manner and to the extent indicated in ITB clause 28.3 and in the Technical Specifications:

(a) cost of inland transportation, insurance and other costs within India incidental to the delivery of goods to their final destination.

28.3 Pursuant to ITB clause 28.2 the following evaluation methods will be applied:

(a) **Inland transportation, ex-factory/ from port-of-entry, insurance and incidentals**.

(i) Inland transportation, insurance and other incidentals, for delivery of goods to the Project site as stated in ITB clause 14.2. These costs will be added to bid price

(b) Deviation in Payment Schedule:

(c) The General Conditions of Contract clause 15 indicate the payment schedule offered by the ***Purchaser***. If a bid deviates from the schedule and if such deviation is considered acceptable to the ***Purchaser***, the bid will be evaluated by calculating interest earned for

any earlier payments involved in the terms outlined in the bid as compared to those stipulated in this invitation at a rate of 12% per annum.

(d) Spare parts and after sales service facilities in India:
The cost of the ***Purchaser*** of establishing the minimum service facilities and parts inventories, as outlined elsewhere in the bid invitation, if quoted separately, shall be added to the bid price.

(e) Compressive Annual Maintenance Contract (CMC):

(i) The Purchaser desires to have separately comprehensive maintenance charges for all equipment costing above Rs. 50,000/- in BOQ for a period of 7 years after the expiry of free maintenance period, clearly indicating year wise comprehensive maintenance charges, which shall be added to the bid price at a discount rate of 8% per annum. Bids without this charge will be considered as non-responsive.

(ii) Any major repair pointed out by the ***Purchaser*** shall be rectified by the Supplier from the date of intimation within a period of 3 calendar days and commission the equipment to the satisfaction of the Purchaser, failing which the purchaser has write to levy a penalty on the Supplier a sum of Rs.2,500/- per day or part thereof for each equipment until the equipment are repaired and commission to the satisfaction of the Purchaser. Failure to repair may also lead to forfeit of Security deposit.

(f) Spares:

(i) The supplier shall be required to provide a list and rates of consumables required for an equipment which is a closed system. contract.

(ii) The cost of spares quoted by bidder will not be used to arrive at final price.

(iii)In the event of termination of production of the equipment/ spare parts, the supplier shall notify the purchaser at least two years in advance of the impending termination to enable the purchaser to procure lifetime spares. The supplier shall also provide at his own cost to the purchaser, the blueprint drawings and specifications of spare parts if and when

(g) Repair of faulty equipment and setting up of Repair Facilities:

(i) The supplier shall establish adequate repair facilities for repair of faulty equipment in India within a period six months from the date of purchase order.

28.4 Technical evaluation:

(i) Technical evaluation of the Bid will be done on the basis of technical qualification criteria and documents mentioned (TECHNICAL BID- COVER 'A') in Mandatory Documents Link present in the web portal of the www.eproc.bihar.gov.in .Failing which the bid will not be considered for technical evaluation.

(ii) Hard copy of tender documents uploaded shall be submitted along with the tender fee and EMD as on or before the last day of submission of tender for purely evaluation purposes. However, the submission of hard copy of uploaded tender document submitted does not substitute/modify the provisions of e-tendering system.

(iii) The technical evaluation shall be done only on the basis of documents/papers submitted by the bidder on www.eproc.bihar.gov.in

(iv) However hard copy of uploaded tender shall be provided by the bidder firm along with the mandatory tender document fee and EMD for evaluation purpose only. This hard copy shall under no case substitute/modify the provisions of e-tender system.

29. CONTACTING THE PURCHASER

29.1 Subject to ITB Clause 26, no bidder shall try to influence the Purchaser on any matter relating to its bid, from the time of the bid opening till the time the contract is awarded.

29.2 Any effort by a bidder to modify his bid or influence the purchaser in the purchaser's bid evaluation, bid comparison or contract award decision shall result in the rejection of the bid.

30. POST-QUALIFICATION

30.1 The Purchaser will determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive bid is qualified to perform the Contract satisfactorily, in accordance with the criteria listed in ITB Clause 16 & 17 and the information submitted by the bidder in the proforma for performance statement for the period of last three years given in Sec VI as well as other information the Purchaser deems necessary and appropriate.

30.2 An affirmative post-qualification determination will be a prerequisite for award of the contract to the lowest evaluated Bidder. A negative determination will result in rejection of the Bidder's bid, in which event the Purchaser will proceed to the next-lowest evaluated Bidder to make a similar determination of that Bidder's capabilities to perform satisfactorily.

31. AWARD CRITERIA

Subject to ITB Clause 33, the Purchaser shall award the Contract to the Bidder whose bid has been determined to be substantially responsive and has been determined to be the lowest evaluated bid and whose goods have been type approved/validated by the purchaser.

32. PURCHASER'S RIGHT TO VARY QUANTITIES

The Purchaser reserves the right at the time of Contract award or within the stipulated last date of delivery, to increase or decrease, by 25%, the quantity of goods and services beyond that originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions.

33. PURCHASER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of contract without assigning any reason whatsoever and without thereby incurring any liability to the affected bidder or bidders on the grounds of purchaser's action.

34. ISSUE OF NOTIFICATION OF AWARD

34.1 The issue of Notification of Award shall constitute the intention of the Purchaser to enter into contract with the bidder.

34.2 Prior to the expiration of the period of bid validity, the Purchaser will notify the successful Bidder in writing by registered letter or by cable, to be subsequently confirmed in writing by registered letter, that its bid has been accepted

34.3 The bidder shall within 15 days of issue of the Notification of Award, give his acceptance along with performance security in conformity with Section VI provided with the bid document.

35. SIGNING OF CONTRACT

35.1 The issue of Notification of Award shall constitute the award of contract on the bidder.

35.2 Promptly after the Purchaser notifies the successful Bidder that its bid has been accepted, the Purchaser will send the Bidder the Contract Form provided in the Bidding Documents, incorporating all agreements between the parties.

35.3 Within fifteen (15) days of receipt of the Contract Form, the successful Bidder shall sign and date the Contract Form and return it to the Purchaser.

36. PERFORMANCE SECURITY

36.1 Within fifteen (15) days of the receipt of notification of award from the Purchaser, the Contract, using the Performance Security Form provided in the Bidding Documents or in another form acceptable successful Bidder shall furnish the performance security in accordance with the Conditions of to the Purchaser.

36.2 Failure of the successful Bidder to comply with the requirement of ITB Clause 35 and ITB Sub Clause 36.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Earnest Money Deposit (EMD), in which event the Purchaser may make the award to the next-lowest evaluated bid submitted by a qualified Bidder or call for new bids.

37. GENERAL GUIDELINES FOR THE SUBMISSION OF E-TENDER

Instructions/ Guidelines for tenders for electronic submission of the tenders online have been annexed for assisting the prospective Tenderers to participate in e- Tendering.

a) **Registration of Tenderers:** Any tenderer willing to take part in the process of e-Tendering will have to be enrolled & registered with the Government e- Procurement system, through logging on to https://eprocbihar.gov.in. The prospective Tenderer is to click on the link for e-Tendering site as given on the web portal.

b) **Digital Signature certificate (DSC):** Each Tenderer is required to obtain a class-II or Class-III Digital Signature Certificate (DSC) from NIC for submission of tenders, from the approved service provider of the National Information's Centre (NIC) on payment of requisite amount.

c) The Tenderer can search & download NIT & Tender Documents electronically from computer once he logs on to the website using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.

d) **Submission of Tenders:** General process of submission, Tenders are to be submitted through online to the website at a time for each work, one in technical Proposal & the other is Financial Proposal before the prescribed date &time using the Digital Signature Certificate (DSC) the documents are to be uploaded virus scanned copy duly Digitally Signed. The documents will

get encrypted (transformed into non-readable formats). Also, hard copy of technical bid should be submitted as per the schedule mentioned in NIT.

TABLE OF CONTENT

SECTION II- GENERAL CONDITIONS OF CONTRACT

1. DEFINITIONS

In this Contract, the following terms shall be interpreted as indicated:

(a) **"The Purchaser"** means the Bihar Medical Services and Infrastructure Corporation Limited (BMSICL), the organization purchasing the Goods.

(b) **"The Bidder" means** the individual or firm who participates in the tender and submits its bid.

(c) **"Days" means** calendar days.

(d) **"Sole Bidder"** means Bidder who will be a sole provider of all the equipments (Company including OPC /LLP/Partnership etc.) The Sole Provider should be registered as a legal entity such as company registered under Companies Act, Partnership Act or an equivalent law applicable in the region/state/ country.

(e) **"GCC" means** Conditions of Contract.

(f) **"The Supplier"** means the individual or firm supplying the goods and Services under the contract.

(g) **"The Goods"** means all equipment, machinery, and/or other materials which the Supplier is required to supply to the Purchaser under the contract.

(h) **"Services"** means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other obligations of the Supplier covered under the Contract.

(i) **"End User" means** the consignees stated in the Schedule of Requirements.

(j) **"The Notification of Award"** means the intention of the Purchaser to place the Purchase order on the bidder or to enter in to contract with the bidder.

(k) **"The Contract"** means the agreement entered into between the Purchaser and the Supplier, as recorded in the Contract Form signed by the parties, including all the attachments and the appendices thereto and all documents incorporated by reference therein.

(l) **"The Contract Price"** means the price payable to the Supplier under the contract for the full and proper performance of its contractual obligations.

(m) **"Validation"** is a process of testing the equipment as per the specifications including requirements for use in hospital is carried out in simulated field environment.

1.1 **Application:** The General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the contract.

2. STANDARDS

The bidder shall procure, demonstrate, install & commission medical equipment for entire departments of said medical college/s in accordance with the requirement of the client as per Specifications mentioned in bid document. Detailed compliance with technical data sheet and catalogue to be submitted along with the bid in hard copy & soft copy in a pen drive or CD**. The quality assurance for low cost item must be undertaken by the bidder himself , with a warranty cover of at least one year. The bidder shall furnish, at the time of delivery of equipment, the documents as called for in the Check List (Annexure – 13): Manufacturer's Authorization (if quoted by bidder other than manufacturer) as per Annexure 5.** Quality Standard Certification (USFDA/CE issued by notified body/BIS) in accordance with technical specification of the specific equipment in this bid document. These quality certificates of the offered makes and models should be attached in technical bid documents. Bidder can offer TWO alternate makes & Models of an equipment matching with technical specification in all respect.

Before the equipment are procured and the orders are placed, the supplier shall get specifications, make & model of the equipment and approved from the specification committee. No change or deviation in the broad specifications will be permitted in the schedule of requirements. The bidder will submit authorization certificate of the respective equipment to quote, execute the agreement , supply and provide the maintenance against this order.

The supplier shall provide OEM warranty for each medical equipment procured, installed & Commissioned under this contract. The minimum warranty period shall be 3 years.
End of life (EOL) Product-Bidder must quote for the model with latest hardware and versions and make sure that no quoted equipment including hardware/software should come to an end of life within next five years from date of handing over to the Medical college & spare supports for 10 years. The bidder must submit a certificate from the respective company on their letter head in support of Non-EOL of the equipment. No compliance of this would result the rejection of the bid.
The goods supplied under this contract shall conform to the standards prescribed in the Technical Specifications mentioned in section V.

3. USE OF CONTRACT DOCUMENTS AND INFORMATION; INSPECTION AND AUDIT BY THE PURCHASER

3.1 The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only as far as may be necessary for purposes of such performance.

3.2 The Supplier shall not, without the Purchaser's prior written consent, make use of any document except for purposes of performing the Contract.

3.3 Any document, other than the Contract itself, enumerated in GCC Sub-Clause 3.1 shall remain the property of the Purchaser and shall be returned (all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so required by the Purchaser.

3.4 The Supplier shall permit the Purchaser to inspect the Supplier's accounts and records relating to the performance of the Contract and to have them audited by auditors appointed by the Purchaser, if so required.

4. PATENT RIGHTS

The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the goods or any part thereof in India.

5. PERFORMANCE SECURITY

5.1 The supplier shall furnish performance security to the purchaser for an amount equal to **10%** of the value of purchase order within **15days** from the date of issue of Notification of Award by the Purchaser.

5.2 The proceeds of the performance security shall be payable to the Purchaser as compensation for any loss resulting from the supplier's failure to complete its obligations under the contract.

5.3 The performance security denominate in Indian Rupees shall be in the form of Bank Guarantee issued by a Scheduled/Nationalized Bank or demand draft. The performance security should be valid for the period beyond one hundred eighty (180) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty/ shelf-Life Duration obligations

5.4 The performance security will be discharged by the Purchaser and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations.

6. INSPECTION AND TESTS

6.1 The Purchaser or his representative shall have the right to inspect and test the goods as per prescribed test schedules for their conformity to the specifications. Where the Purchaser decides to conduct such tests on the premises of the supplier or its subcontractor(s), all reasonable facilities and assistance like Testing instruments and other test gadgets including access to drawings and production data shall be furnished to the inspectors at no charge to the purchaser. The supply will be accepted only after quality assurance tests are carried out by the Purchaser as per prescribed schedule and material passing the test successfully.

6.2 Should any inspected or tested goods fail to conform to the specifications the purchaser may reject them and the supplier shall either replace the rejected goods or make all alterations necessary to meet Specification requirements free of cost to the purchaser.

6.3 Notwithstanding the pre-supply tests and inspections prescribed in GCC Clause 6.1 & 6.2 above, the items /goods and accessories (if any) on receipt in the Purchaser's premises will also be tested during actual but before "take over" and if any equipment/ items /goods or part thereof is found defective, the same shall be replaced free of all cost to the purchaser as laid down in GCC Clause 6.4 below.

6.4 If any goods/ material or any part thereof, before it is taken over under GCC Clause 6.5, is found defective or fails to fulfill the requirements of the contract, the inspector shall give the Supplier notice setting forth details of such defects or failure and the supplier shall make the defective item good, or alter the same to make it comply with the requirements of the contract forthwith and in any case within a period not exceeding three months of the initial report. These

replacements shall be made by the supplier free of all charges at site. Should it fail to do so within this time, the purchaser reserves the discretion to reject and replace at the cost of the supplier the whole or any portion of items/ goods as the case may be, which is defective or fails to fulfill the requirements of the contract. The cost of any such replacement made by the purchaser shall be deducted from the amount payable to the supplier.

6.5 When the performance tests called for have been successfully carried out, the inspector / ultimate consignee will forthwith issue a Taking over Certificate. The inspector /ultimate consignee shall not delay the issue of any "taking Over Certificate" contemplated by this clause on account of minor defects in the items /goods which do not materially affect the commercial / actual/intended use thereof provided that the supplier shall undertake to make good the same in a time period not exceeding two months. The Taking Over Certificate shall be issued by the ultimate consignee within six weeks of successful completion of tests. In this case, a Consignee Receipt Certificate issued by the consignee as per the Format given in Section VI shall be equivalent to "Taking Over Certificate", issuance of which shall certify receipt of goods in safe and sound condition. However, they shall not discharge the supplier of their warranty/ Shelf life obligation. The Consignee Receipt Certificate in respect of last consignment against the Contract will be equivalent to "Taking Over Certificate".

6.6 Nothing in GCC Clause 6 shall in any way release the Supplier from any warranty or other obligations under this contract.

7. PACKING

7.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt, and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

7.2 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements, if any, specified in SCC and in any subsequent instructions ordered by the purchaser.

7.3 Packing Instruction: The supplier will be required to mark separate packages for each consignee. Each package will be marked on three sides with proper paint/indelible ink, the following:

(i). Purchaser:
(ii). Contract No.
(iii). Supplier Name
(iv). Packing List reference Number

8. DELIVERY AND DOCUMENTS

8.1 Upon or before delivery of the Goods, the Supplier shall notify the Purchaser in writing and deliver the following documents to the Purchaser:

(i) One originals and three copies of the contractor's invoice, showing Purchaser, the Contract number, Goods' description, quantity, unit price, and total amount. Invoices must be signed in original and stamped or sealed with the company stamp/seal;

(ii) Three copies of delivery note, railway consignment note, road consignment note, truck or air waybill, or multi-modal transport document showing Purchaser as Bihar Medical Services and Infrastructure Corporation Limited *[enter correct name of Purchaser for excise purposes]* and delivery through to final destination as stated in the Contract;

(iii) Copy of the Insurance Certificate, showing the Purchaser as the beneficiary;

(iv) Three copies of the packing list identifying contents of each package;

(v) One original of the manufacturer's or Supplier's Warranty certificate covering all items supplied should be submitted along with the installation certificate. Warranty starts from the date it is successfully installed and warranty certificates should mention clearly date of installation and from that date warranty is for a period of 3 years.

(vi) Original copy of the Certificate of Inspection furnished to Supplier by the nominated inspection agency if any.

The above certificate shall be received by the Purchaser upon arrival Warranty and installation certificate alone upon installation.

Note: *In the event that the documents presented by the Supplier are not in accordance with the Contract, then payment will be made against issue of the 'Consignee Receipt Certificate', to be issued in accordance with GCC Clause 6 above and after installation verification by BMSICL. The exact method of installation verification will be decided by Tender Inviting Authority.*

8.2 The actual delivery schedule will be given in Schedule of Requirement and / Notification of Award/ supply order. The delivery of the goods and documents shall be completed within 45 days from the date of issue of supply order.

8.3 All Technical assistance for installation, commissioning and monitoring of the equipment shall be provided by the Supplier at no extra cost during laboratory evaluation, validation/ type approval and field trial, if any.

8.4 The delivery period should include supply of items at the consignee place and there after successfully installation, demonstration of equipment at consignee place wherever required it should also include trial, run and commissioning.

9. TRAINING

9.1 Bidder shall demonstrate and provide training on use and proper application of equipment to the consignees persons at Govt. Medical College Purnea.

10.1 The supplier may be required to provide any or all of the following services:

(a) Performance or supervision of on-site assembly and/or start-up of the supplied Goods;
(b) Furnishing of tools required for assembly and/or maintenance of supplied Goods;
(c) Performance of supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties provided that this service shall not relieve the supplier of any warranty obligations under this contract.
(d) Furnish detailed operations and maintenance manual for each appropriate unit of supplied goods.

11.1 The supplier shall be required to provide a list of the following material and notifications pertaining to spare parts manufactured or distributed by the supplier of spares including cost and quantity considered for arriving at the price of spares.

Such spare parts as the purchaser may elect to purchase from the supplier provided that such purchase shall not relieve the supplier of any warranty obligation under the contract.

In the event of termination of production of the spare parts, the supplier shall:

give advance notification to the purchaser pending termination (not less than 2 years), in sufficient time to enable the purchaser to procure life time spare; and

Following such advance intimation of termination, furnish at no cost to the purchaser, the blueprints, drawings and specifications of spare parts, if and when requested.

12. INSURANCE

12.1 The Goods supplied under the Contract shall be insured in an amount equal to 110% of the EXW value of the Goods from "warehouse to warehouse" on "all risks" basis including war risks and strikes.

13. TRANSPORTATION

Where the Supplier is required under the Contact to transport the Goods to a specified place of destination, defined in Consignee list, transport to such place of destination, including insurance and storage, as shall be specified in the Contract, shall be arranged by the Supplier, and related costs shall be included in the Contract Price.

14. WARRANTY/ SHELF LIFE

14.1 The supplier shall warrant that the goods to be supplied shall be new and free from all defects and faults in materials used, workmanship and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards for materials of the type ordered and shall perform in full conformity with the specifications and drawings. The supplier shall be responsible for any defect that may develop under the conditions provided by the contract and under proper use, arising from faulty material, design or workmanship such as corrosion of the equipment, inadequate quantity of material to meet equipment requirements, inadequate contact protection, deficiencies in circuit design and/or otherwise and shall remedy such defects at his own cost when called upon to do so by the Purchaser who shall state in writing in what respect the stores are faulty. This warranty shall survive inspection or payment for / and acceptance of goods, but shall expire (except in respect of complaints notified prior to such date) three years after the goods have been taken over under GCC Clause 6.5 above.

14.2 This warranty shall remain valid for three years after the goods or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract.

14.3 If it becomes necessary for the Supplier to replace or renew any defective portion(s) of the equipment under this clause, the provisions of the GCC Clause 14.1 shall apply to the portion(s) of the equipment so replaced or renewed or until the end of the above-mentioned period of three years, whichever may be later. If any defect is not remedied

by the supplier within a reasonable time, the Purchaser may proceed to get the defects remedied from other supplier etc., at the supplier's risk and expenses, but without prejudice to any other rights which the purchaser may have against the supplier in respect of such defects.

14.4 Replacement under warranty clause shall be made by the supplier free of all charges at site including freight, insurance and other incidental charges.

14.5 A. No conditional warranty will be acceptable.

B. Warranty as well as Comprehensive Maintenance contract will be inclusive of all Accessories and Turnkey work if any and it will also cover the following wherever applicable: -

(i). Any kind of motor.
(ii). Plastic & Glass Parts against any manufacturing defects.
(iii). All kind of sensors.
(iv). All kind of coils, probes and transducers.
(v). Printers and imagers including laser and thermal printers with all parts.
(vi). Air-conditioners

C. Replacement and repair will be undertaken for the defective goods.

D. Proper marking has to be made for all spares for identification like printing of installation and repair dates.

14.6 In case of any claim arising out of this warranty, the Purchaser/Consignee shall promptly notify the same in writing and /e- mail to the supplier.

14.7 Upon receipt of such notice, the supplier shall, within 72 hours on a 24(hrs) X 7 (days) X 365 (days) basis respond to take action to repair or replace the defective goods or parts thereof, free of cost, at the ultimate destination. The supplier shall take over the replaced parts/goods after providing their replacements and no claim, whatsoever shall lie on the purchaser for such replaced parts/goods thereafter. The penalty clause for non-rectification will be applicable as per tender conditions, mentioned under ITB clause 28.3 (e) (ii) under Comprehensive Annual maintenance contract. It may include but not limited to forfeiting of performance security & taking legal proceeding deemed fit as per applicable Indian Law.

14.8 The Purchaser/Consignee reserve the rights to enter into Annual Maintenance Contract / Comprehensive Maintenance Contract between Consignee and the Supplier for the period as mentioned in TE document.

14.9 The supplier along with its Indian Agent and the CMC provider shall ensure continued supply of the spare parts for the machines and equipment supplied by them to the purchaser for 10 years from the date of installation and handing over.

14.10 The Supplier along with its Indian Agent and the CMC Provider shall always accord most favoured client status to the Purchaser vis-à-vis it's other Clients/Purchasers of its equipment/machines/goods etc. and shall always give the most competitive price for its machines /equipment supplied to the Purchaser/Consignee.

15. PAYMENT TERMS

15.1 The method and conditions of payment to be made to the supplier under the contract may

15.2 be specified in the Special Conditions of Contract &/Notification of Award.

15.3 The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by documents submitted pursuant to GCC Clause 8, and upon fulfillment of other obligations stipulated in the Contract.

15.4 Payments shall be made promptly by the Purchaser, but in no case later than sixty (60) days after submission of an invoice or claim by the Supplier.

*[**Hint**: The actual payment conditions for new products or procurements having installation and CMC/AMC services may be decided on case to case basis and incorporated in special conditions of the contract if required]*

15.5 No payment will be made for goods rejected at the site on testing

15.6 Payment for goods shall be made in Indian Rupees as follows:

a) No advance payment is payable.

b) 50% payment will be made against supply of items at the respective sites and after submission of satisfactory inspection report from the consignee and 40 % payment will be made against certification from the consignee in the format provided in schedule VI and after verification of installation / supply by purchaser (BMSICL, Patna.) or its nominated agency/person.

c) The Balance 10% payment will be released after confirmation of submitted performance bank guarantee.

16. PRICES

16.1 Prices charged by the supplier for goods delivered and services performed under the contract shall not be higher than the prices quoted by the Supplier in his Bid.

16.2 In the case of revision of Statutory Levies/Taxes during the finalization period of tender, the Purchaser reserves the right to ask for reduction in the prices.

a) Prices once fixed will remain valid during the schedule delivery period. In case of Increase and decrease of Taxes and other statutory duties the affect in price will be decided by BMSICL. The decision of Tender Inviting Authority will be final for the same.

b) Any increase in taxes and other statutory duties/levies from the date of submission of bid till the end of the delivery period will be paid extra however. Any increase in the taxes and other statutory duties / levis after the expiry of the delivery date shall be to the supplier's account. However benefit or any decrease in the taxes/duties shall be passed on to the purchaser by the supplier, after the expiry of the delivery date shall be to the suppliers's account. However benefit or any decrease in the taxes/duties shall be passed on to the purchaser by the supplier.

17. CHANGE ORDERS

17.1 The purchaser may, at any time, by a written order given to a supplier, make changes within the general scope of the contract in any one or more of the following:

(a) drawings, designs or specifications, where Goods to be supplied under the contract are to be specifically manufactured for the Purchaser;

(b) the method of transportation or packing;

(c) the place of delivery; or

(d) the services to be provided by the supplier.

17.2 If any such change causes an increase or decrease in the cost of, or the time required for the execution of the contract an equitable adjustment shall be made in the contract price or delivery schedule, or both, and the contract shall accordingly be amended. Any proposal by the supplier for adjustment under this clause must be made within thirty days from the date of the receipt of the change in order.

18. SUBCONTRACTS

The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this contract if not already specified in his bid. Such notification, in his original bid or later shall not relieve the supplier from any liability or obligation under the Contract.

19. DELAYS IN THE SUPPLIER'S PERFORMANCE

19.1 Delivery of the Goods and performance of the services shall be made by the Supplier in accordance with the time schedule specified by the purchaser in its purchase order. In case the supply is not completed in the stipulated delivery period, as indicated in the Purchase Order, purchaser reserves the right either to short close/cancel this purchase order and/or recover liquidated damage charges. The cancellation/short closing of the order shall be at the risk and responsibility of the supplier and purchaser reserves the right to purchase balance unsupplied item at the risk and cost of the defaulting vendors.

19.2 Delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to any or all of the following sanctions: forfeiture of its performance security, imposition of liquidated damages and/or termination of the contract for default.

19.3 If at any time during the performance of the contract, the supplier encounters condition impending timely delivery of certain goods (except low-cost equipment) and performance of service, the Supplier shall promptly notify to the Purchaser in writing the fact of the delay, it's likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the period for performance of the contract (by not more than 20 weeks) subject to furnishing of additional performance security by the supplier @ 5% of the total value of the Purchase Order.

*[**Hint:** Each case of delivery extension shall have to be examined a fresh vis-à-vis the prevailing market prices]*

19.4 If supplier fails to perform its contractual obligations, pursuant to GCC Clause 19.3 above, the purchaser may consider debarring the firm for the period of 1-5 years for participation in future invitation of bids. The period of debar, as stated above, shall be at the sole discretion of the Purchaser.

20. LIQUIDATED DAMAGES

20.1 The date of delivery of the goods stipulated in the acceptance of the tender should be deemed to be the essence of the contract and delivery must be completed no later than the dates specified therein. Extension will not be given except in exceptional circumstances. Should, however, deliveries be made after expiry of the contracted delivery period, without prior concurrence of the purchaser and be accepted by the consignee, such delivery will not deprive the purchaser of his right to recover liquidated damage under GCC Clause 20.2 below.

20.2 Should the supplier fails to deliver the store or any consignment thereof within the period prescribed for delivery, the purchaser shall be entitled to recover 0.5 % of the value of the delayed supply for each week of delay or part thereof. In the case of package supply where the delayed portion of the supply materially hampers installation and commissioning of the systems, L/D charges shall be levied as above on the total value of the concerned package of the Purchase Order. Quantum of liquidated damages assessed and levied by the purchaser shall be final and not challengeable by the supplier. However, when supply is made within 21 days of QA clearance in the extended delivery period, the consignee may accept the stores and in such cases the LD shall be levied up to the date of QA clearance.

21. FORCE MAJEURE

21.1 If, at any time, during the continuance of this contract, the performance in whole or in part by either party of any obligation under this contract is prevented or delayed by reasons of any war or hostility, acts of the public enemy, civil commotion, sabotage , fires, floods, explosions, epidemics, quarantine restrictions, strikes, lockouts or act of God (hereinafter referred to as events) provided notice of happenings of any such eventuality is given by either party to the other within 21 days from the date of occurrence thereof, neither party shall by reason of such event be entitled to terminate this contract nor shall either party have any claim for damages against other in respect of such non-performance or delay in performance, and deliveries under the contract shall be resumed as soon as practicable after such an event come to an end or cease to exist, and the decision of the Purchaser as to whether the deliveries have been so resumed or not shall be final and conclusive. Further that if the performance in whole or part of any obligation under this contract is prevented or delayed by reasons of any such event for a period exceeding 60 days, either party may, at its option, terminate the contract.

21.2 Provided, also that if the contract is terminated under this clause, the Purchaser shall be at liberty to take over from the Supplier at a price to be fixed by the purchaser, which shall be final, all unused, undamaged and acceptable materials, bought out components and stores in course of manufacture which may be in possession of the Supplier at the time of such termination or such portion thereof as the purchaser may deem fit, except such materials, bought out components and stores as the Supplier may with the concurrence of the purchaser elect to retain.

22. TERMINATION FOR DEFAULT

22.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default, sent to the supplier, terminate this contract in whole or in part

a) If the supplier fails to deliver any or all of the goods within the time period(s) specified in the contract, or any extension thereof granted by the purchaser pursuant to GCC Clause19;

b) if the supplier fails to perform any other obligation(s) under the Contract; and

c) if the supplier, in either of the above circumstances, does not remedy his failure within a period of 15 days (or such longer period as the purchaser may authorize in writing) after receipt of the default notice from the purchaser.

d) If the Supplier, in the judgment of the Purchaser, has engaged in corrupt and fraudulent practices in competing for executing the Contract, pursuant to ITB Clause 2.

22.2 In the event the purchaser terminates the contract in whole or in part pursuant to GCC Clause22.1. the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods similar to those undelivered and the supplier shall be liable to the Purchaser for any excess cost for such similar goods. However, the supplier shall continue the performance of the contract to the extent not terminated.

22.3 In the event, any sums found due to the Purchaser / Government under or by virtue of the fulfillment of contractual obligations, these shall be recoverable from the Supplier and his / its properties, movable and immovable, under the provisions of the Revenue Recovery Act, for the time being in force as tough as they are arrears of land revenue or in any manner and within such time as the Purchaser / Government may deem fit. Any sum of money due and payable to the Supplier from Government / Purchaser may be adjusted against sum of money due to the Supplier under any other contract.

23. TERMINATION FOR INSOLVENCY

The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, without compensation to the supplier. If the supplier becomes bankrupt or otherwise insolvent as declared by the competent court provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

24. TERMINATION FOR CONVENIENCE

24.1 The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

24.2 The Goods that are complete and ready for shipment within thirty (30) days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:

(a) to have any portion completed and delivered at the Contract terms and prices; and/or.

(b) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Services and for materials and parts previously procured by the Supplier.

25. SETTLEMENT OF DISPUTES

25.1 If any dispute or difference of any kind whatsoever shall arise between the Purchaser and the Supplier in connection with or arising out of the Contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.

25.2 If the parties even after 30 days fail to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, with respect to such disputes or differences arising out of the terms and conditions of the contract In accordance with the procedure prescribed under Bihar Public Works Contracts Disputed Arbitration Tribunal Act 2008.

25.3 The arbitration shall be in accordance with the procedure prescribed under the Bihar Public Works Contracts Disputed Arbitration Tribunal Act 2008.

25.4 Notwithstanding any reference to arbitration herein,

(a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
(b) the Purchaser shall pay the Supplier any monies due the Supplier.

25.5 The contract shall be governed by and interpreted in accordance with the laws of India from the time being in force. All disputes arising out of this tender will be subject to jurisdiction of courts of law in Patna

26. LIMITATION OF LIABILITY

26.1 Except in cases of criminal negligence or willful misconduct, and in the case of infringement pursuant to GCC Clause 4,

(a) the Supplier shall not be liable to the Purchaser, whether in contract, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser and

(b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective items/goods

27. GOVERNING LANGUAGE

27.1 The Contract shall be written in English language. All correspondence and other documents pertaining to the Contract that are exchanged by the parties shall be written in the Hindi / English language.

28. APPLICABLE LAW

28.1 The Contract shall be interpreted in accordance with the laws of Union of India.

29. NOTICES

29.1 Any notice given by one party to the other pursuant to this Contract shall be sent to the other party in writing or by cable, telex, or facsimile and confirmed in writing to the other party's address.

29.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later

30. Taxes and Duties

30.1 The Supplier shall be entirely responsible for all taxes, duties, octroy, road permits, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.

SECTION III- SPECIAL CONDITIONS OF CONTRACT

SPECIAL CONDITIONS OF CONTRACT

1. The special conditions of contract shall supplement the '**Instructions to the Bidders**' as contained in Section I & "**General Conditions of the Contract**" as contained in Section II and wherever there is a conflict, the provisions herein shall prevail over those in Section I and Section II.

2. No Exemption from payment of EMD is permitted except in case of NSIC (National Small Industries Corporation) registered small scale industries. No exemption in tender fee will be allowed in any case.

3. The tender will be processed through E –tender mode only, So tender should be submitted in following manner:-

   Tender fee & EMD fee. – Both Online & physical form
   Technical Bid – Both Online & physical form.

   Price Bid – Online Only.

   Bidders are requested not to submit the hard copy Financial Bid along with the physical form of Tender Fee & EMD fee, Technical bid. In case the hard copy of financial bid is submitted in physical form, the tender shall be straightway rejected. Also, uploading of the price bid in technical bid will result in rejection of the tender.

4. If asked by the purchaser, then the tenderer must do demonstration of equipment. In the demonstration tenderer has to show the clause-by-clause compliance of technical specification. Demonstration of quoted items will be at Govt. Medical College Purnea.

5. L1 shall be decided on the basis of the overall lowest rate to be arrived at by summing up of all the individual rates quoted for each main item as detailed in the BOQ/Price bid/Financial bid. It is pertinent to mention here that the individual rate of any main item shall be computed on the basis of unit price of the said item (equipment) along with the cost of consumables/reagents required for conducting a total number of one thousand tests by the said item (equipment).

6. The rate quoted by the bidder for the consumables/reagents shall be valid for the period of 03 (Three) years.

Section IV- SCHEDULE OF REQUIREMENTS

SCHEDULE OF REQUIREMENTS

Note: The successful firm agrees to the proposal of BMSICL (*The purchaser*) that such equipment for which rate contract already exits with BMSICL and is lower than the quoted rate of successful firm (*The supplier*) on the date of issue of Letter of Intent (*LOI*) to Successful firm L1 bidder, will not be supplied by the Firm and such equipment will be procured by BMSICL.

Sr No.	Departments	NAME OF THE ITEMS	Quantity	Type (Main Item/Low cost)
1	ANAESTHESIOLOGY	Patient Examination Table	4	Main item
2	ANAESTHESIOLOGY	Blood Pressure Instrument (Non-invasive)	4	Low cost
3	ANAESTHESIOLOGY	Height Measurement Scale	4	Low cost
4	ANAESTHESIOLOGY	Weighing machine	4	Low cost
5	ANAESTHESIOLOGY	Anesthesia machine and accessories like laryngoscope, all size endotracheal tubes, nasal and oral airways, Magill's forceps,	One set for EACH operation table	Main item
6	ANAESTHESIOLOGY	Multipara monitor- with P, NIBP, ECG facility,SpO2 Etco2, IBP	9	Main item
7	ANAESTHESIOLOGY	Electrical Suction apparatus	9	Main item
8	ANAESTHESIOLOGY	LMA / PLMA of all sizes	9	Low cost
9	ANAESTHESIOLOGY	Defibrillator	9	Main item
10	ANAESTHESIOLOGY	Fibre optic bronchoscope	1	Main item
11	ANAESTHESIOLOGY	USG machine (Desirable)	1	Main item
12	ANAESTHESIOLOGY	PNS (Desirable)	1	Main item
13	ANAESTHESIOLOGY	Resuscitation equipment (CPR)- Ambu bag with face mask	1set	Low cost
14	ANAESTHESIOLOGY	a) Adult Manikin	1	Main item
15	ANAESTHESIOLOGY	b) Pediatric Manikin	1	Main item
16	ANAESTHESIOLOGY	Oxygen therapy unit	5	Main item
17	ANAESTHESIOLOGY	Blood Pressure Monitor (digital/Electronic)	5	Low cost
18	ANAESTHESIOLOGY	Suction Machine	5	Main item
19	ANAESTHESIOLOGY	Provision for resuscitation equipment and CPR Algorithms	1	Main item
20	ANAESTHESIOLOGY	Airway Crash Cart	9	Main item
21	ANAESTHESIOLOGY	ABG machine (Optional)	1	Main item
22	ANAESTHESIOLOGY	Side lab for emergency investigations (Optional)	1	Main item
23	ANAESTHESIOLOGY	TOF monitor (PNS) (Optional)	1	Main item
24	ANAESTHESIOLOGY	Radio frequency ablation machine	1	Main item
25	ANAESTHESIOLOGY	Fluoroscopy machine (C-ARM)(may be shared with other department)	1	Main item
26	ANAESTHESIOLOGY	Ultrasound machine	1	Main item
27	ANAESTHESIOLOGY	Patients controlled analgesia system (portable)	1	Main item
28	ANAESTHESIOLOGY	Intrathecal infusion pumps	9	Main item
29	ANAESTHESIOLOGY	Syringe Pump	18	Main item
30	ANAESTHESIOLOGY	OT Table fluoroscopy compatible	1	Main item
31	ANAESTHESIOLOGY	Nerve locator	1	Main item

32	ANAESTHESIOLOGY	Anodyne Machine (Optional) (For diabetic foot care)	1	Main item
33	ANAESTHESIOLOGY	Transcutaneous Electric Nerve Stimulating Machine (optional)	1	Main item
34	ANAESTHESIOLOGY	Anesthetic machine with resuscitation equipment	1	Main item
35	ANAESTHESIOLOGY	Monitors for vital signs (NIBP, P.R, ECG, SPO2, Temperature, R.R)	1	Main item
36	ANAESTHESIOLOGY	Nerve stimulator	1	Main item
	ANATOMY	**ANATOMY (General)**		
37	ANATOMY	Drill machine	3	Main item
38	ANATOMY	Hand saw, preferably metal	2	Main item
39	ANATOMY	Band saw for sectioning body and limbs	2	Main item
40	ANATOMY	Brain knife	2	Low cost
41	ANATOMY	Mortuary cooler with arrangement to keep 6 body	2	Main item
42	ANATOMY	Storage tank to hold 10 cadavers, static/movable, durable tank with input and output facility with lid	3	Main item
43	ANATOMY	Plastic tanks for storing soft and dissected parts	4	Low cost
44	ANATOMY	Dissecting instruments for cadaveric dissection	10 sets	Main item
45	ANATOMY	Meat cutting machine for thin body sections (trans and vertical) for gross anatomy sectional study	2	Low cost
46	ANATOMY	Embalming Machine	1	Main item
	ANATOMY	**Histology Laboratory**		
47	ANATOMY	Microscopes, Monocular	60	Main item
48	ANATOMY	*Dissection microscope*	2	Main item
49	ANATOMY	Microtomes, rotary	2	Main item
50	ANATOMY	Microtomes, Sledge, large cutting	1	Main item
51	ANATOMY	Paraffin Embedding bath	2	Main item
52	ANATOMY	Hot plate for Flattening Section	2	Low cost
	ANATOMY	**Museum**		
53	ANATOMY	Articulated Skeleton set	2	Low cost
54	ANATOMY	Bones (Dis-articulated) Set	10	Low cost
	PHYSIOLOGY	**Hematology Laboratory**		
55	PHYSIOLOGY	Binocular Microscopes	69	Main item
56	PHYSIOLOGY	Demonstration eye piece	3	Low cost
57	PHYSIOLOGY	Double demonstration eye piece	3	Low cost
58	PHYSIOLOGY	Stage incubator	1	Low cost
59	PHYSIOLOGY	Westergren's pipette for E.S.R. on stand(with space pipette)	20	Low cost

60	PHYSIOLOGY	Wintrobe's pipette for ESR and PCV with stand	20	Low cost
61	PHYSIOLOGY	Hemoglobin-meter Sahli's or Hellige (with spaces)	5	Low cost
62	PHYSIOLOGY	Hemocytometer	5	Low cost
	PHYSIOLOGY	**Clinical Physiology**		
63	PHYSIOLOGY	Tuning fork time marker 100/sec	2	Low cost
64	PHYSIOLOGY	Electrodes	2	Low cost
65	PHYSIOLOGY	Spirit lamps	2	Low cost
66	PHYSIOLOGY	Marey's tambour	2	Low cost
67	PHYSIOLOGY	Perimeter Pristely Smith S/LP.984 B & T	10	Low cost
68	PHYSIOLOGY	Digital BP Instrument	10	Low cost
69	PHYSIOLOGY	Stethoscopes	10	Low cost
70	PHYSIOLOGY	Stethoscopes, demonstration with multiple ear pieces	10	Low cost
71	PHYSIOLOGY	Polygraphs	1	Main item
72	PHYSIOLOGY	Venous pressure apparatus	1	Low cost
73	PHYSIOLOGY	Spirometer, ordinary	5	Main item
74	PHYSIOLOGY	Van Slyke's apparatus manometric	1	Low cost
75	PHYSIOLOGY	Sherrington starling kymograph (Electrically Driven)	2	Low cost
76	PHYSIOLOGY	Low voltage unit for tapping 2 and 4 volts for stimulation	1	Low cost
77	PHYSIOLOGY	Electromagnetic time marker	2	Low cost
78	PHYSIOLOGY	Douglas bag, complete	1	Low cost
79	PHYSIOLOGY	Basal metabolism apparatus	1	Low cost
80	PHYSIOLOGY	Mosso's Ergograph	10	Low cost
81	PHYSIOLOGY	Clinical thermometer	10	Low cost
82	PHYSIOLOGY	Compass aesthesiometer	10	Low cost
83	PHYSIOLOGY	Thermo-aesthesiometer	10	Low cost
84	PHYSIOLOGY	Algometer	10	Low cost
85	PHYSIOLOGY	Apparatus for passive movement	1	Low cost
86	PHYSIOLOGY	Knee hammer	10	Low cost
87	PHYSIOLOGY	Stethograph	10	Low cost
88	PHYSIOLOGY	Bicycle Ergometer	1	Main item
89	PHYSIOLOGY	Olfactometer	1	Low cost
90	PHYSIOLOGY	Ophthalmoscope	5	Main item
91	PHYSIOLOGY	Schematic eye	1	Low cost
92	PHYSIOLOGY	Phakoscope	1	Low cost
93	PHYSIOLOGY	Perimeter with charts (Lister's)	2	Low cost
94	PHYSIOLOGY	Color perception lantern Edridge green	1	Low cost
95	PHYSIOLOGY	Maddox rod	1	Low cost
96	PHYSIOLOGY	Newtons color wheel	1	Low cost
97	PHYSIOLOGY	Tuning fork to test hearing 32-10000 cps(sets-100, 256, 512 hz)	30	Low cost
98	PHYSIOLOGY	Dynamometer	1	Low cost
99	PHYSIOLOGY	Otoscope	1	Main item
100	PHYSIOLOGY	Stop watch	5	Low cost
101	PHYSIOLOGY	Multi channel Physiograph, 3 channels, complete with accessories	2	Main item

102	PHYSIOLOGY	Student physiograph, (single channel) with accessories	2	Main item
103	PHYSIOLOGY	Centrifuge, high speed with tachometer	1	Main item
104	PHYSIOLOGY	Colorimeter, photoelectric	1	Low cost
105	PHYSIOLOGY	Myograph stand	2	Low cost
106	PHYSIOLOGY	pH meter electric	1	Low cost
107	PHYSIOLOGY	Electronic stimulator	1	Low cost
108	PHYSIOLOGY	Thermometers, balances, microslides and glassware	5	Low cost
109	PHYSIOLOGY	Digital Physiograph	1	Main item
110	PHYSIOLOGY	ECG Machine	2	Main item
	BIOCHEMISTRY	**BIOCHEMISTRY**		
111	BIOCHEMISTRY	Analytical Balance : upto 200g/1gm increment	1	Main item
112	BIOCHEMISTRY	Urinometers calibrated (Mercury based instruments to be replaced with other alternatives)	5	Low cost
113	BIOCHEMISTRY	Hot air oven (More than 200 litres)	3	Main item
114	BIOCHEMISTRY	Digital Colorimeters	3	Low cost
115	BIOCHEMISTRY	Binocular Microscopes (Student)	15	Main item
116	BIOCHEMISTRY	Glucometer with strips (For POCT)	5	Low cost
117	BIOCHEMISTRY	Thermometer 0 – 250 degree Celsius	5	Low cost
118	BIOCHEMISTRY	Semi autoanalyser	3	Main item
119	BIOCHEMISTRY	Water baths	3	Main item
120	BIOCHEMISTRY	Constant temperature water bath Tank Capacity: (Temperature range 5 to 80 degree Celsius)	2	Main item
121	BIOCHEMISTRY	Complete Chromatographic Unit for paper & TLC	2 each	Main item
122	BIOCHEMISTRY	Centrifuge $\geq$ 8 tubes	4	Main item
123	BIOCHEMISTRY	Digital pH meters	5	Low cost
124	BIOCHEMISTRY	Fixed volume pipettes -- 1ml,0.5ml,0.2ml,0.1ml and 0.02ml	10 (of each volume)	Low cost
125	BIOCHEMISTRY	Bottle dispensers	10	Low cost
126	BIOCHEMISTRY	Variable and fixed volume micro auto pipettes	2 (of each volume)	Low cost
127	BIOCHEMISTRY	Complete Electrophoresis apparatus with power supply (Paper, PAGE, agarose)	1 each	Main item
128	BIOCHEMISTRY	Densitometer with computer	2	Main item
129	BIOCHEMISTRY	Vortex mixers	2	Low cost
130	BIOCHEMISTRY	Incubator 37oC	2	Main item
131	BIOCHEMISTRY	Fume cupboard	1	Main item
132	BIOCHEMISTRY	Digital Analytical Balance	2	Main item
133	BIOCHEMISTRY	Balance Micro	1	Main item
134	BIOCHEMISTRY	Spectrophotometer	1	Main item
135	BIOCHEMISTRY	Vacutainer Tube	1	Low cost
136	BIOCHEMISTRY	ELISA (Demonstration)	1	Main item
137	BIOCHEMISTRY	PCR Machine	1	Main item
138	BIOCHEMISTRY	ABG Machine	1	Main item
139	BIOCHEMISTRY	Auto Analyzer (Either in the institution or elsewhere on a visit)	1	Main item
	PATHOLOGY	**Histopathology/Cytopathology**		

140	PATHOLOGY	LED Binocular Microscope with Scanner, 10X, 40X, & Oil immersion lenses and inbuilt Battery backup power source (For Students)	60	Main item
	PATHOLOGY	**Hematology For Students**		
141	PATHOLOGY	Stopwatch reading at 1/5 second	5	Low cost
142	PATHOLOGY	Haemo-cytometers with redand white pipettes	5	Low cost
143	PATHOLOGY	Staining jars for slides	10	Low cost
	PATHOLOGY	**Clinical pathology for student**		
144	PATHOLOGY	Urinometers calibrated (Mercury based instruments to be replaced with other alternatives)	2	Low cost
145	PATHOLOGY	Centrifuge tubes graduated round bottem(4", 6", 8")	200 each	Low cost
146	PATHOLOGY	Graduated cylinders for various capicities ranging from 100cc to 1000cc	10	Low cost
147	PATHOLOGY	Pipettes of various sizes with disposal tips. (10-100, 100-1000, 1-50)	4 Each	Low cost
148	PATHOLOGY	Reagent bottles	50	Low cost
149	PATHOLOGY	Dropping Bottles	10	Low cost
	PATHOLOGY	**Morbid Histology & Morbid Anatomy**		
150	PATHOLOGY	Manual Rotary Microtome	1	Main item
151	PATHOLOGY	Automated Rotary Microtome	1	Main item
152	PATHOLOGY	Cryostat	1	Main item
153	PATHOLOGY	Hot plate	2	Main item
154	PATHOLOGY	Paraffin embedding bath	1	Main item
155	PATHOLOGY	Heated Paraffin Embedding Module	1	Main item
156	PATHOLOGY	Cold Plate for Modular Tissue Embedding System	1	Main item
157	PATHOLOGY	Automated Tissue Processor – Histokinette	1	Main item
158	PATHOLOGY	Autoclave	2	Main item
159	PATHOLOGY	Ultrapure water solutions - Distilled water plant	1	Main item
160	PATHOLOGY	Water bath	2	Main item
161	PATHOLOGY	Centrifuge machine	5	Main item
162	PATHOLOGY	Fully Automated high throughput Multi-Stainer Workstation	1	Main item
163	PATHOLOGY	Fully Automated Embedding System (Heated embedding module & cold plate)	1	Main item
164	PATHOLOGY	Fully Automated Flexible Coverslipping Workstation	1	Main item
165	PATHOLOGY	Standalone paraffin dispensing module cold plate holding more than 100 cassettes	1	Main item
166	PATHOLOGY	Stand alone cold plate	1	Low cost
167	PATHOLOGY	Coplin jars	12	Low cost
168	PATHOLOGY	Water bath (Tissue Floatation)	2	Main item

169	PATHOLOGY	Single Pan Digital Balance, Chemical	2	Main item
170	PATHOLOGY	Balance, chemical with weights	2	Main item
	PATHOLOGY	**Microscopes**		
171	PATHOLOGY	**For Diagnostic & Research Work** - Trinocular head Microscope with Bright field, Dark field, Fluorescent & Polarizing Facility, high end Apochromatic lenses with Camera with HDMI Multi output camera Minimum 5MP with Projector & Ultra HD TV > 52 inches & Screen including Software Capable of Brightfield& Immunofluorescence Photography with connectivity to projector & LED TV (At least 55 inches Ultra HD)	1	Main item
172	PATHOLOGY	**Penta Head Microscope with High end Optics** with HDMI Multi output Photographic camera (> 5 MP) including Software	1	Main item
173	PATHOLOGY	Deca Head Microscope with High end Optics with HDMI Multi output Photographic camera (> 5 MP) including Software	1	Main item
174	PATHOLOGY	**Grossing Station** - Stainless steel, with Control panel, air filtration system, Track mounted adjustable computer arm with articulation, LED lights that are color and intensity, Dedicated USB ports for camera control and data transfer adjustable, Integrated pathology camera system, Instrument Set (High quality) Height Adjustable Stainless Steel Chairs With Split AC of appropriate capacity.	1	Main item
175	PATHOLOGY	Fully Automated Immuno-histo-chemistry Setup with Continuous supply of Important Antibodies, Lymphoma Panel etc.	1	Main item
	PATHOLOGY	**Hematology Lab:**		
176	PATHOLOGY	Five part Fully Automated Cell Counter	1	Main item
177	PATHOLOGY	Three Part Fully Automated Cell Counter	1	Main item
178	PATHOLOGY	Coagulometer (Fully automated)	1	Main item
	PHARMACOLOGY	**I. Clinical Pharmacy**		
179	PHARMACOLOGY	Special Drug Delivery systems like Metered Dose Inhalers, Spacers, Rotahalers, Nasal sprays, Transdermal patches, Insulin infusion pumps, Insulin pen etc.	10 sets	Low cost
180	PHARMACOLOGY	Samples of dosage formulations of various types including rational and irrational FDC, Essential medicines	10 sets	Low cost
181	PHARMACOLOGY	Manikins for demonstration of intravenous injection, enema, local, intramuscular injections, intracardiac	10 sets	Main item

		injection and other routes of drug administration		
	MICROBIOLOGY	**For Students**		
182	MICROBIOLOGY	Microscopes	100	Main item
183	MICROBIOLOGY	Culture Plates/ Petri Dishes	200	Low cost
184	MICROBIOLOGY	Glassware including Pasteur Pipetts	100	Low cost
185	MICROBIOLOGY	Facility for Heating Slides	100	Low cost
	MICROBIOLOGY	**General**		
186	MICROBIOLOGY	Anaerobic apparatus	2	Low cost
187	MICROBIOLOGY	Autoclave	2	Main item
188	MICROBIOLOGY	Balance Electronic Digital	1	Main item
189	MICROBIOLOGY	Biosafety Cabinet Type - 2A	3	Main item
190	MICROBIOLOGY	BOD Incubator	1	Main item
191	MICROBIOLOGY	Centrifuge	3	Main item
192	MICROBIOLOGY	CO2 Incubator/Candle Jar	2	Main item
193	MICROBIOLOGY	Deep Freeze -20° C & Deep Freezer	1 each	Main item
194	MICROBIOLOGY	Distilled water Plant	1	Main item
195	MICROBIOLOGY	Elisa Reader	1	Main item
196	MICROBIOLOGY	Elisa Washer	1	Main item
197	MICROBIOLOGY	Hot Air Oven	2	Main item
198	MICROBIOLOGY	Incubator	2	Main item
199	MICROBIOLOGY	Lab Refrigerator (minimum 400 litres)	3	Main item
200	MICROBIOLOGY	Laminar flow	1	Main item
201	MICROBIOLOGY	Micrometer eye pieces	1	Low cost
202	MICROBIOLOGY	Micrometer stage	1	Low cost
203	MICROBIOLOGY	Binocular Microscope - Faculty	2	Main item
204	MICROBIOLOGY	Microscope with universal condenser containing oil immersion, Bright field, Phase Contrast & Dark ground	1	Main item
205	MICROBIOLOGY	pH determination apparatus	2	Low cost
206	MICROBIOLOGY	Serum inspissators	1	Low cost
207	MICROBIOLOGY	VDRL shaker	1	Low cost
208	MICROBIOLOGY	Vortex Mixer/ blood Mixer	2	Low cost
209	MICROBIOLOGY	Water bath with variable temperature	2	Main item
210	MICROBIOLOGY	Oil-immersion lens for student microscope	25	Main item
211	MICROBIOLOGY	Automated Blood Culture System	1	Main item
212	MICROBIOLOGY	Colony Counter	1	Low cost
	MICROBIOLOGY	**Consumables for Culture and Serological Diagnosis**		
213	MICROBIOLOGY	Antibiotic Discs for Antibiotic susceptibility testing	250	Low cost
214	MICROBIOLOGY	Antibiotic zone scale	5	Low cost
215	MICROBIOLOGY	Antisera-Salmonella	5	Low cost
216	MICROBIOLOGY	Antisera-Shigelladysenteriae	5	Low cost
217	MICROBIOLOGY	Antisera-Shigellaflexnari	5	Low cost
218	MICROBIOLOGY	Antisera-Shiegellasonnie	5	Low cost

219	MICROBIOLOGY	Antisera-Vibrio cholerae	5	Low cost
220	MICROBIOLOGY	ATCC strain - Enterococcus fecalis 29213	2	Low cost
221	MICROBIOLOGY	ATCC strain - E.coli 25922	2	Low cost
222	MICROBIOLOGY	ATCC strain - E.coli 35218	2	Low cost
223	MICROBIOLOGY	ATCC strain - Pseudomonas aeruginosa 27853	2	Low cost
224	MICROBIOLOGY	ATCC strain - Staphylococcus aureus 25923	2	Low cost
225	MICROBIOLOGY	ATCC strain - Staphylococcus aureus 29213	2	Low cost
226	MICROBIOLOGY	Bottles for blood culture	100 (Aerbic), 100 (Anerbic)	Low cost
227	MICROBIOLOGY	Micropipettes – Multi channel & Single channel	3 (Each volume)	Low cost
228	MICROBIOLOGY	Digital Thermometers of different temperatures	2	Low cost
	MICROBIOLOGY	**BSL2 Lab**		
229	MICROBIOLOGY	-80 degree deep freezer with UPS	1	Main item
230	MICROBIOLOGY	Real-time PCR machine calibrated for the fluorophore dyes with UPS	1	Main item
231	MICROBIOLOGY	Refrigerated Microcentrifuge	1	Main item
232	MICROBIOLOGY	PPE	500	Low cost
233	MICROBIOLOGY	VTM	2500	Low cost
234	MICROBIOLOGY	All other consumbles and kits as required for Virology studes.	5 set	Low cost
	OBSTETRICS & GYNAECOLOGY	**OBSTETRICS & GYNAECOLOGY**		
235	OBSTETRICS & GYNAECOLOGY	Colposcope	1	Main item
236	OBSTETRICS & GYNAECOLOGY	Cryo/electro cautery apparatus	1	Main item
237	OBSTETRICS & GYNAECOLOGY	Simple fetal Doppler	3	Main item
238	OBSTETRICS & GYNAECOLOGY	NST machine	2	Main item
239	OBSTETRICS & GYNAECOLOGY	Ultrasound machine	1	Main item
240	OBSTETRICS & GYNAECOLOGY	Weighing machine	3	Low cost
241	OBSTETRICS & GYNAECOLOGY	Height scale	2	Low cost
242	OBSTETRICS & GYNAECOLOGY	View box	2	Low cost
243	OBSTETRICS & GYNAECOLOGY	Suction machine	4	Main item
244	OBSTETRICS & GYNAECOLOGY	Diagnostic laparoscopy set and "Operating laparoscopy " With Insuffator including hand instruments & all accessories	2	Main item
245	OBSTETRICS & GYNAECOLOGY	Cystoscope & Resectoscope	1	Main item
246	OBSTETRICS & GYNAECOLOGY	Electrocautery	2	Main item

247	OBSTETRICS & GYNAECOLOGY	Digital/ Electronic B.P. Apparatus	6	Low cost
248	OBSTETRICS & GYNAECOLOGY	Weighing machine	2	Low cost
249	OBSTETRICS & GYNAECOLOGY	CTG machine	3	Main item
250	OBSTETRICS & GYNAECOLOGY	Portable ultrasound	1	Main item
251	OBSTETRICS & GYNAECOLOGY	High End suction machine	6	Main item
252	OBSTETRICS & GYNAECOLOGY	Oxytoxin infusion pumps	2	Main item
253	OBSTETRICS & GYNAECOLOGY	Multichannel monitors	2	Main item
254	OBSTETRICS & GYNAECOLOGY	Vacuum Extractor and suction machine	1	Main item
255	OBSTETRICS & GYNAECOLOGY	Infusion Pump	1	Main item
256	OBSTETRICS & GYNAECOLOGY	Height scale	1	Low cost
257	OBSTETRICS & GYNAECOLOGY	Glucometer	1	Low cost
258	OBSTETRICS & GYNAECOLOGY	Ultrasound	1	Main item
259	OBSTETRICS & GYNAECOLOGY	X ray View box	1	Low cost
260	OBSTETRICS & GYNAECOLOGY	Ultrasound machine with Doppler/Vaginal probe/facilities for Interventional procedure	1	Main item
261	OBSTETRICS & GYNAECOLOGY	Multichannel Monitor with ECG, BP, HR, Pulse oximeter for high risk pregnant patients (eclampsia, heart diseases etc.)	2	Main item
262	OBSTETRICS & GYNAECOLOGY	Fetal Monitor for Antepartum Surveillance	1	Main item
263	OBSTETRICS & GYNAECOLOGY	D & C Set with MTP Set	5	Main item
264	OBSTETRICS & GYNAECOLOGY	Caessarian Set	5	Main item
265	OBSTETRICS & GYNAECOLOGY	Hysterectomy Set (Abdominal & Vaginal)	5	Main item
	FORENSIC MEDICINE & TOXICOLOGY	**FORENSIC MEDICINE & TOXICOLOGY**		
266	FORENSIC MEDICINE & TOXICOLOGY	Anthropometric Set including	2	Low cost
267	FORENSIC MEDICINE & TOXICOLOGY	A) Folding Metal Rod Upto 7 Ft	1	Low cost
268	FORENSIC MEDICINE & TOXICOLOGY	B) Osteometric Board	1	Low cost
269	FORENSIC MEDICINE & TOXICOLOGY	C) Craniometer	1	Low cost
270	FORENSIC MEDICINE & TOXICOLOGY	D) Mandibulometer	1	Low cost
271	FORENSIC MEDICINE & TOXICOLOGY	E) Goniometer	1	Low cost
272	FORENSIC MEDICINE & TOXICOLOGY	F) Vernier Calipers	2	Low cost

273	FORENSIC MEDICINE & TOXICOLOGY	G) Equipment for Reporting Height	1	Low cost
274	FORENSIC MEDICINE & TOXICOLOGY	H) Weighing Machine Dial Type Human	1	Low cost
275	FORENSIC MEDICINE & TOXICOLOGY	Digital pH Meter	1	Low cost
276	FORENSIC MEDICINE & TOXICOLOGY	Digital Spectrophotometer	1	Main item
277	FORENSIC MEDICINE & TOXICOLOGY	Chemical Balance	1	Main item
278	FORENSIC MEDICINE & TOXICOLOGY	Distillation Plant	1	Main item
279	FORENSIC MEDICINE & TOXICOLOGY	Refrigerator	1	Low cost
280	FORENSIC MEDICINE & TOXICOLOGY	Centrifuge	1	Main item
281	FORENSIC MEDICINE & TOXICOLOGY	Slide Warming Table	1	Low cost
282	FORENSIC MEDICINE & TOXICOLOGY	Hot Plate	1	Low cost
283	FORENSIC MEDICINE & TOXICOLOGY	Glass Cutting Pencil	2	Low cost
284	FORENSIC MEDICINE & TOXICOLOGY	Spectroscopic Lens With Adjustable Slit	2	Low cost
285	FORENSIC MEDICINE & TOXICOLOGY	Dissection Set Complete	2	Low cost
286	FORENSIC MEDICINE & TOXICOLOGY	Digital BP Instrument	2	Low cost
287	FORENSIC MEDICINE & TOXICOLOGY	Stethoscope	2	Low cost
	FORENSIC MEDICINE & TOXICOLOGY	**Medico legal work**		
288	FORENSIC MEDICINE & TOXICOLOGY	Cold Storage For Dead Bodies	2	Main item
289	FORENSIC MEDICINE & TOXICOLOGY	Weighing Machine For Dead Bodies	1	Main item
290	FORENSIC MEDICINE & TOXICOLOGY	Autopsy Tables	2	Main item
291	FORENSIC MEDICINE & TOXICOLOGY	Autopsy Saw With Accessories	2	Main item
292	FORENSIC MEDICINE & TOXICOLOGY	Weighing Machine For Organs	2	Main item
293	FORENSIC MEDICINE & TOXICOLOGY	Weighing Machine For Fetus	2	Main item
294	FORENSIC MEDICINE & TOXICOLOGY	Dissection Set Complete	4	Low cost
295	FORENSIC MEDICINE & TOXICOLOGY	Brain Knife	2	Low cost
296	FORENSIC MEDICINE & TOXICOLOGY	Hack Saw	2	Low cost
297	FORENSIC MEDICINE & TOXICOLOGY	Rib Shear Left & Right	1 Each	Low cost
298	FORENSIC MEDICINE & TOXICOLOGY	Measuring Tape(Steel Tape Roll)	2	Low cost
299	FORENSIC MEDICINE & TOXICOLOGY	Magnifying Lens	2	Low cost
300	FORENSIC MEDICINE & TOXICOLOGY	X- Ray View Box (4 In 1)	1	Low cost

301	FORENSIC MEDICINE & TOXICOLOGY	Tooth Extractor Left & Right	1	Low cost
302	FORENSIC MEDICINE & TOXICOLOGY	Hand Set Heat Sealer	1	Low cost
303	FORENSIC MEDICINE & TOXICOLOGY	Instrument Trolley	2	Low cost
304	FORENSIC MEDICINE & TOXICOLOGY	Rectal Thermometer	1	Low cost
305	FORENSIC MEDICINE & TOXICOLOGY	Portable X-ray Machine (Can be shared with Radiology Department)	1	Main item
306	COMMUNITY MEDICINE	Hydrometres, milk	2	Low cost
307	COMMUNITY MEDICINE	Incubator, electric (can be procured from Microbiology)	1	Main item
308	COMMUNITY MEDICINE	Balance for weighing food stuff(Capacity 2 Kg).	2	Low cost
309	COMMUNITY MEDICINE	Centrifuge clinical	1	Main item
310	COMMUNITY MEDICINE	Weighing machine adult	6	Low cost
311	COMMUNITY MEDICINE	Baby weighing machine	2	Main item
312	COMMUNITY MEDICINE	Salters Baby weighing machine	2	Main item
313	COMMUNITY MEDICINE	Harpender Calipers (for skinfold thickness)	2	Low cost
314	COMMUNITY MEDICINE	Height measuring stand	3	Low cost
315	COMMUNITY MEDICINE	Refrigerator 9 cu.ft.	3 + Additional one each at RHTC and UHTC	Low cost
316	COMMUNITY MEDICINE	Ice Lined Refrigerator (I.L.R.) (at Health Centre)	1	Main item
317	COMMUNITY MEDICINE	Chloroscope	10	Low cost
318	COMMUNITY MEDICINE	Horrock's Apparatus	3	Low cost
319	COMMUNITY MEDICINE	MUAC tapes	10	Low cost
320	COMMUNITY MEDICINE	Haemoglobinometer	5	Low cost
321	COMMUNITY MEDICINE	BP Apparatus (Digital)	10	Low cost
322	COMMUNITY MEDICINE	Stethoscope	10	Low cost
323	COMMUNITY MEDICINE	Sound level meter	3	Low cost
324	COMMUNITY MEDICINE	Water sampling bottle from any depth	1	Low cost
325	COMMUNITY MEDICINE	Needle Shredder	3	Low cost
326	COMMUNITY MEDICINE	Vaccine carrier	5	Low cost
327	COMMUNITY MEDICINE	Craft water testing kit	1	Low cost
328	COMMUNITY MEDICINE	Treatment kits as per national health programs	3 each	Low cost
329	COMMUNITY MEDICINE	Iodine testing kit	10	Low cost
330	COMMUNITY MEDICINE	Glucometer	10	Low cost
331	COMMUNITY MEDICINE	Mosquito catching kit	1	Low cost
332	COMMUNITY MEDICINE	Clinical Thermometer	10	Low cost
333	COMMUNITY MEDICINE	First Aid Kit	1	Low cost
334	COMMUNITY MEDICINE	Otoscope	1	Main item
335	COMMUNITY MEDICINE	Ophthalmoscope	1	Main item
	SKILL LABS	**SKILL LABS**		

336	SKILL LABS	Trainer Simulators/models/ mannequins for:	1	Low cost
337	SKILL LABS	First aid, Bandaging, spliinting	1	Main Item
338	SKILL LABS	Basic Life Support (BLS), CPR (cardio Pulmonary Resuscitation)mannequin	1	Main Item
339	SKILL LABS	Various Types of injections- Subcutaneous, Intra-muscular, Intra-venous	1	Main Item
340	SKILL LABS	Urine Catheter insertion	1	Main Item
341	SKILL LABS	Skin & Fascia Suturing	1	Main Item
342	SKILL LABS	Breast examination model/mannequin	1	Main Item
343	SKILL LABS	Gynecological examination mode/mannequin including ICUD (Intra Uterine Contraceptive Device)Training model	1	Main Item
344	SKILL LABS	Obstetrics mannequins including obstetric examination, conduct and management of vaginal delivery.	1	Main Item
345	SKILL LABS	Neonatial & Pediatric resuscitaion mannequins	1	Main Item
346	SKILL LABS	Whole body mannequins	1	Main Item
347	SKILL LABS	Trauma mannequin	1	Main Item
	RADIO-DIAGNOSIS	**General**		
348	RADIO-DIAGNOSIS	Statix X ray Unit >=600 mA	1	Main item
349	RADIO-DIAGNOSIS	CR system	1	Main item
350	RADIO-DIAGNOSIS	DR System 1000mA	1	Main item
351	RADIO-DIAGNOSIS	Fluoroscopy with DR 800mA	1	Main item
352	RADIO-DIAGNOSIS	Mobile X-ray units 100 mA	2	Main item
353	RADIO-DIAGNOSIS	Ultrasonography equipment with color Doppler	2	Main item
	EMERGENCY MEDICINE	**EMERGENCY MEDICINE**		
354	EMERGENCY MEDICINE	ICU beds (should have facilities for propping up the patient along with railings and sheels)	6	Main Item
355	EMERGENCY MEDICINE	Emergency trolley-cum-beds (Should have facilitics for propping up the patient along with railings and wheels)	24	Main Item
356	EMERGENCY MEDICINE	Cardiac monitors (with EtCO2 facility)	6	Main Item
357	EMERGENCY MEDICINE	Cardiac Monitors: (With Accessories for neonates, infants, children and adolescents)		Main Item
358	EMERGENCY MEDICINE	Pulse Oximeter with probes for all age groups including neonates, infants, children and adolesents	2	Main Item
359	EMERGENCY MEDICINE	Defibrillator with external pacer (with additional attachments/ paddles for pediatric age group)	2	Main Item
360	EMERGENCY MEDICINE	ECG machine (12 Channel)	2	Main Item
361	EMERGENCY MEDICINE	ICU ventilators (shuould be universal ventilators with facility to ventilate neonates and children also)	3	Main Item

362	EMERGENCY MEDICINE	Transport ventilators (with facility of deliver tidal volume as low as 50 mL and have pressure control mode)	2	Main Item
363	EMERGENCY MEDICINE	HHHFNC (heated humidified high-flow nasal cannula) with circuits and interfaces for all age groups (neonates, infants, children, adolescents and adults)	2	Main Item
364	EMERGENCY MEDICINE	Trolley/ Fowler beds	2	Main Item
365	EMERGENCY MEDICINE	Infusion pumps	36	Main Item
366	EMERGENCY MEDICINE	Portable ultrasound with multiple probes including ECHO probe (indluding probes for pediatric/ infant evaluation)	1	Main Item
367	EMERGENCY MEDICINE	Portable X-ray unit	1	Main Item
368	EMERGENCY MEDICINE	Resuscitation cart (Crash Cart)	2	Main Item
369	EMERGENCY MEDICINE	Artificial self-inflating bag (Ambu bag) (adult, pediatric, infant and neonatal)	2	Low cost
370	EMERGENCY MEDICINE	Laryngoscopw with all sized blades (straight and vurved) including sizes for neonates, infants and children	4 sets	Low cost
371	EMERGENCY MEDICINE	Point -of care laboratory for quantiative estimatin of cardiac enzymes, ABG and electrolytes	1	Main Item
372	EMERGENCY MEDICINE	Oxygen cylinders	4	Low cost
373	EMERGENCY MEDICINE	Portable suction mahcines	4	Main Item
374	EMERGENCY MEDICINE	Ultrasonic nebulizers	4	Main Item
375	EMERGENCY MEDICINE	Spine boards with slings and scotch tape of all sizes	2	Low cost
376	EMERGENCY MEDICINE	Splints for all types of fractures	3 set	Low cost
377	EMERGENCY MEDICINE	Basic equipment for suturing and wound care	3 set	Low cost
378	EMERGENCY MEDICINE	Glucometer	2	Low cost
379	EMERGENCY MEDICINE	ACLS, BLS and Airways mannequins (child and adult)	01 each	Main Item
380	EMERGENCY MEDICINE	Suturing mannequin	1	Main Item
381	EMERGENCY MEDICINE	Infant radiant warmer with bassinet	2	Main Item
382	EMERGENCY MEDICINE	Blood and Fluid warmer	1	Main Item
383	EMERGENCY MEDICINE	Electric Warming blanket	1	Main Item
384	EMERGENCY MEDICINE	Rapid autoclave machine	1	Main Item
385	EMERGENCY MEDICINE	Labor cot	1	Main Item
	GENERAL MEDICINE	**GENERAL MEDICINE**		
386	GENERAL MEDICINE	B.P. Apparatus (Mercury containing instruments should be replaced by digital or other suitable alternatives)	10	Low cost
387	GENERAL MEDICINE	Ophthalmoscope	5	Main Item
388	GENERAL MEDICINE	X-ray viewing box	5	Low cost
389	GENERAL MEDICINE	Flexible Video End viewing Oesophago-Gastroduodenoscope (optional)	1	Main Item
390	GENERAL MEDICINE	Flexible Video Colonoscope (optional)	1	Main Item
391	GENERAL MEDICINE	Proctoscope	2	Main Item
392	GENERAL MEDICINE	Fiber optic bronchoscope (May be shared with TB&CD)	1	Main Item

393	GENERAL MEDICINE	Spirometer (Ordinary)	4	Low cost
394	GENERAL MEDICINE	Bed side cardiac monitors		Main Item
395	GENERAL MEDICINE	Central Cardiac monitor Console	1	Main Item
396	GENERAL MEDICINE	Defibrillator	1 per unit + 1 each for MICU,ICCU and 1 for casualty ward	Main Item
397	GENERAL MEDICINE	Non-invasive B.P. Apparatus	5	Low cost
398	GENERAL MEDICINE	Pulse oximeter	5	Main Item
399	GENERAL MEDICINE	Equipment for Cardiac pacing	1	Main Item
400	GENERAL MEDICINE	ECG machine	4	Main Item
401	GENERAL MEDICINE	Echocardiography machine	1 portable unit	Main Item
402	GENERAL MEDICINE	Tread mill test machine	1	Main Item
403	GENERAL MEDICINE	Hemodialysis machine	3	Main Item
404	GENERAL MEDICINE	RO Plant for haemodialysis	1	Main Item
405	GENERAL MEDICINE	Arterial blood gas analyzer	1	Main Item
406	GENERAL MEDICINE	Glucometer	5	Low cost
407	GENERAL MEDICINE	EMG and nerve conduction velocity machine	1	Main Item
408	GENERAL MEDICINE	Invasive Mechanical Ventilator		Main Item
409	GENERAL MEDICINE	Non Invasive mechanical ventilator (Maybe shared with TB and CD)		Main Item
410	GENERAL MEDICINE	Nebulizer	12	Low cost
411	GENERAL MEDICINE	Portable Suction Machine	5	Main Item
412	GENERAL MEDICINE	Infusion pumps	10	Main Item
413	GENERAL MEDICINE	Weighing scale	4	Low cost
414	GENERAL MEDICINE	Upper GI endoscope (Optional)	1	Main Item
415	GENERAL MEDICINE	Sigmoidoscope (optional)	1	Main Item
416	GENERAL MEDICINE	Colonoscope (optional)	1	Main Item
417	GENERAL MEDICINE	*Haemocytometer	2	Main Item
418	GENERAL MEDICINE	*Light Microscope	1	Main Item
419	GENERAL MEDICINE	*Haemoglobinometer	4	Low cost
420	GENERAL MEDICINE	*Urinometer	2	Low cost
	PAEDIATRICS	**PAEDIATRICS**		
421	PAEDIATRICS	Oxygen Cylinder	6	Low cost
422	PAEDIATRICS	Oxygen regulator	6	Low cost
423	PAEDIATRICS	Oxygen Humidifiers	6	Low cost
424	PAEDIATRICS	Oxygen head-box (of each size)	8	Low cost
425	PAEDIATRICS	Nebulizers	4	Low cost
426	PAEDIATRICS	Digital Weighing machine(for New born)	2	Main item
427		Digital Weighing machine	4	Low cost
428	PAEDIATRICS	Infantometer	3	Low cost
429	PAEDIATRICS	Stadiometer	4	Low cost
430	PAEDIATRICS	Digital Thermometer-Oral *(Mercury based instruments to be replaced with other alternatives), Low reading thermometer	20	Low cost

431	PAEDIATRICS	BP measuring Instrument with various cuff sizes - Digital (Only Non mercury alternatives to be used)	6	Low cost
432	PAEDIATRICS	X-ray view box	6	Low cost
433	PAEDIATRICS	Glucometer	4	Low cost
434	PAEDIATRICS	Pulse Oximeter- Table TOP	4	Main Item
435	PAEDIATRICS	CPAP machine*	2	Main Item
436	PAEDIATRICS	Mechanical Ventilator (neonatal and child)	2	Main Item
437	PAEDIATRICS	Multipara monitor- with P, NIBP, ECG facility,SpO2	10	Main Item
438	PAEDIATRICS	Radiant Warmer	10	Main Item
439	PAEDIATRICS	Ophthalmoscope	2	Main Item
440	PAEDIATRICS	Suction machine	2	Main Item
441	PAEDIATRICS	Fumigation Machine	1	Low cost
442	PAEDIATRICS	Infusion Pump(Volumetric)	10	Main Item
443	PAEDIATRICS	Syring Pump	20	Main Item
444	PAEDIATRICS	Ambu bag	3+3	Low cost
445	PAEDIATRICS	Portable Xray 100mA	1	Main Item
446	PAEDIATRICS	Transport Incubator	1	Main Item
447	PAEDIATRICS	LED phototherapy unit	8	Main Item
	PSYCHIATRY	**PSYCHIATRY**		
448	PSYCHIATRY	Electro Convulsive Therapy (E.C.T.) machine preferably with ECG & EEG monitoring	1	Main Item
449	PSYCHIATRY	ECT machine without monitor	1	Main Item
450	PSYCHIATRY	Lithium analyzer (may be shared with clinical pathology department)	1	Main Item
451	PSYCHIATRY	Thin layer chromatography (for drug dependence treatment) (may be shared with other departments or in Central Research lab)	1	Main Item
452	PSYCHIATRY	Alcohol breath analyzer	1	Low cost
453	PSYCHIATRY	a) Projective tests	2	Low cost
454	PSYCHIATRY	b) Intelligence Tests	2	Low cost
455	PSYCHIATRY	c) Personality Tests	2	Low cost
456	PSYCHIATRY	d) Neuro psychological tests	2	Low cost
457	PSYCHIATRY	ventilating circuit, monitors, ECG/ETCO2 and paO2, noninvasive BP monitoring equipment for resuscitation, intubation, ventilation and suction.	1 set	Low cost
	DERMATOLOGY, VENEROLOGY & LEPROSY	**DERMATOLOGY, VENEROLOGY & LEPROSY**		
458	DERMATOLOGY, VENEROLOGY & LEPROSY	Hyfrecator/ Electrosurgical instrument	1	Main Item
459	DERMATOLOGY, VENEROLOGY & LEPROSY	Cryotherapy with liquid Nitrogen	1	Main Item
460	DERMATOLOGY, VENEROLOGY & LEPROSY	Iontophoresis machine	1	Main Item
461	DERMATOLOGY, VENEROLOGY & LEPROSY	(a) Light microscope	2	Main Item
462	DERMATOLOGY, VENEROLOGY & LEPROSY	(b) Giemsa stain	1	Low cost

463	DERMATOLOGY, VENEROLOGY & LEPROSY	(c) KOH smear	1	Low cost
464	DERMATOLOGY, VENEROLOGY & LEPROSY	Wood's lamp	2	Low cost
	GENERAL SURGERY	**GENERAL SURGERY**		
465	GENERAL SURGERY	Digital/Electronic BP Apparatus, Weighing Machine, Stethoscope, Height scale	2 Sets	Low cost
466	GENERAL SURGERY	X ray viewing box 4 in 1	4	Low cost
467	GENERAL SURGERY	Proctoscope	2	Main item
468	GENERAL SURGERY	Operation Theatre Table	One set for EACH operation Theatre	Main Item
469	GENERAL SURGERY	Operation Theatre Ceiling light	One set for EACH operation Theatre	Main Item
470	GENERAL SURGERY	Pedestal lights	2	Main Item
471	GENERAL SURGERY	Electro-surgical cautery unit	One set for EACH operation Theatre	Main Item
472	GENERAL SURGERY	Pulse oximeter (Table Top)	2	Main Item
473	GENERAL SURGERY	Anesthesia Equipment	One set for EACH operation Theatre	Main Item
474	GENERAL SURGERY	Autoclave	2	Main Item
475	GENERAL SURGERY	Digital/Electronic BP Apparatus, Stethoscope	4 each	Low cost
476	GENERAL SURGERY	Weighing Machine, Height scale	4 each	Low cost
477	GENERAL SURGERY	Non invasive Multi Para Monitors	4	Main item
478	GENERAL SURGERY	ECG machines	4	Main item
479	GENERAL SURGERY	Suction machine	7	Main item
480	GENERAL SURGERY	Cystoscope&Resectoscope	1	Main item
481	GENERAL SURGERY	Flexible Video Colonoscope	1	Main item
482	GENERAL SURGERY	Flexible Video Side viewing Gastroduodenoscope for ERCP	1	Main item
483	GENERAL SURGERY	Flexible Video End viewing Oesophago-Gastroduodenoscope	1	Main item
484	GENERAL SURGERY	Flexible Video Sigmoidoscope	1	Main item
485	GENERAL SURGERY	Flexible Video Bronchoscope	1	Main item
486	GENERAL SURGERY	C-arm image intensifier	1	Main item
487	GENERAL SURGERY	Operative ultrasound	1	Main item
488	GENERAL SURGERY	Harmonic Scalpel	1	Main item
	ORTHOPAEDICS	**ORTHOPAEDICS**		
489	ORTHOPAEDICS	Set for Hip Replacement	1	Main item
490	ORTHOPAEDICS	Set for Knee replacement	1	Main item
491	ORTHOPAEDICS	Interlock nailing sets	1	Main item
492	ORTHOPAEDICS	fracture reduction OT table	2	Main item
493	ORTHOPAEDICS	Simple OT tables	1	Main item
494	ORTHOPAEDICS	Pneumatic drill and reamer	1	Main item
495	ORTHOPAEDICS	Electrical drill and reamer set	1	Main item

496	ORTHOPAEDICS	C-Arm (Image intensifier	2	Low cost
497	ORTHOPAEDICS	Portable X-ray Machine	1	Main Item
498	ORTHOPAEDICS	Arthoscope	1	Main Item
499	ORTHOPAEDICS	Physiotherapy and occupational Therapy equipment sets	1	Low cost
500	ORTHOPAEDICS	Electrical Suction apparatus	2	Main Item
	OTORHINOLARYNGOLOGY	**OTORHINOLARYNGOLOGY**		
501	OTORHINOLARYNGOLOGY	Sterilizer	1	Low cost
502	OTORHINOLARYNGOLOGY	Digital /Electronic BP Apparatus	1	Low cost
503	OTORHINOLARYNGOLOGY	Stethoscope	2	Low cost
504	OTORHINOLARYNGOLOGY	Suction apparatus	1	Main Item
505	OTORHINOLARYNGOLOGY	Siegel's speculum	1	Low cost
506	OTORHINOLARYNGOLOGY	Otoscope with halogen bulb, rechargeable battery and Siegle attachment	1	Main Item
507	OTORHINOLARYNGOLOGY	Head Light With LED/Halogen lamp (Battery Operated)	1	Main Item
508	OTORHINOLARYNGOLOGY	Jobson Horne probe	2	Low cost
509	OTORHINOLARYNGOLOGY	The ward side room/emergency treatment room should have a mobile spotlight.	1	Low cost
510	OTORHINOLARYNGOLOGY	Biopod	1	Low cost
	OTORHINOLARYNGOLOGY	**(d) FESS set**		
511	OTORHINOLARYNGOLOGY	Rigid nasal endoscope 0 degree,4 mm and 2.7 mm size	1 each	Main item
512	OTORHINOLARYNGOLOGY	Rigid nasal endoscope 30 degree, 4 mm and 2.7 mm size	1 each	Main item
513	OTORHINOLARYNGOLOGY	Light source and light cable	1	Main item
514	OTORHINOLARYNGOLOGY	Endoscopic Camera with suitable display with recording & archiving facility. (with High Definition Camera)	1	Main item
515	OTORHINOLARYNGOLOGY	Light source	1	Main item
516	OTORHINOLARYNGOLOGY	Light cable	1	Main item
517	OTORHINOLARYNGOLOGY	Bronchoscopes different sizes for different age groups	3	Main item
518	OTORHINOLARYNGOLOGY	Light source and cable	1	Main item
519	OTORHINOLARYNGOLOGY	(d) Nasal endoscopy trolley with 0 degree & 30 degree 4mm endoscope with light source, cable , monitor & camera	**1**	Main item
520	OTORHINOLARYNGOLOGY	Sterilizer	1	Main item
521	OTORHINOLARYNGOLOGY	Operating microscope for major Operation Theatre (with camera attachment & monitor for teaching and recording)	1	Main item
522	OTORHINOLARYNGOLOGY	Electrocautery Unit	1	Main item
523	OTORHINOLARYNGOLOGY	Spot Mobile Light	1	Main item
524	OTORHINOLARYNGOLOGY	Basic OT table	1	Main item
525	OTORHINOLARYNGOLOGY	Operating microscope for minor Operation Theatre	1	Main item
526	OTORHINOLARYNGOLOGY	Puretone audiometer	1	Main item
527	OTORHINOLARYNGOLOGY	Brainstem evoked response audiometer with ASSR	1	Main item

528	OTORHINOLARYNGOLOGY	OAE Impedance audiometer (With sound treated air-conditioned room for audiometry)	1	Main item
529	OTORHINOLARYNGOLOGY	Flexible nasopharyngolaryngoscope	1	Main item
530	OTORHINOLARYNGOLOGY	Electronystagmograph(Optional)	1	Main item
531	OTORHINOLARYNGOLOGY	Brainstem evoked response audiometer	1	Main item
	OPHTHALMOLOGY	**OPHTHALMOLOGY**		
532	OPHTHALMOLOGY	Trial set with trial frame both for adult and children	2	Low cost
533	OPHTHALMOLOGY	Snellen Chart/Snellen drum with or without remote control	3	Low cost
534	OPHTHALMOLOGY	Automated Perimeter	1	Main item
535	OPHTHALMOLOGY	Ophthalmoscope (Direct)	5	Main item
536	OPHTHALMOLOGY	Streak Retinoscope	4	Main item
537	OPHTHALMOLOGY	Indirect Ophthalmoscope	5	Main item
538	OPHTHALMOLOGY	Slit lamp	4	Main item
539	OPHTHALMOLOGY	Applanation tonometer	2	Main item
540	OPHTHALMOLOGY	Keratometer	1	Main item
541	OPHTHALMOLOGY	Gonioscope	2	Main item
542	OPHTHALMOLOGY	Schiotz's tonometer	4	Main item
543	OPHTHALMOLOGY	Operating microscope with TV Unit with camera	1	Main item
544	OPHTHALMOLOGY	Cryo Unit	1	Main item
545	OPHTHALMOLOGY	Operation Theatre Table	2	Main item
546	OPHTHALMOLOGY	Operation Theatre Light	2	Main item
547	OPHTHALMOLOGY	Snellen chart/Snellen drum with or without remote control	1	Low cost
548	OPHTHALMOLOGY	Operation theatres should have resuscitation equipment like Anesthesia machine and accessories like laryngoscope, all size endotracheal tubes, nasal and oral airways, Magill's forceps ,Mechanical ventilator - separate or with anesthesia machine, LMA / PLMA of all sizes, Electrical suction apparatus	1 set each	Main item
	Physical Medicine & Rehabilitation	**Physical Medicine & Rehabilitation**		
549	Physical Medicine & Rehabilitation	Skeleton Traction set	2	Main item
550	Physical Medicine & Rehabilitation	Inter ferential therapy unit	2	Main item
551	Physical Medicine & Rehabilitation	Short Wave Diathermy	2	Main item
552	Physical Medicine & Rehabilitation	Hotpacks & Hydrocollator	2	Low cost
553	Physical Medicine & Rehabilitation	Exercise table	2	Low cost
554	Physical Medicine & Rehabilitation	Static Cycle	2	Low cost
555	Physical Medicine & Rehabilitation	Medicine ball	2	Low cost
556	Physical Medicine & Rehabilitation	Quadricaps exerciser	2	Low cost

557	Physical Medicine & Rehabilitation	Coordination Board	1	Low cost
558	Physical Medicine & Rehabilitation	Handgrip strength measurement Board*	1	Low cost
559	Physical Medicine & Rehabilitation	Kit for Neuro-development assessment	1	Low cost
560	Physical Medicine & Rehabilitation	CBR Manual*	1	Low cost
561	Physical Medicine & Rehabilitation	ADL Kit & hand exerciser	1 set	Low cost
562	Physical Medicine & Rehabilitation	Multi Gym Exerciser	2	Low cost
563	Physical Medicine & Rehabilitation	CPM Machine for knee joint	1	Low cost
564	Physical Medicine & Rehabilitation	CPM Machine for Shoulder joint	1	Low cost
565	Physical Medicine & Rehabilitation	Wall bar(Wall mounting)	1	Low cost
566	Physical Medicine & Rehabilitation	Shoulder wheel(Wall mounted)	1	Low cost
567	Physical Medicine & Rehabilitation	Vertical & Inclined Sanding	1	Low cost
568	Physical Medicine & Rehabilitation	Beads Counting	1	Low cost
569	Physical Medicine & Rehabilitation	Laser	1	Low cost
570	Physical Medicine & Rehabilitation	Wax bath	1	Low cost
571	Physical Medicine & Rehabilitation	Pelvic Traction bed	1	Low cost
572	Physical Medicine & Rehabilitation	Survical Traction bed(Wall mounted)	1	Low cost
573	Physical Medicine & Rehabilitation	Survical Traction bed	1	Low cost
574	Physical Medicine & Rehabilitation	Parallel Bar with mirror	1	Low cost
575	Physical Medicine & Rehabilitation	Staircase up & Down (Wooden)	1 each	Low cost
576	Physical Medicine & Rehabilitation	Suspension Bed with pulley	2	Low cost
577	Physical Medicine & Rehabilitation	Gym Ball (Paediatric & Adult)	1 each	Low cost
578	Physical Medicine & Rehabilitation	Ultrasound Therapy	1	Low cost
579	Physical Medicine & Rehabilitation	TENS E	1	Low cost
580	Physical Medicine & Rehabilitation	Electrical Stimulator	1	Low cost
581	Physical Medicine & Rehabilitation	Infrared Lamp	4	Low cost
582	Physical Medicine & Rehabilitation	self Help devices	2	Low cost
	Dentistry	**DENTISTRY**		
583	Dentistry	DENTAL X-RAY-INTRA ORAL WITH RVG	2	Main Item
584	Dentistry	DENTAL X-RAY –EXTRA ORAL(O.P.G) –DIGITAL	1	Main Item

585	Dentistry	FULLY LOADED DENTAL CHAIR ELECTRICALLY OPERATED with compressor, Scaler, Light cure, Micromotor (Automatic)	2 Sets	Main item
586	Dentistry	Oxygen Cylinder with Set	1	Low cost
587	Dentistry	BP Instrument	1	Low cost
588	Dentistry	Emergency Drugs kit	1	Low cost
589	Dentistry	MINI AUTOCLAVE (VACUUM TYPE)	1	Low cost
590	Dentistry	DENTAL INSTRUMENTS	2 sets	Main item
	Respiratory Medicine	**RESPIRATORY MEDICINE**		
591	Respiratory Medicine	Peak flow meters	4	Low cost
592	Respiratory Medicine	Nebulizer	4	Low cost
593	Respiratory Medicine	Pulse oximeter	6	Main item
594	Respiratory Medicine	Fiber optic Bronchoscope	1	Main item
595	Respiratory Medicine	Rigid Bronchoscope	1	Main item
596	Respiratory Medicine	Spirometer	1	Main item
597	Respiratory Medicine	Digital BP Instrument	4	Low cost
598	Respiratory Medicine	Digital Weighing machine (Adult)	2	Low cost
599	Respiratory Medicine	Ventilator	6	Main item
600	Respiratory Medicine	Height Scale	2	Low cost

Section V- Technical Specification

ANAESTHESIOLOGY DEPARTMENT

Patient examination table

1. Overall Approx. size:187L x 51W x 81H.
2. Adjustable backrest by gas spring system.
3. Two section Foam padded, upholstered top.
4. Provided with three Drawers and three Cabinets.
5. Tray for B.P. Apparatus provided near head rest.
6. Finish: Pretreated & Epoxy Powder Coated.
7. Carrying capacity: Approx. 150 - 180 kg
8 US FDA (510K)/ European CE (Issued by Notified Body) Approved model should be offered.

Anaesthesia machine and accessories like laryngoscope, all size endotracheal tube, nasal and oral airway, Magill's forceps

1. Powder coated structure.
2. Active Anti Hypoxic Electronic device - to ensure no nitrous flow with loss of O2 pressure.
3. Ratio Control - 25-28% mixed ratio between 02 & N2O Gas flow
4. Should have Electronic Flow meter for O2, N2O & Air
5. Should have Electronic display of Gas pressure in the user interface display
6. Cylinder Pressure and operating pressure should be indicated electronically in user interface display.
7. Oxygen Driven Nitrous Supply through Electronically
8. Inner connection of tubing's should be made of alloy metal or PPU tubes
9. Audio Visual alarms should be available for Oxygen Failure warning Device
10. Electronically measured cylinder pressure, quick-release system for docking and release.
11. Electronically/pneumatically controlled technology valve for High precision pressure relief cum non return valve should be available

12. The vaporizer should be electronic/ Manual with an injector. The container of the vaporizer chamber should be minimum 300 ml (10,1 oz.). Refilling of inhalation agent should be possible during running mode. The liquid level in the vaporizer should be displayed both on vaporizer and control display and an alarm should be given when the level becomes too low. The desflurane vaporizer should not require to be warmed up before.
13. Provision to connect two electronic/ manual controlled vapouriser simultaneously.
14. Switching between manual and automated ventilation should be possible. The system shall contain a continuously adjustable pressure relief safety valve settable between 0-70 cm H20. Total system volume should be as low as possible and not exceed 3 liter including absorber.
15. Gas Inlet port for O2 & N2O, pin- index type 1 each & O2,N2O & Air non-interchangable type hose 1 each
16. Direct Central Pipe Line connectivity to Machine.
17. Standard Maggils circuits,all rubber antistatic tested.
18. Alloy metal tray for working / writing table with reading lamp.
19. Castor wheel with Individual breaks. 4 wheels with individual locking brake.
20. Double Oxygen outlet available for circuirs
21. Operating gas pressure available on the user interface
22. 2 - B" type cylinder carrying facility at back side.
23. Circle Absorber shall contain a continuously adjustable pressure relief safety valve settable between 0-80 cm H20. Total system volume should be as low as possible and not exceed 3 liter including absorber.

24-Ventilator Specifications:

- The equipment shall contain functions for volume- and pressure regulated ventilation.
- The ventilator shall contain the functions "Spontaneous Breathing" and "Manual Ventilation".
- The ventilator shall have the following modes: VCV, PCV, PRVC, SIMV
- The ventilator shall have Pressure Support mode with backup functionality
- The ventilator should not contain any moving parts
- The equipment shall handle high- to low flow anaesthesia during both non-rebreathing and partial rebreathing conditions. Switching between different breathing systems shall be a simple operation.
- It shall be possible to regulate the I:E ratio between 4:1 to 1:8
- The equipment shall include an integrated continuous PEEP-function ranging from 0 to at least 30 cm H2O.
- The set PEEP level should be visible on the control display
- The set pressure should be adjustable between 5 - 70 cm H20
- The set tidal volume should be adjustable between 20-1500 ml.
- The breathing frequency should be adjustable between 4-100 breaths/min
- The maximum flow rate should be approximately 200 l/min
- The equipment should provide a fast rise time in Pressure Controlled mode without overshoot.
- The equipment should have an easy accessible timer displaying hours, minutes and seconds.
- The equipment should have tools for performing a lung recruitment maneuver
- The lung recruitment manoeuvre should be automatic
- It should be possible to measure and visualize dynamic compliance breath by breath
- It shall be possible to pause ventilation and fresh gas flow for a defined time period."

25. Should have single/Double absorbent chamber canister. Easily removable for changing. Supplied with all standard accessories including Bains Circuit.
26. Closed circuit system , Sodalime canister, Single/Double Chamber
27. Pediatric Circuit (Jackson Rees)
28. Auxiliary O2 Supply point
29. Mask of Different size (2 each- 1 to 5)
30. Reservoir bag- 3 litre/5 litre/0.5 litre- 2 each
32. US FDA (510K) approve model should be offered.

Multipara Monitor

1. Should be able to monitor 5 lead ECG, SPO2, NIBP, EtCo2, 2 IBP, Respiration rate and Temperature.
2. Should be portable with carrying handle.
3. Should have touch screen TFT display with at least 10 inches or higher with at least 6 waveforms and numeric display simultaneously.
4. Should have Lithium ion battery with 4 hours battery backup.
5. Should have keys for quick access to main functions.
6. Should have adult, pediatric and neonatal modes.
7. Should provide prominent prioritised audio, visual alarms for high, low heart rate, Spo2, RR, low battery, lethal arrhythmia recognition and ST Analysis.
8. Should have separate volume control for beep sound for QRS and alarm sound.
9. Should provide following accessories:
    - Reusable adult 3 lead ECG cable set – 2 nos.
    - Reusable adult and pediatric SPO2 finger probes – 1 each.
    - Adult and pediatric NIBP cuff of different size
10. Should work on 200-240V AC/50Hz with inbuilt rechargeable battery.
11. Model Should by US FDA / CE (Issued by Notified Body) approve product.
12. Electrical safety conforms to standards for electrical safety IEC-60601/IS-13450.

Electrical Suction apparatus

1. Vaccum /LPM : - 700 MM Hg , 50 Litres/Min
2. Pump Type- Double rotary vane type
3. flutter free vacuum control knob,
4. Wide mouthed 2 x 2 LITRE (light weight, unbreakable and clear) with self-sealing bungs and mechanical over flow safety device.
5. Noise (in dBA)- 50 dB
6. Collection container & its cap, suctions tube tips, a vacuum gauge, two sets of moisture & microbial filters and control knob
7. SiliconeTubing:8 mm ID x 2 mtr (PVC), 2x2 lt jar (one set
8. It should be Mobility, portability.
9. Equipment shall operate on 220V-240V, 50 Hz, single phase electric supply.
10. ISO/ BIS approve model should be offered.

Anaesthesia Equipment: Anaesthesia machine Accessories (Mechanical ventilator Separate or with anesthesia machine)

1.The Machine should have centralized display integration and functional integration.

2. The Machine should have a built-in anaesthesia ventilator with Pressure, volume controlled as well as spontaneous modes like SIMV & pressure support modes with loops with electronic PEEP. The machine and ventilator should be from the same manufacturer

3. Should be compact, ergonomic & easy to use with automatic pre-use check for electronic parts.
4. Should have complete integrated anesthesia gas delivery system.
5. It should be electronically controlled with a master switch, pneumatically operated with prioritized alarm system.
6. Should provide with adult and pediatric reusable and autoclavable light weight tubing breathing circuit.
7. Should be able to deliver a tidal volume from 20ml to 1500ml.
8. Should have a battery backup for 60 minutes with low battery alarm and over charge protection.
9. Should have monitoring facility of continuous airway pressure & flow as waveforms, tidal volume, frequency , oxygen concentration and oxygen supply pressure
10. Should have display of at least 7 inches for set parameters
11. Should have automatic self test for the entire system.
12. Anesthesia machine should be with 3 gas supply system (O2, N2O and Air) with pipeline connections and reserve cylinder yokes.

13. Gas cylinder (pin indexed) yokes with sturdy clamping bars for easy handling.
14. One Pin index yoke for connecting cylinder each for O2, N2O through pipeline.
15. Regulator one each for O2 and N2O.. N2O should be activated only with oxygen on flow.
16. Should have pressure gauge for all gas inlets including central lines mounted on the front panel for easy visibility
17. Should have audible alarm for O2 failure
18. N2O supply should cut off if O2 supply fails. (hypoxic guard).
19. Oxygen and Nitrous oxide should be linked either mechanically or pneumatically to ensure a minimum of 25 to 28% oxygen delivery at all times to avoid delivery of hypoxic mixture.
20. Should have dual cascade type flow meter for at least O2 and N2O calibrated in multiple scale and Air in single flow meter
21. The anaesthesia machine should have a master control ON/OFF switch.
22. Provision to mount any two vaporizers with interlocking facility to allow use of only one vaporizer at a time.
23. Isoflurane & Sevoflurane vaporizer of newer generation having specifications equivalent to tech 7 type to be provided.
24. . Non-return cum pressure relief valve when pressure exceeds 70 to 80 cm of H2O.
25. Should have auxiliary common gas outlet for open circuit.
26. Should provide with oxygen flush switch
27. Circle absorber with corrugated reusable breathing circuit for closed circuit system with each unit. It should be autoclavable except the O2 sensor
28. Should be with ventilator selector switch and circle on/off switch.
29. Should have low flow anesthesia technique.
30. Should have a facility to connect to the passive scavenging system and the required tubings to be provided.
31. Should have atleast two universal electrical outlets.
32. Should have a provision for mounting monitors on top of the machine and with drawers.
33. Should have fiber wheels and Foot brakes.
34. Standard bains circuit : 1 no. with each unit.
35. Reservoir bag (2liters): 1 nos. with each machine
36. Connectors for bains circuit: 1 nos with each machine.
37. AMBU bag: 1 no. with each machine.
38. Pressure regulated valve with 5 meter hose and connector (conversion kit) for oxygen should be provided with each machine
39. Should be supplied with driver gas hoses with necessary attachments (colour coded)
40. Should be supplied with necessary attachments to use the breathing circuits viz namely Bains, Jackson-Rees and closed circuit (Single limb circuit)
41. Should work in 220-240Vac 50 Hz input supply.
42. Should be supplied with two Vaporizers.
43. Should supply with 5 kg Soda Lime along with machine.
44. Should have flow triggered assist modes with trigger sensitivity of less than 0.2L/Min
45. Should have dual flow sensing at both inspiratory & expirartory port for better leak compensation and trigger sensitivity
46. Should have auxillary O2 connection
47. US FDA (510K) approve model should be offered.

Multi Parameter Monitor with ETCO2 Monitoring

1. Should have facility for adult, paediatric and neonatal patient monitoring.
2. Should have touch screen TFT display with at least to 15” & Modular based system.
3. The waveforms should be user selectable.
4. Should have 3/5 lead ECG, SPO2, NIBP, Respiration rate , Temperature & 2 IBP.
5. Should be provided Battery backup for minimum two hours.
6. Should have automatic graphic and tabular trending of all monitored parameters as standards.
7. Should have event recall with waveforms, graphical and tabular trends, alarm logs.
8. SpO2 sensor with Plethysmograph & Pulse strength indicator With Variable pitch with change in SpO2.
9. NIBP should have display Systolic, diastolic, mean pressure in large, easy to read display.
10. NIBP should have manual/ stat mode or automatic mode with adjustable time intervals from 2-30 minutes and adjustable alarm limits.

11. Should have Arrhythmia detection.
12. Pacemaker detection function
13. Should have up gradation facility ETCO2 & CO.
14. US FDA / European CE approved model should be offered.
15. Scope of supply must include: Reusable 3-5 LEAD ECG Cable- 02 no. Reusable SpO2 sensor for adult and paediatric- 02 no. Each Reusable Rectal/ Esophageal temperature probe_ 02 no. NIBP House - 02 no. NIBP cuff – Adult -02 no. paediatric -02 no. & Neonatal -02 no. IABP kit 10 nos. each. .
16. Power Supply 220VAC +/- 10 %, 50Hz fitted with Indian plug.
17. ETCO2 & CO module should be compatible to all monitors.
18. Wall mount monitor stand should be supply with each Monitor.

Defibrillator

1. Biphasic, Manual and AED with voice prompt, compact and light weight.
2. Energy selection 5J to 200J in steps.
3. Momentary energy selection access on front panel.
4. Should have adult and paediatric paddles integrated on same handle.
5. Monitor should display selected and delivered energy.
6. Charging time maximum 5 secs for 200J.
7. Should have battery backup for 50 discharges of 200J.
8. Should have ECG inputs through paddles or 5 lead cables.
9. Should have display for selected ECG input source
10. Should have an inbuilt thermal recorder.
11. Should supply 2 bottles of jelly, 12 roll of thermal paper.
12. Should supply three pairs of AED pads and the prices of AED Pads should be quoted separately in financial bid.
13. Should work on 220VAC +/-10%, 50 Hz.
14. US FDA 510 (k) Approved model should be offered.

Fibre optic bronchoscope

1. Flexible Fibre Optic bronchoscope
2. Cold Light Source
3. Camera
4. Monitor
5. Video recording digital, preferably USB based video recording device
6. Trolley
7. The working length of the fibre scope should be 60 cms to allow mounting of Endotracheal tube on the scope before performing Bronchoscopy.
8. The outer diameter should be less than 3.7 mm and allow mounting of tube size less than 4.5 mm to the scope, lesser diameter preferable. Suction channel is a must.
9. Range of bending at the tip should be minimum 180 degree up and 130 degree down approx.
10. Compatible light source. Automatic light adjustments to maintain optimum brightness. High efficiency halogen source should be suplied with compatible fiberoptic cable
11. Camera processor should give at least Two output
12. a) S-video
13. b) Composite video
14. Compatible single chip camera system to give clear and big view of structures.
15. At least 14” colour monitor display.
16. Digital recording directly from camera processor without computer in between.
17. Four section trolley for organizing fiberscope and facility to hang the fiberscope without bending.

18. Leak tester to be provided.
19. Standard accessories including brush for cleaning the bronchoscope lumen.
20. Standard USB video recorder
21. Should work on 220VAC +/-10%, 50 Hz.
22. US FDA (510K) approve model should be offered.

Ultrasound Machine

1. Ultrasound scanner with integrated trolley with probe, soft touch alphanumeric key board with track ball. With panel switches & control's easily operable.
2.Integrated high-resolution Monitor 15" or more.
3. Probes & Gel holder-conveniently place (2each).
4. Following transducers are to be supplied:
-2.0-5.0 MHz Multi frequency Convex Transducer-One.
-5.0-12.0 MHz Multi frequency Linear Transducer-One.
-5.0-8.0 MHz or more Endo Cavitary Probe-One.
(+/- 1 MHz to be allowed for each):
5. All probes should be electronic transducers and multi-frequency preferably three frequencies and should give aperture & depths of scanning.
6. Controls for Depth, gain compensation, body markers with transducers position.
7. Real-time continuous dynamic focus.
8. Auto annotation facility anywhere on image.
9. Image display in B, B/M & M Model (2B & 2D).
10.Zoom facility minimum five times or more.
11. Shades of grey 256 h. inbuilt cine memory.
12.Unite should be capable of measuring BPD, CRL, FL & AC and other GA parameters.
13. Facility for image magnification, inversion, changing, scan, direction, freeze facility.
14. 8 steps STC/GTC should be available.
15.Frame Rate should be 1000 frames / sec or more .
16. Caliper with trackball for the measurement of distances circumferences, area volume etc. should be possible to make different measurement of single image.
17. Alphanumeric key board, p.Panel Switches & Foot Controls.
18. Patient reports for Obs/Gynae including fetal growth trend for Tissue texture & Trend graph for IUGR cases, Urology and orthopaedics.
19. Give the gain adjustable/rang & its steps.
20. Calculations needed, Velocity, Heart rate, Volume addl. modes.
21. Dicom 3.0 compatible.
22. Review of stored images is desirable.
23. Channels: 100000 or more.
24. Depth: 25 to 30 cm.
25. Dynamic range: 140 dB or more.
26. Cine loop preview for minimum 60 secs. or more.
27. Minimum 2 or more active ports should be there.
28. Should work on 220VAC +/-10%, 50 Hz.
29. US FDA (510K) approve model should be offered.
30. Should be supply with suitable capacity online UPS.

PNS

1. Portable, small, battery operated and lightweight
2. Should have LCD display, backlit
3. Variable current range
4. Numerical display of selected current/twitch height/TOF ratio/PTC count
5. Graphical display of twitch height/TOF responses/PTC
6. User programmable pulse width and frequency with default setting
7. Audio visual indication for pulse delivery and error
8. Power saving option
9. Low battery indicator
10. Should have Complete selection of stimulus patterns NM Monitoring
a) 1-twitch on demand and repeat at 1 sec and at 10 sec
b) Train of four (TOF) on demand and repeat at 10 sec
c) Tetanus frequency can be selected (100 Hz or 50 Hz).

d) Double burst stimulation (DBS)
e) Post titanic count (PTC)
11. Audible alert during the delivery
12. Recorder facility with the unit (optional)
13. Nerve locator for peripheral nerve block
14. Disposable stimulating needle with port for injection compatible with nerve locator (20 numbers with each equipment).
15. US FDA (510K) approve model should be offered.

Adult Manikin

1. The human patient simulator comprise of a life like mannequin. It should employ multiple models of human physiology including cardiovascular system, pulmonary system, neuromuscular system, and central nervous system. The models should allow the patient to exhibit clinical signs (e.g., spontaneous breathing, eyelid blinking) and monitored parameters (e.g., electrocardiogram, blood pressure) and should automatically respond totherapeutic intervention without any/ minimal input from the instructor.
2. The mannequin should be controlled completely wirelessly and should not be connected to any control system/instructor computer through wires/hoses.
3 The mannequin should have a realistic skeletal structure, providing true- to-life articulated motion.
4. ABP, CVP, Pulmonary artery pressure, Pulmonary artery occlusion (wedge) pressure, cardiac output
5. The patient simulator should have a pulmonary system that calculate etO2, inO2, etCo2, inN2O, etN2O, metabolic gas exchange. (for example, apnea or hypoventilation and should automatically result in hypercarbia, hypoxemia, decreasing oxyhaemoglobin saturation and tachycardia
A. During spontaneous ventilation, the patient mannequin should breathe with a spontaneously controlled respiratory rate and tidal volume to maintain normocarbia and adequate oxygenation.
B. Positive pressure ventilation or return of spontaneous ventilation should automatically reverse apnea with the response appropriate to the rate and tidal volume or ventilation.
C. The Patient Simulator should automatically responds to the fraction of inspired oxygen present, such as with smoke inhalation or supplemental oxygen.
6. The patient simulator should have a pharmacology system model with automatic drug recognition and calculation of pharmacodynamics for all commonly used intravenous and inhaled medications, yielding appropriate changes in patient clinical signs and monitored parameters. All patient responses to drug administration should be automatic, dose dependent, and follow an appropriate time course.
7. Patient outcome should be solely based on patient physiology and the treatment administered (e.g., ventilation, oxygen therapy, drug therapy) and should not be influenced by subjective assessment of the operator,Thus providing objective evaluation of clinical performance and reducing risk of negative training transfer.
8. The mannequin should have a realistic airway (mouth, oropharynx, larynx, esophagus, trachea, carina) resembling to that of an actual human patient.
A. Depending on head positioning, choice of clinical tools, and other maneuvers, it should be possible to achieve anywhere from a Cormack Class I (e.g., easy intubation) to a Cormack Class IV (e.g., difficult intubation) airway.
B. The mannequin airway should allow use of airway adjuncts (e.g., combitube, laryngeal mask airway) as they are used in real patients, without any special adjustments by the instructor (e.g., activation of posterior swelling to seat the LMA).
C. The success or failure of airway management should be automatically reflected in the resulting ventilation, oxyhemoglobin saturation, and overall cardiopulmonary stability.
9. The patient simulator should have trauma simulation capabilities, such as:
A. Surgical cricothyroidotomy
B Articulated mandible
C Neck articulation
D Simultaneous bleeding at different sites linked to physiology
E Secretions from eyes, ears, mouth.
F. Bi-lateral pneumothorax needle decompression at the clinically appropriate location
G. Bi-lateral chest tube insertion at the clinically correct location.
10. Each trauma capability should require minimal instructor input and physiological consequences (e.g., improvement in blood pressure, ventilation, and oxyhemoglobin saturation) should be automatic.
11. The patient simulator should have fully independent left and right lungs.
A. A one-sided pneumothorax should result in chest distention on one side, with the other side rising and falling with spontaneous breathing.
B. The simulator should have independent breath sounds linked to ventilation of each lung for both spontaneous and mechanical ventilation.
C. One-lung ventilation should automatically result in appropriate breath sounds, chest excursion, and pulmonary gas exchange.
D. Independent bilateral trauma feature (needle decompression / chest tube)

12. The patient simulator should have independent blinking eyes and reactive pupils. Eye blinking should be automatic and dependent on the underlying patient physiology (i.e., level-of- consciousness, level of neuromuscular blockade). It should be possible to easily set the pupils manually to different settings (i.e., pinpoint, reactive, non reactive, blown).
13. The patient simulator should be capable of physically shaking, giving a visible cue of convulsions, tremors, or other similar conditions.visible cue of convulsions, tremors, or other similar conditions.
14. The patient simulator should have touch activated, bi-lateral palpable pulses in the following locations: Carotid, Brachial, Radial, Femoral, Popliteal, Pedal (dorsalis and tibialis)
15. The patient simulator should have an advanced cardiac life support system in which:
A. Effective chest compressions automatically yield artificial circulation, cardiac output, central and peripheral blood pressures, palpable pulses, and exhaled CO2.
B. Ineffective chest compressions yield inadequate cardiac output and circulation and an absence of exhaled CO2.
C. Defibrillation energy is automatically identified, quantified, and logged physiological response.
D. Pacing current is automatically identified, quantified, and logged, with appropriate physiological response.
16. The patient simulator should include independent simulations of patients (e.g., young healthy male, pregnant female, elderly patient with coronary artery disease) and injury/disease scenarios (e.g., anaphylactic shock, ruptured spleen, subdural hematonia.)
A. It should be possible to combine any patient with any scenario, creating a wide variety of clinical care simulations.
B. It should be possible to run multiple software patients simultaneously to create multi- patient care simulations.
C. It should be possible to run multiple injury/disease scenarios simultaneously on a particular patient to create multi-trauma simulations.
17. The patient simulator should include educationally complete properly documemnted clinical simulations including information : Clinical background and scene, Pre-hospital and emergency department learning objectives, Student critical actions, Simulation algorithm, Equipment required for the simulation, and Instructor notes etc.
18. Patient simulator should be supplied complete with
a) Disaster/ Casualty kit which allows the patient to automatically physically bleed in various locations simultaneously and excrete body fluids from the eyes, ears, and mouth.
b) Wireless instructors workstation communicating over RF (radio frequency) allowing it to be located up to 150 feet away from the patient mannequin during simulation /training exercise
c) Should have the facility to run control software and monitor waveform display on same instructor's workstations thus allowing to use it for developing simulations at other locations independent of the patient mannequin.
20. US FD (510K) / European CE (Issued by Notified Body) Approved model should be offered.

Pediatric Manikin

1. The human patient simulator comprise of a life like mannequin. It should employ multiple models of human physiology including cardiovascular system, pulmonary system, neuromuscular system, and central nervous system. The models should allow the patient to exhibit clinical signs (e.g., spontaneous breathing, eyelid blinking) and monitored parameters (e.g., electrocardiogram, blood pressure) and should automatically respond to therapeutic intervention without any/ minimal input from the instructor.
2. The mannequin should be controlled completely wirelessly and should not be connected to any control system/instructor computer through wires/hoses.
3. The mannequin should have a realistic skeletal structure, providing true-to-life articulated motion.
4. The patient simulator should have a cardiovascular system that automatically calculates dependent variables (e.g., blood pressure, heart rate) in response to changing cardiovascular system status (e.g intravenous fluid administration), including the following:
A The manikin should have facility to control blood pressure, heart rate, pulse strength automatically to maintain circulation and perfusion
B. A myocardial oxygen supply (e.g., diastolic blood pressure, arterial oxygen partial pressure) and demand (e.g., cardiac contractility, heart rate) that yields appropriate cardiac response (e.g., cardiac rhythm, cardiac contractility) to myocardial ischemia. Untreated myocardial ischemia should automatically result in cardiovascular decompensation with accompanying cardiac rhythms (e.g., ST- segment depression, ventricular tachycardia, ventricular fibrillation, asystole) and ultimately, cardiovascular collapse.
C. Arterial blood gases (e.g., PaO2, PaCO2, and pH) and mixed venous gases (e.g., PvO2, PvCO2) that realistically change.
D. Hematocrit can be automatically calculated to reflect oxyhemoglobin saturation and administration of a variety of intravenous fluids, such as whole blood, packed red cells, colloids, and crystalloids by using preset lab reports
E. A complete hemodynamic monitoring package that includes the capability to measure and monitor the following:
5. ABP, Left ventricular blood pressure, CVP, Right atrial pressure, Pulmonary artery pressure, Pulmonary artery occlusion (wedge) pressure, cardiac output.
6. The patient simulator should have a pulmonary system that automatically calculates alveolar and arterial gas partial pressures in response to ventilation, fraction of inspired oxygen, intrapulmonary shunt fraction, and metabolic gas exchange (For example, apnea or hypoventilation should automatically result in hypercarbia, hypoxemia, decreasing oxyhemoglobin saturation and tachycardia)

A. During spontaneous ventilation, the patient mannequin should breathe with a spontaneously controlled respiratory rate and tidal volume to maintain etCo2 and adequate oxygenation.
B. Positive pressure ventilation or return of spontaneous ventilation should automatically reverse apnea with the response appropriate to the rate and tidal volume or ventilation.
C. The Patient Simulator should automatically responds to the simulated fraction of inspired oxygen present, such as with smoke inhalation or supplemental oxygen. (simulated cases)
7. The patient simulator should have a pharmacology system model with drug response calculation of pharmacodynamics for all commonly used intravenous and inhaled medications, yielding appropriate changes in patient clinical signs and monitored parameters. All patient responses to drug administration should be automatic, dose dependent, and follow an appropriate time course.
8. Patient outcome should be solely based on patient physiology and the treatment administered (e.g., ventilation, oxygen therapy, drug therapy) and should not be influenced by subjective assessment of the operator,Thus providing objective evaluation of clinical performance and reducing risk of negative training transfer.
9. The mannequin should have a realistic airway (mouth, oropharynx, larynx, esophagus, trachea, carina) resembling to that of an actual human patient.
A. Depending on head positioning, choice of clinical tools, and other maneuvers, it should be possible to achieve anywhere from a Cormack Class I (e.g., easy intubation) to a Cormack Class IV (e.g., difficult intubation) airway.
B. The mannequin airway should allow use of airway adjuncts (e.g., combitube, laryngeal mask airway) as they are used in real patients, without any special adjustments by the instructor (e.g., activation of posterior swelling to seat the LMA).
C. The success or failure of airway management should be automatically reflected in the resulting ventilation, oxyhemoglobin saturation, and overall cardiopulmonary stability.
10. The patient simulator should have trauma simulation capabilities, such as:
A. Airway opening acquired by head tilt, chin lift and jaw thrust , LMA, ET tube , Fiber optic , gastric tube,
B Articulated mandible
C Neck articulation
D Bleeding moulage modules (makeup kit) , enlarged liver, fontanelle bulge ,limp head

E. Limp, tone , motion , head seizure ,tounge edema, foreign body obstruction , laryngospasm.
F. Pneumothorax - Bilateral and unilateral chest rise and fall , Normal and abnormal breath sounds bi-lateral at clinically correct location ,

G. Simulated Chest tube insertion unilateral at clinically correct location

11. Each trauma capability should require minimal instructor input and physiological consequences (e.g., improvement in blood pressure, ventilation, and oxyhemoglobin saturation) should be automatic.
12. The patient simulator should have fully independent left and right lungs.
A. A one-sided pneumothorax should result in chest distention on one side, with the other side rising and falling with spontaneous breathing.
B. The simulator should have independent breath sounds linked to ventilation of each lung for both spontaneous and mechanical ventilation.
C. One-lung ventilation should automatically result in appropriate breath sounds, chest excursion, and pulmonary gas exchange..
D. Independent trauma feature (Unilateral needle thoracentesis mid-clavicular)

13. The patient simulator should have independent blinking eyes and reactive pupils. Eye blinking should be automatic and dependent on the underlying patient physiology (i.e., level-of- consciousness, level of neuromuscular blockade). It should be possible to easily set the pupils manually to different settings (i.e., pinpoint, reactive, non reactive, blown).
14. The patient simulator should be capable of physically shaking, giving a visible cue of convulsions, tremors, or other similar conditions.
15. The patient simulator should have touch activated, palpable pulses Brachial, and Femoral

16. The patient simulator should have an advanced cardiac life support system in which:
A. Effective chest compressions automatically yield artificial circulation, cardiac output, central and peripheral blood pressures, palpable pulses, and exhaled CO2.
B. Ineffective chest compressions yield inadequate cardiac output and circulation and an absence of exhaled CO2.
C. Defibrillation energy is automatically identified, quantified, and logged physiological response.
D. Pacing current is automatically identified, quantified, and logged, with appropriate physiological response.
17. The patient simulator should include independent simulations of patients (Eg Pediatric male, female with coronary disease) and injury / disease scenarios (Eg anaphylactic shock, trauma)

A. It should be possible to combine any patient with any scenario, creating a wide variety of clinical care simulations.
B. It should be possible to run multiple software patients simultaneously to create multi- patient care simulations.
C. It should be possible to run multiple injury/disease scenarios simultaneously on a particular patient to create multi-trauma simulations.
The patient simulator should include educationally complete properly documemnted clinical simulations including information : Clinical background and scene, Pre-hospital and emergency department learning objectives, Student critical actions, Simulation algorithm, Equipment required for the simulation, and Instructor notes etc.
Patient simulator should be supplied complete with
a) Disaster/Casualty make up kit which allows the patient to show trauma , simulated bleeding in various locations
b) Wireless instructors workstation communicating over RF (radio frequency) allowing it to be located up to 150 feet away from the patient mannequin during simulation /training exercise
c) Should have the facility to run control software and monitor waveform display on same instructor's workstations thus allowing to use it for developing simulations at other locations independent of the patient mannequin.
18. US FDA (510K)/ European CE (Issued by Notified Body) Approved model should be offered.

Oxygen Therapy Unit

1. Suitable for treatment of Hypoxemic patients with respiratory distress
2. It should be complaint for use on patients in ICU, wards, emergency department and home oxygen therapy
3. It should be single system for treating infants, paediatric and adult patients
4. Inbuilt flow generator capable of delivering wide range of flows:2-25 litres in paediatric mode and 10-60 litres in adult mode
5. Inbuilt Air/O2 blending and Fio2 monitoring, facility to deliver wide range of oxygen concentration (Fio2) from 21 to 100%
6. It should have inbuilt Air source without need for external compressor
7. Integrated heated humidifier
8. Color display to monitor humidity setting, flow, Fio2 and faults
9. Visual and audible alarm indication for:

a. Tubes disconnect leaks, tube blockages and water out and hardware fault with error codes. Audible power failure alarm

10. Disinfection mode with heated disinfection tube for sterilization of the device after patient use
11. Supplied with heated wire patient breathing tube and nasal cannula of different sizes
12. Pediatric nasal cannula should be made of kink proof material and has adhesive wiggle pads to stick on skin to facilitate kangaroo care
13. It should be compatible for use on tracheostomy patients

14 US FDA (510K) Approved model should be offered.

15. Complaint with international safety standards and regulations.

Suction Machine

1. Vaccum /LPM : - 700 MM Hg , 50 Litres/Min
2. Pump Type- Double rotary vane type
3. flutter free vacuum control knob,
4. Wide mouthed 2 x 2 LITRE (light weight, unbreakable and clear) with self-sealing bungs and mechanical over flow safety device.
5. Noise (in dBA)- 50 dB
6. Collection container & its cap, suctions tube tips, a vacuum gauge, two sets of moisture & microbial filters and control knob
7. SiliconeTubing:8 mm ID x 2 mtr (PVC), 2x2 lt jar (one set
8. It should be Mobility, portability.
9. Equipment shall operate on 220V-240V, 50 Hz, single phase electric supply.
10. ISO/ BIS approve model should be offered.

Provision For resuscitation equipment and CPR algorithms

1. Should have Silicone self expanding Manual Resuscitators of all sizes (Infant, Pediatrics. Adult) with mask of all sizes.

2. 100%, autoclavable; reusable
3. Non re-breathing valve with 40 cm of H2O pressure release for infant and paediatric
4. 360° swiveling patient connector with standard 15 mm / 22 mm diameter
5. Oxygen reservoir bag with valves 2 mtr. PVC oxygen tubing
6. Should have Laryngoscope of both straight blades and curved blades of various size Standard blades (Macintosh, Miller), Non-standard blades (McCoy)
7. Lighted stylet for oral and nasal intubation
8. Oral Airways -Silicone, autoclavable & reusable in sizes 000, 00 & 0, 1.2,3,4
9. adult size nasal airways, one(1) each 20F, 22F, 24F,26F, 28F, 30F, 32F, 34F
10. Four pediatric nasal airways, One(1) each 12F, 14F,16F,18F
11. Magils forceps all standard sizes
12. All size malleable Stylet (for endotracheal tube for neonate to adult)
13. Gum elastic bougie(size 3/ 4)
14. Laryngeal Mask Airway Classic reusable (sizes-1 ,2, 3,4)
15. Cricothyrotomy set
16. Automatic External Defib as per following specs
17. Simple operation, dedicated therapy controls, configurable options.
18. Automated External Defibrillator (AED) capability with Shock Advisory System.
19. Data storage, Transmission and retrieval capabilities.
20. Power:
21. Battery Only Configuration-choice of batteries.
22. Dual battery capability.
23. DC Power Adaptor for transportation
24. Batteries should charge while device operates from Power Adaptor.
25. Low Battery Indicator and message.
26. Warm start.
27. Service indicator.
28. Display: LCD, User selectable contrast, minimum 4 secs of ECG
29. Data Management: Report Types- Three Formats types, two full capacity patient records.
30. Communications: PC Card, Internal Modem, External EIA/TIA Modem, Cellular Modem or serial connection.
31. Scope of supply
32. Main Unit – 1 No/Unit
33. Single Electrode pad – 1 No/Unit
34. Carrying case – 1 No/Unit
35. Battery set – 1 No/Unit
36. US FDA (510K) Approved model for AED should be offered.

Airway crash cart

1. Epoxy coated emergency crash cart with facility to carry oxygen cylinder and drawers and shelves for resustitative items. Mobile Crash Cart
2. Complete with fittngs like:Oxygen cylinder Drawers,Lamp
3. Should have dual push handles on either side
4. Should have S.S. shelves, six colored removable bins & two polystyrene lockable storage units with three drawers each.
5. Facility to carry ECG Monitors, Defibrillators etc on open areas at top centre and bottom shelves.
6. Should have Stainless steel saline rod fixed with.
7. Two accessory mounting brackets to mount accessories anywhere without the need of pre-threaded holes.
8. Crash cart should be mounted on 12.5 cmsdia non-rusting swivelling castor wheels. Two having locking arrangement.
9. Oxygen cylinder stand of SS 304 grade, on one side.
10. US FDA (510K) /European CE (Issued by Notified body) /BIS/ISO Approved model should be offered.

ABG machine

1. Compact system for measuring pH, pCO2, pO2, -HCO3 & four Electrolytes like Na, K, Ca+ and Cl - in blood.
2. All should be measured in a single injection / aspiration of Sample.
3. May have provision of modular platform for future up gradation to include glucose, lactate & hemoglobin the same machine with the inspiration of single sample.
4. Should be able to analyze all parameters using low blood volume directly from syringe or capillaries.
5. Fast and accurate result of test made available in about 60 seconds.
6. Automatic Calibration by liquid calibrators with flexible time mode. Instrument should have Stand-by mode facility and Economy mode.
7. It should not be cartridge based system.

8. Startup Kit, Calibrators, Consumables, Accessories and spares required performing initial 500 tests.
9. All the consumables and spares should be quoted separately unit wise.
10. Compatible online UPS with battery back up of at least one hour
11. US FDA 510(K) Approved model should be offered.

Pulse Oximeter

1. Should have plethysmograph wave form with numeric display for SPO2 and Heart rate on LCD/TFT display screen.
2. Should have a SPO2 range of 0 to 100%.
3. Should have SPO2 accuracy of ±2%.
4. Should provide bar graph for pulse strength.
5. Audio and visual alarm for both upper and lower SPO2, Heart rate.
6. Beep sound and alarm sound should have separate volume control.
7. Should have a minimum of 2 hours' back-up time.
8. Should be a portable, light weight and desktop model.
9. Should work with input 200 to 240Vac 50 Hz supply.
10. Should have trend data of at least 24 hrs.
11. Model Should by US FDA / CE / BIS approve product.
12. Electrical safety conforms to standards for electrical safety IEC-60601/IS-13450

ECG Monitor (Multipara Monitor)

13. Should be able to monitor 5 lead ECG, SPO2, NIBP, Respiration rate and Temperature.
14. Should be portable with carrying handle.
15. Should have touch screen TFT display with at least 10 inches or higher with at least 6 waveforms and numeric display simultaneously.
16. Should have Lithium ion battery with 4 hours battery backup.
17. Should have keys for quick access to main functions.
18. Should have adult, pediatric and neonatal modes.
19. Should provide prominent prioritised audio, visual alarms for high, low heart rate, Spo2, RR, low battery, lethal arrhythmia recognition and ST Analysis.
20. Should have separate volume control for beep sound for QRS and alarm sound.
21. Should provide following accessories:
    - Reusable adult 3 lead ECG cable set – 2 nos.
    - Reusable adult and pediatric SPO2 finger probes – 1 each.
    - Adult and pediatric NIBP cuff of different size
22. Should work on 200-240V AC/50Hz with inbuilt rechargeable battery.
23. Model Should by US FDA / CE (Issued by Notified Body) approve product.
24. Electrical safety conforms to standards for electrical safety IEC-60601/IS-13450.

TOF monitor (PNS)

1. Portable, small, battery operated and lightweight
2. Should have LCD display, backlit
3. Variable current range
4. Numerical display of selected current/twitch height/TOF ratio/PTC count
5. Graphical display of twitch height/TOF responses/PTC
6. User programmable pulse width and frequency with default setting
7. Audio visual indication for pulse delivery and error
8. Power saving option

9. Low battery indicator
10. Should have Complete selection of stimulus patterns NM Monitoring
a) 1-twitch on demand and repeat at 1 sec and at 10 sec
b) Train of four (TOF) on demand and repeat at 10 sec
c) Tetanus frequency can be selected (100 Hz or 50 Hz).
d) Double burst stimulation (DBS)
e) Post titanic count (PTC)
11. Audible alert during the delivery
12. Recorder facility with the unit (optional)
13. Nerve locator for peripheral nerve block
14. Disposable stimulating needle with port for injection compatible with nerve locator (20 numbers with each equipment).
15. US FDA (510K) Approved model should be offered.

Radio Frequency Ablation Device

1. It should maximize energy delivery by continuously monitoring tissue impedance & adjusting output accordingly.
2. It should have electrode cooling lowers impedance, allowing more current to pass through the tissue to create a larger ablation zone.
3. It should Minimize treatment time – maximum effect in approx. 12 minutes.
4. It should Monitor all critical performance variable.
5. It should be a User-friendly system.
6. It should enhance Physician control through simple, intuitive needle design & reduce potential injury to vital strictures.
7. It should have Unique electrode design circulates water internally reducing increment in tissue impedance & improves energy delivery.
8. It should have Single & cluster electrodes of assorted sizes are available.
9. It should have 17-gauge electrodes which are easy to insert, minimizing patient trauma.
10. It should have Four different lengths offer flexibility in laparoscopic, percutaneous & open procedures.
11. It should have Temperature probe which measures ablation zone.

Technical Specification

1. Volt: 220 V
2. Voltage Input range: 200 to 240 V
3. Maximum Input Voltage: 260 Vac
4. Maximum Voltage on any Output Connector: 260 Vac
5. Max Input Power: 420 VA
6. System has an automated 12- minute tissue ablation.
7. Radio Frequency energy is used to heat & coagulate target tissue
8. The System has 200 Watt power pulses energy for generating larger coagulation volumes.
9. System adjusts output energy based on tissue impedance using feedback algorithm
10. System is compatible with Switch Box for multiple ablations at a time.
11. Impedance: Range – 0 to 1000 Ohms
12. Current
13. Power Range – 0 to 200 Watt
14. Time: Range 1 to 30 minutes
15. Temperature: Range 10 Degree to 99 Degree
16. Frequency: 480 k Hz + 10 %
17. Safety Parameter: Impedance Cutoff < 25 ohms ; > 1000 ohms
18. Temperature < 10 degree; > 99 degree
19. External Peristaltic Pump for cooling the tip of the electrode
20. System is compatible with Both Single & Cluster Electrode.
21. Electrode has a separate lumen to allow water to pass through for cooling the tip.
22. System is compatible with Single and Cluster Electrode. The tip of the electrodes is cooled by water (pumped through external Peristaltic Pump).
23. Flow Rate for Peristaltic Pump: Max Output Flow Rate: 140 ml/min
24. Minimum Output Flow Rate: 80 ml/min through 1.6 mm (ID) tubing.

25.US FDA (510K) Approved model should be offered.

Fluoroscopy machine (C-ARM)

Specification of High Frequency Mobile C-ARM IITV System
The system should have the below mentioned specifications:

1. I.I.T.V. System:
a) The image intensifier should be of latest series
b) It should be of 9 inches triple field i.e. 9 inches / 6 inches / 4.5 inches
c) The centre resolution should be minimum 48lp/cm.
d) The circular grid should be fixed on the Image Intensifier (I.I.) to improve image quality.
2. C-arm Stand
It should be ruggedly built and should be of good design
it should have 01 (one) or more separate steering for controlling back and front wheel movements
It should also have the below mentioned movements.
Horizontal travel should be minimum 200 mm
Orbital movement should be 115°
Panning movement should be ±12.5°
Focus to I.I distance should be 900 mm
Vertical movement should motorized of 400 mm
Focus to I.I Clearance should be 730 mm
C-Arm rotation should be ±180º (Preferably ±360º)
3. CCD Camera:
The CCD camera should be at least ½ inch and of minimum illumination 0.3 lux; should be of internationally reputed make
CCD camera must be image capture resolution minimum of 1Kx1K (1024x1024)
4. Monitors:
Monitor should be used with high resolution (1kx1k) used for medical graded image purposes at least 17 or more
The monitor trolley should be provided for mounting 2 monitors and should have 2 shelf for keeping memory and stabilizer.
5. Genrator
It should be microprocessor controlled digital system with display.
Frequency of 40 KHZ or more
The fluoroscopic mA should be from 0.3 to 3.0 mA or wider.
The system should have fluoroscopy mode like Manual flouro mode
The pulse/frame rate instead of pulse time 2 sec to 10 sec.
Auto Dose Rate Control in fluoroscopy mode by which either mA & KV should be set automatically as per the thickness of the organ.
(Manual KV selection during fluoroscopy also should be available.
Boost fluoroscopy mode (optional) / High Definition Fluoroscopy
The digital fluoroscopic timer should be incorporated with arrangement of auto cut off of exposure after 300 secs.
The radiographic mAs range should be from 20 to 100 mAs or more
The X-ray tube should be dual focus stationary anode. The focal spot of the tube should be 1.5mm x 0.6mm and 1.5mm x 0.6 mm. It should have mono block / tube housing heat storage capacity of 200 KHU or more. It should also have inherent filtration of 0.7mm or more Al eq.
The system should have backlit LCD display of flouro mA, KV, timer & radiography mAs should be provided.
The reversal, image rotation, functions should be operatable either from control panel or with a remote control.
Memory function like save/ recall should be operated from memory panel & with wireless remote
There should be independent selection of mA and KV &mAs.
The control should have indicator for power, Overload, X-Ray & Tube heating
The system should be upgradable to latest functions
6. Image Memory:
The unit should be capable of digital subtraction angiography (DSA) with Road map facility b) The systems should have more then 50000 image storage capacity permanently.
It should have image integration function to reduce the image noise
Should be capable of copying images to Pen Drive through in-built USB port.
Essential Accessories:
Detachable cassette holder for taking X-rays on 8 inches x 10 inches or 10 inches x 12 inches film
Lead aprons, Thyroid Shield, Lead Goggles (12 nos each)
Servo stabilizer -1 (compatible with the whole unit for the voltage range of 150 Volt-260 Volt)
7. US FDA (510K) Approved model should be offered.
8. Should be AERB approved.

Ultrasound machine

1. Ultrasound scanner with integrated trolley with probe, soft touch alphanumeric key board with track ball. With panel switches & control's easily operable.
2. Integrated high-resolution Monitor 15" or more.
3. Probes & Gel holder-conveniently place (2each).
4. Following transducers are to be supplied:
A-2.0-5.0 MHz Multi frequency Convex Transducer-One.

B-5.0-12.0 MHz Multi frequency Linear Transducer-One.
C-5.0-8.0 MHz or more Endo Cavitary Probe-One.(+/- 1 MHz to be allowed for each):
5. All probes should be electronic transducers and multi-frequency preferably three frequencies and should give aperture & depths of scanning.
6. Controls for Depth, gain compensation, body markers with transducers position.
7. Real-time continuous dynamic focus.
8. Auto annotation facility anywhere on image.
9. Image display in B, B/M & M Model (2B & 2D).
10. Zoom facility minimum five times or more.
11. Shades of grey 256 h. inbuilt cine memory.
12. Unite should be capable of measuring BPD, CRL, FL & AC and other GA parameters.
13. Facility for image magnification, inversion, changing, scan, direction, freeze facility.
14. 8 steps STC/GTC should be available.
15. Frame Rate should be 1000 frames / sec or more .
16. Caliper with trackball for the measurement of distances circumferences, area volume etc. should be possible to make different measurement of single image.
17. Alphanumeric key board, p.Panel Switches & Foot Controls.
18. Patient reports for Obs/Gynae including fetal growth trend for Tissue texture & Trend graph for IUGR cases, Urology and orthopaedics.
19. Give the gain adjustable/rang & its steps.
20. Calculations needed, Velocity, Heart rate, Volume addl. modes.
21. Dicom 3.0 compatible.
22. Review of stored images is desirable.
23. Channels: 100000 or more.
24. Depth 1 to 30cm
25. Dynamic range: 140 dB or more.
26. Cine loop preview for minimum 60 secs. or more.
27. Minimum 2 or more active ports should be there.
28. Should work on 220VAC +/-10%, 50 Hz.
29. US FDA (510K) Approved model should be offered.
30. Should be supply with suitable capacity online UPS.

Patients controlled analgesia system (portable)

1. Must accommodate any syringe size of: a) 10 ml b) 20 ml c) 50 ml.
2. Flow must be adjustable between 0.1 ml to 999 ml/hr.
a)Accuracy +/- 2 %.
3. Set flow rate and volume infused should be digitally displayed.
4. Delivery rate should be preset on Delivery rate and on volume and time pre selection.
a)Volume infused should be displayed.
5. Must have a fast mode of infusion independent of set flow rate.
6. Should not allow change of flow rate or fast delivery without stopping the pump.
7. Should have alarms for :
a. Occlusion
b. Syringe almost empty
c. Low Battery
8. Occlusion sensitivity should be adjustable by the operator.
9. Should have a built in rechargeable battery and a battery charger.
10. Should provide clamp for fixing on IV pole and should be stackable.
11. It should have system to give bolus volumes of 5ml or more than 5ml during infusion.
12. It should be upgradeable.
13. It should be provide security against tampering with ability to record and retrieve drug pump/Microprocessor malfunction.
The dosing modes: PCA,CBI, PCA + CBI and loading.
14. It should provide printer output port.
15. Dosage adjustments should be possible in mg/hr and ml/hr
16. To be supplied with standard 50ml syringe/tubings:200 Nos each pump
17. US FDA (510K) Approved model should be offered.

Intrathecal Infusion Pump

1. Flow rate range 1 to 1000 ml/h in normal mode (1 ml/h increments).
a. to 100 ml/h in micro-infusion mode (0.1 ml/h increments).

2. Flow rate accuracy + 5% with recommended sets.
3. Volume range § 1 to 9999 ml in normal mode (1 ml increments).
a. to 999.9 ml in micro-infusion mode (0.1 ml increments).
4. Infusion time adjustable from 1 minute to 96 hours (1 min. increments).
5. Setting modes flow rate only, flow rate + volume, volume / time, rate + time, ramp up/ramp down, primary/secondary,
6. sequential, bolus, induction/loading dose, micro-infusion.
7. OCS (Occlusivity Check system)set thus preventing all risk of free flow.KVO rate 3 ml/h, adjustable.
8. Pressure limit 750 mmHg, adjustable from 100 to 900 mmHg (50 mmHg increments).
9. Pause function adjustable from 1 minute to 24 hours.
10. History module up to 750 last dated events.
11. Configuration infusion modes (micro or macro-infusion), ramp up/ramp down, sequential, induction, bolus, primary
12. /secondary, keyboard lock, KVO, pressure limit, display of drug name, time and hour setting,
13. language, LCD contrast, alarm sound level, ward name, maximum authorised flow rate, air bubble
14. size, recall of last parameters at power ON, display mode, volume cumulating, end of infusion prealarm setting.
15. RS 232 connection bi-directional connection Nurse call outlet for alarm report.
16. Safety features and Alarms § air detection: set at 250 µl over the last 15 minutes, adjustable.
17. protections against free flow: check of pump + set occlusivity (OCS test), automatic clamping of the set at door openning.
18. check of line: OCS test, door open, set positioning, set installation, downstream occlusion,upstream occlusion, line disconnection.
19. check of infusion: End of infusion warning, end of infusion, empty container, flow error,unconfirmed setting, end of pause.
20. check of device: OCS test, door open, mains power disconnection, low battery, discharged battery, technical fault, auto-test, motor rotation.
21. detection of occlusions: downstream and upstream.
22. DPS (Dynamic Pressure System): detection of pressure variations in the line (increase, drop)
23. allowing both a faster occlusion detection or a line disconnection.
24. anti-bolus system: automatic bolus reduction at occlusion release.
25. keyboard lock: protection against change of settings, function available in configuration.
26. Technical specifications
27. Pumping system second generation linear wave peristaltic pumping system controlled by an inteligent software for a constant and precise flow rate.
28. Pump fixation the Optima VS can be placed onto a table, or secured to a pole or to a rail with the incorporated clamp.
29. US FDA (510K) Approved model should be offered.
30. complies with EN 60601-1 and EN 60601-2-24 requirements.
31. waterproofness: protection against splashing liquid IP31.
32. protection against leakage current: type CF equipment .
33. protection against electrical shocks: class I equipment.
34. Mains supply 100-240 V ~ / 50-60 Hz.
35. Battery characteristics: NiMH – 6 V 2.7/3 Ah.
36. battery life: 5 h 30 in average at 125 ml/h.
37. Battery charging time device off: 5 hours / Device on: 16 hours.

OT Table fluoroscopy compatible

1. Electro- Hydraulic opeartion table
2. heavy weight of the patient. Complete with all accessories.
3. Electro-hydraulically powered for movements of height, tilting and trendelenburg.
4. The base of stable construction with large twin-disk-castors for easy travel and manoeuvring
5. Table top 500 mm x 1940 mm, Height range 600- 750 mm x 950- 1050 mm
6. Trend/Antitrend-20-25, latel tilt- 15-20 degree
7. The Operation table provided with corded hand control and override – control panel for additional safety.
8. The tabletop divided in 5 parts i.e., head plate (removable), back plate, seat plate and leg plates (removable).
9. Guided rails for X-Ray cassettes inserted from the head end.
10. Back plate is motorised for easy movements
11. The back plates are gas spring adjusted offering easy and smooth control.
12. The Operation table should have safe positioning and adjustment due to optimal covering of moving joints.
13. The Operation table should provide optimal patient positioning in a supine position. The longitudinal shift feature of 290mm should give unobstructed imaging of vertebrae.
14. Mobile Operating Table, Electrohydraulic, SFC padding
15. Standard Accessories:
16. Head Rest, Leg plates, pair, hinged and abductable, SFC padding

17. Arm board, Radial Setting Clamp, Geopel knee crutch, Body Strap
18. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Nerve locator

1. Portable, small, battery operated and lightweight
2. Should have LCD display ,backlit
3. Variable current range
4. Numerical display of selected current/twitch height/TOF ratio/PTC count
5. Graphical display of twitch height/TOF responses/PTC
6. User programmable pulse width and frequency with default setting
7. Audio visual indication for pulse delivery and error
8. Power saving option
9. Low battery indicator
10. Should have Complete selection of stimulus patterns NM Monitoring

a. 1-twitch on demand and repeat at 1 sec and at 10 sec
b. Train of four (TOF) on demand and repeat at 10 sec
c. Tetanus frequency can be selected (100 Hz or 50 Hz).
d. Double burst stimulation (DBS)
e. Post titanic count (PTC)

11. Audible alert prior to actual delivery
12. Recorder facility with the unit (optional)
13. Nerve locator for peripheral nerve block
14. Disposable stimulating needle with port for injection compatible with nerve locator (20 numbers with each equipment)
15. US FDA (510K) Approved model should be offered

Transcutaneous Electric Nerve Stimulating Machine

1. Portable, small, battery operated and lightweight
2. Should have LCD display, backlit
3. Variable current range
4. Numerical display of selected current/twitch height/TOF ratio/PTC count
5. Graphical display of twitch height/TOF responses/PTC
6. User programmable pulse width and frequency with default setting
7. Audio visual indication for pulse delivery and error
8. Power saving option
9. Low battery indicator
10. Should have Complete selection of stimulus patterns NM Monitoring

a) 1-twitch on demand and repeat at 1 sec and at 10 sec
b) Train of four (TOF) on demand and repeat at 10 sec
c) Tetanus frequency can be selected (100 Hz or 50 Hz).
d) Double burst stimulation (DBS)
e) Post titanic count (PTC)

11. Audible alert prior to actual deliver
12. Recorder facility with the unit (optional)
13. Nerve locator for peripheral nerve block
14. Disposable stimulating needle with port for injection compatible with nerve locator (20 numbers with each equipment)
15. US FDA (510K) Approved model should be offered.

Anaesthesia machine with resuscitation equipment

1. Powder coated structure.
2. Active Anti Hypoxic Electronic device - to ensure no nitrous flow with loss of O2 pressure.
3. Ratio Control - 25-28% mixed ration between 02 & N2O Gas flow
4. Should have Electronic Flow meter for O2, N2O & Air
5. Should have Electronic display of Gas pressure in the user interface display
6. Cylinder Pressure and operating pressure should be indicated electronically in user interface display.
7. Oxygen Driven Nitrous Supply through Electronically
8. Inner connection of tubing's should be made of alloy metal or PPU tubes

9. Audio Visual alarms should be available for Oxygen Failure warning Device
10. Electronically measured cylinder pressure, quick-release system for docking and release.
11. Electronically/pneumatically controlled technology valve for High precision pressure relief cum non return valve should be available

12. The vaporizer should be electronic/ Manual with an injector. The container of the vaporizer chamber should be minimum 300 ml (10,1 oz.). Refilling of inhalation agent should be possible during running mode. The liquid level in the vaporizer should be displayed both on vaporizer and control display and an alarm should be given when the level becomes too low. The desflurane vaporizer should not require to be warmed up before.
13. Provision to connect two electronic/ manual controlled vaporiser simultaneously.
14. Switching between manual and automated ventilation should be possible. The system shall contain a continuously adjustable pressure relief safety valve settable between 0-70 cm H20. Total system volume should be as low as possible and not exceed 3 liter including absorber.
15. Gas Inlet port for O2 & N2O, pin- index type 1 each & O2,N2O & Air non-interchangable type hose 1 each
16. Direct Central Pipe Line connectivity to Machine.
17. Standard Maggils circuits,all rubber antistatic tested.
18. Alloy metal tray for working / writing table with reading lamp.
19. Castor wheel with Individual breaks. 4 wheels with individual locking brake.
20. Double Oxygen outlet available for circuirs
21. Operating gas pressure available on the user interface
22. 2 - B" type cylinder carrying facility at back side.
23. Circle Absorber shall contain a continuously adjustable pressure relief safety valve settable between 0-80 cm H20. Total system volume should be as low as possible and not exceed 3 liter including absorber.

24-Ventilator Specifications:

- The equipment shall contain functions for volume- and pressure regulated ventilation.
- The ventilator shall contain the functions "Spontaneous Breathing" and "Manual Ventilation".
- The ventilator shall have the following modes: VCV, PCV, PRVC, SIMV
- The ventilator shall have Pressure Support mode with backup functionality
- The ventilator should not contain any moving parts
- The equipment shall handle high- to low flow anaesthesia during both non-rebreathing and partial rebreathing conditions. Switching between different breathing systems shall be a simple operation.
- It shall be possible to regulate the I:E ratio between 4:1 to 1:8
- . The equipment shall include an integrated continuous PEEP-function ranging from 0 to at least 30 cm H2O.
- The set PEEP level should be visible on the control display
- The set pressure should be adjustable between 5 - 70 cm H20
- The set tidal volume should be adjustable between 20-1500 ml.
- The breathing frequency should be adjustable between 4-100 breaths/min
- The maximum flow rate should be approximately 200 l/min
- The equipment should provide a fast rise time in Pressure Controlled mode without overshoot.
- The equipment should have an easy accessible timer displaying hours, minutes and seconds.
- The equipment should have tools for performing a lung recruitment maneuver
- The lung recruitment manoeuvre should be automatic
- It should be possible to measure and visualize dynamic compliance breath by breath
- It shall be possible to pause ventilation and fresh gas flow for a defined time period."

25. Should have single/Double absorbent chamber canister. Easily removable for changing. Supplied with all standard accessories including Bains Circuit.
26. Closed circuit system , Sodalime canister, Single/Double Chamber
27. Pediatric Circuit (Jackson Rees)

28. Auxiliary O2 Supply point
29. Mask of Different size (2 each- 1 to 5)
30. Reservoir bag- 3 litre/5 litre/0.5 litre- 2 each
32. US FDA (510K) approve model should be offered.

Crash cart

1. Epoxy coated emergency crash cart with facility to carry oxygen cylinder and drawers and shelves for resustitative items. Mobile Crash Cart
2. Complete with fittngs like:Oxygen cylinder Drawers,Lamp
3. Should have dual push handles on either side
4. Should have S.S. shelves, six colored removable bins & two polystyrene lockable storage units with three drawers each.
5. Facility to carry ECG Monitors, Defibrillators etc on open areas at top centre and bottom shelves.
6. Should have Stainless steel saline rod fixed with.
7. Two accessory mounting brackets to mount accessories anywhere without the need of pre- threaded holes.
8. Crash cart should be mounted on 12.5 cmsdia non-rusting swivelling castor wheels. Two having locking arrangement.
9. Oxygen cylinder stand of SS 304 grade, on one side.
10. US FDA / European CE (Issued by notified body)/BIS/ISO approve model should be offered.

Monitors for vital signs (NIBP, P.R, ECG, SPO2, Temperature, R.R)

1. Should be able to monitor 5 lead ECG, SPO2, NIBP, Respiration rate and Temperature.
2. Should be portable with carrying handle.
3. Should have touch screen TFT display with at least 10 inches or higher with at least 6 waveforms and numeric display simultaneously.
4. Should have Lithium ion battery with 4 hours battery backup.
5. Should have keys for quick access to main functions.
6. Should have adult, pediatric and neonatal modes.
7. Should provide prominent prioritised audio, visual alarms for high, low heart rate, Spo2, RR, low battery, lethal arrhythmia recognition and ST Analysis.
8. Should have separate volume control for beep sound for QRS and alarm sound.
9. Should provide following accessories:
    - Reusable adult 3 lead ECG cable set – 2 nos.
    - Reusable adult and pediatric SPO2 finger probes – 1 each.
    - Adult and pediatric NIBP cuff of different size
10. Should work on 200-240V AC/50Hz with inbuilt rechargeable battery.
11. Model Should by US FDA / CE (Issued by Notified Body) approve product.
12. Electrical safety conforms to standards for electrical safety IEC-60601/IS-13450.

Nerve stimulator

1. Portable, small, battery operated and lightweight
2. Should have LCD display ,backlit
3. Variable current range
4. Numerical display of selected current/twitch height/TOF ratio/PTC count
5. Graphical display of twitch height/TOF responses/PTC
6. User programmable pulse width and frequency with default setting
7. Audio visual indication for pulse delivery and error
8. Power saving option
9. Low battery indicator
10. Should have Complete selection of stimulus patterns NM Monitoring

a) 1-twitch on demand and repeat at 1 sec and at 10 sec
b) Train of four (TOF) on demand and repeat at 10 sec
c) Tetanus frequency can be selected (100 Hz or 50 Hz).
d) Double burst stimulation (DBS)
e) Post titanic count(PTC)
11. Audible alert prior to actual delivery
12. Recorder facility with the unit (optional)
13. Nerve locator for peripheral nerve block
14. Disposable stimulating needle with port for injection compatible with nerve locator (20 numbers with each equipment)
15. US FDA (510K) Approved model should be offered

ANATOMY DEPARTMENT

Drill machine

1.The table top drill mounted on stand should have spring loaded lever of high quality.
2.Should have variable speed operation, high speed drill.
3.The single phase ac motor should have approx. 690 W.
4.It should be compact with overall length (320mm Approx.) and weight (Approx. 1.8Kg)
5. Aluminum die-casting inner cover and gear cover should be used for increased durability.
6. Should be easy to operate with a finger sized trigger switch and a speed control dial
7. It should have a reliable and convenient push button type forward/reverse change over switch.
8. Should have 2 speed transmission.
9. Shortest chuck offset (23.5mm(15/16"))
10. It should have soft grip handle for comfortable operation
11. It should have low operation noise 79dB
12. To be provided with high speed tungsten carbide bits of 1/2", 3/8", 1/4", 3/16", 1/8" or equivalent size
13. Should be ISO/BIS approved approved model should be offered

Hand saw (preferably metal)

1. Should be high carbon steel blades , hard and durable, anti rust and smooth, which lead sto less friction.
2. Blades should be chrome plated to prevent body fluid /chemical corrosion.
3. For HRC, Blade materials should reach 52 degrees and teeth reaches 60 degrees(+/ - 3)
4. Chrome treatment, antirust smoothening should be done to reduce the friction.
5. It should have strong handles.
6. It should be ergonomic and rust proof.
7. Special teeth design which should be sharp at edges
8. Should be supplied with essential accessories
9. Power Supply 200VAC +/- 10 %, 50Hz fitted with Indian plug.
10. Should be ISO/BIS approved approved model should be offered

Band saw

1. Body & meat cutting band saw
2. It should attach with a large movable stainless steel work table (electrically powered)
3. It should be fitted with 1 H.P. motor , 50 Hz,230V

4. Should be supplied with stand, protection and spare blades (2nos.)
5. Power Supply 200VAC +/- 10 %, 50Hz fitted with Indian plug.
6. Should be ISO/BIS approved approved model should be offered

Mortuary cooler with arrangement to keep 6 body

1. Corrosion free interior and exterior.
2. Audio visual alarm for high and low temperature.
3. Designed for long storage of cadaverous.
4. PUF insulation on all sides.
5. Special design ensuring best hygiene with washing & draining facility.
6. Reliable
7. Special loading trolley.
8. Energy efficient and sturdy construction.
9. Light weight.
10. Digital temperature indication.
11. Low maintenance.
12. Microprocessor based / PLC temperature control.
13. Double walled cooling units.
14. Outer body of the mortuary chamber is constructed out of thick S.S sheets. The inner chamber made of heavy gauge stainless steel sheet of SS-304 grade. The 100mm gap between the walls filled high grade poly urethane insulation, which ensures maximum thermal efficiency.
15. The doors connected by very sturdy chrome plate hinges and fitted with hard chrome plated lubricated latches for opening of the door.
16. The doors made of galvanized steel sheets, lined with stainless steel for extra protection and long life.
17. All the doors fitted with high quality neoprene rubber gaskets for airtight fittings with very sturdy casters.
18. CFC free compressors, conforming to latest international standards and guidelines. Twin compressors of which one is standby.
19. Vapor proof lamp inside.
20. Temperature range -2 to 4 deg C with temp failure alarms.
21.Power Supply 200VAC +/- 10 %, 50Hz fitted with Indian plug.
22. Should be ISO/BIS approved approved model should be offered

Storage tank to hold 10 cadavers.Static /movable ,Durable tank with input and output facility with lid

1. Storage to hold 10 cadavers, static/movable, durable tank with input and output facility with lid
2. Should be ISO/BIS approved approved model should be offered

Dissecting instruments for cadaveric dissection

1. Technical Specifications:
A. Student Anatomy Dissecting Kit
B. Should contain most widely used instruments of high quality.
2. Dissection Kit contents:
A. · Cartilage knife 2" blade
B. · Scalpel with screw lock blade
C. · Narrow blade scalpel 1.5" blade
D. · Forceps 4.5" with guide pin, medium points

E. · Forceps 4.5" with guide pin curved, fine points
F. · Dissecting scissors, Iris 4.5"
G. · Probe and hook chrome
H. · Dissecting scissors with one point sharp & one point blunt 5.5"
I. · Teasing needle straight
J. · Teasing needle bent
K. · Ruler 6" plastic
L. · Dissecting chain and hook chrome
M. · Dissecting blow pipe 6"
N. · Double fold vinyl case
O. B.P. Handle (No.-4) & B.P. Blade (No.-22 & 24)
P. Tooth Forceps
Q. Plain Forceps
R. Scissor Straight
S. Magnifying glass
T. Curved Scissor

3. US FDA (510K) / European CE (Issued from notified Body)/BIS Approved model should be offered

Embalming Machine

1. Fluid delivery rate should be 10ltrs/hr.
2. Inner tank to store embalming fluid with capacity 5-7 ltrs. should be of stainless steel.
3. Pump: pump should be of ELECTROMAGNETIC DOSING PUMP with capacity 0-5 ltrs. per hour and pressure 3 kg/cm square.
4. The equipment should be mounted on castors for easy movement and the hand grip should be provided for lifting.
5. I.V. stand fixed for mounting cannula tubing and mains cable.
6. Indicator for mains on & in use should be present.
7. The outer body should be of complete stainless steel.
8. Should be ISO/BIS approved approved model should be offered.

Microscopes, Monocular

1. Monocular head inclined at 300, 3600 rotatable with super wide field. Field of view 18 mm or higher.
2. Super wide field WF 10X,18 X to 22X mm high eye point with eye guard/eye shield.
3. Ultra high resolution with antifungal S-PLAN achromatic objective 4X, 10X, 40X (High day spring loaded) 100X oil immersion (spring loaded) antifungal.
4. Double layer mechanical stage 140 x 125 mm ball bearing type with low position coaxial controller).
5. Aspheric lens illumination built-in halogen lamp 6V, 20W brightness adjustable with SMPS power supply. Self-removable magnetic contact aspheric lamp control for self-changing of bulb.
7. Smooth centered multiple ball bearing Quadraple nosepiece
8. Coaxial glass focusing coarse and fine mechanism.
9. Extra microscope bulbs 3 numbers for each microscope should be provided free of cost
10. Microscope main body: Made of aluminium with movements guided by ball bearings.
11. Co-axial mechanical stage with co-axial coarse and fine focusing control knobs.
12. Rack and pinion type condenser holder with N.A 1.25 iris diaphragm supplied with a blue filter.
13. Built-in Kohler illumination using 6V 20 W best quality halogen lamp already precentered with light control facility.
14. Quadruple nose piece .
15. Lenses:
a) Achromatic objectives, 4x, 10x, 40x (spring loaded and 100x (oil immersion-spring loaded).
b) Wide field 10x Eye piece.
16. All lenses must be provided with fungus resistance and anti-reflection coating.

17. 45˚ inclined observation tube, rotatable through 360˚.
18. Spare fuses – 10 Nos.
19. Spare lamp – 2 Nos.
20. Dust cover.
21. Wooden storage box.
22. Lens cleaning fluid, lens cleaning paper and immersion oil must be supplied as standard.
23. Power Supply 200VAC +/- 10 %, 50Hz fitted with Indian plug.
24. US FDA (510K) / European CE(Issued from notified Body Approved model should be offered.

Dissection microscope

1. Eye piece: Straight binocular type wide field (10 x)
2. Optic carrier with five steps magnification.
3. Fine focusing manual
4. Objective 250mm f & 400 mm f.
5. light co-axial illumination additional 10 spare bulbs.
6. Solid metallic body with sturdy stand riding on heavy castor wheels with locking breaks.
7. Halogen illumination 6V/15W with power supply
8. Should have 3 spare lamps with each unit.
9. Power Supply-Power input to be 220-240VAC, 50Hz.
10. US FDA (510K)/ European CE(Issued from notified Body) Approved model should be offered.

Microtomes Rotary

1. Rotary shaker with durable steel body which provides gentle and adjustable angle rocking suitable for blotting or staining and distaining gels.
2. With Non-skid platform and edge on all four sides.
3. Background of the platform should be preferably white in color for easy viewing of test material.
4. Adjustable rocking angle from 10-15 degrees from horizontal.
5. Electronic speed control from 0 to 100 cycles/min.
6. The instrument should operate on 230±10 volts 50Hz power supply.
7. Should be supplied with on line UPS of sufficient capacity for a minimum back of 30 minutes.
8. Should be US FDA/ European CE(Issued from notified Body) approved model should be offered.

Microtomes, Sledge, large cutting

1. High precision machine suitable for both delicate as well as hard tissue sectioning
2. Section thickness settings 1-60 µm with settings in 1,2,5 increment at different levels
3. Specimen advance 28 mm or more
4. Vertical stroke 60 mm or more
5. Provision of step trimming
6. Adjustable specimen clamp at atleast 50 x 45 mm with orientation in X,Y axis
7. Single disposable blade holder for accommodating both high and low profile blades
8. Lateral coarse feed
9. Integrate removable section waste tray
10. Spare low and high profile blades in dispenser pack of 50 blades: 6 packets each
11. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Paraffin Bath Embedding

1. Embedding station should have 2 separate components cold plate heated paraffin dispensing module.
2. Module should allow flexibility to arrange embedding work flow in the either direction.
3. Capacity of Paraffin reservoir should be 3 lit. capacity with vacuum lid, easy to clean, scratch resistant, heated wailing surface with paraffin drain system.
4. Adjustable paraffin flow rate.
5. Two heated removable paraffin waste tray.
6. Paraffin outlet:manual or foot pedal operated paraffin outlet.
7. Removable and interchangeable cassette and mould warmer.
8. Large peltier cooling spot, even for super mega cassettes.
9. Adjustable temperature for all modules between 55 to 70 Deg C
10. Heated forceps holder which is easily removed for cleaning.
11. Capacity of approximate ranging 100 to 150 cassettes.
12. Programmable timing and temperature.
13. Magnifier (essential)
14. Illuminator (essential)
15. Main:230V,50 Hz
16. Height - 400 mm
17. Width - 500 mm
18. Depth - 700 mm
19. Weight - 30 Kg
20. Size of working surface - 2 x 175 mm
21. Size of cold spot - 70 mm
22. Acessories
23. Removable holder.
24. Paraffin scrapper
25. Freezer
26. Replacement bulb
27. Set of fuse
28. Set of power cords
29. Cassette - 50,000 labels
30. Stainless steel capsules for matis mould.
31. ONLY US FDA (510K) / European CE (issued by notified Body) Approved model should be offered

BIOCHEMISTRY DEPARTMENT

Analytical Balance : upto 200g/1gm increment

1. Microprocessor based single pan Analytical Balance with High accuracy & precision is required. Reading of the weight by digital display.
2. Weigh accurately up to 3rd decimal place
3. Auto self-calibration facility
4. Auto zero Setting, TARE setting
5. One touch calibration
6. Weighing capacity up to 200g
7. Readability and repeatability 0.001g
8. Stabilization time < 5 second

9. Liquid Crystal Display (LCD) for display
10. US FDA (510K)/ European CE(Issued from notified Body)/BIS Approved model should be offered.

Hot air oven (More than 200 litres)

1. Double Walled, inner wall made of aluminium and outer wall Mild Steel sheet.
2. Shelves: 3 to 5 stainless steel, perforated shelves, could be adjusted at any levels.
3. Heating Elements: placed at the bottom and sides.
4. Temperature control: Thermostatic control from 40 to 250 o C with Regulator and digital temperature-indicator.
5. Automatic timer 0 - 60 minutes.
6. Air circulating fan.
7. Volume : 200 L
8. US FDA (510K) / European CE(Issued from notified Body)/BIS Approved model should be offered

Students microscope

1. Body - Inter changeable, inclined Binocular body, 360-degree rotatable head.
2. Eyepieces - Highest quality 10 X wide field anti fungus field eyepiece, FOV 22 mm.
3. Objectives - Par focal, antifungal coated 4x, 10x, 40x and 100x (oil immersion) with plan achromatic correction for FOV of 20 mm.
4. Optical system - Infinity corrected
5. Stage - Horizontal mechanical stage preferably 100 x 140 mm with fine Vernier graduations designed with convenient coaxial adjustment for slide manipulation preferably through 30 x 70 mm.
6. Sub stage - Abbe condenser N.A 1.25 focusable, continuously variable iris diaphragm.
7. Illuminator - Built-in LED light source with white light.
8. Finish - A durable textured acid resistant finish.
9. Should provide dust cover and immersion oil.
10. US FDA (510K) / European CE (Issued from notified Body)approved model should be offered.
11. Power Supply 220VAC +/- 10 %, 50Hz fitted with Indian plug .

Semi autoanalyzer

1. Should be microprocessor controlled general purpose bi-chromatic photometer system with at least 6 filters/grating system ranging from 340 to 630nm.
2. Temperature 37 self monitoring built-in incubation systems for temperature controlled absorbance reading.
3. Light source: Tungsten/ halogen or higher grade with 2 (two) additional bulb.
4. Should have end point, kinetic and two point kinetic measurement modes.
5. Should have flow cell measuring device having capability of measuring with 500 µl or less volume of reaction mixture.
6. Should have inbuilt printer.
7. Should have a measurement range from 0.001 to 2.500Abs or more
8. Should have facility for reading results on LCD display.
9. The system should have good repeatability and precision
10. Should have quality control – two control/test QC survey of at least 30 points, Levy Jenny plot.
11. Should have a filter half bandwidth of 10nm or lesser.
12. Should have a test programme memory of 50 or more.
13. Should be provided with sample carry over prevention facility.
14. Should be supplied with 1 variable (10-100µl) and one fixed volume 500µl pipettes.
15. Aspiration should be based on Bellow/Peristaltic Pump/ Vacuum pump.
16. Should provide 500 ml of reagents with calibrators for urea, Serum creatinine, Serum bilirubin, Plasma Glucose, Cholesterol, and Quality control 5ml one each for normal and abnormal for installation and demonstration. Should be supplied as and when required by users.
17. Should submit cost per ml of all reagents and consumables
18. Should be supplied with on line pure sine wave UPS of sufficient capacity for a minimum back of 30 minutes.

19. Should be provided with calibration certificate issued by the manufacturer at the time of installation and calibration certificate should be issued for the machine by the supplier during preventive maintenance visit in the warranty/AMC period if demanded by the end user.
20. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered

Water bath

1.Should have a double walled construction.
2.The inner chamber and top lid should be made of stainless steel.
3.The space between the two walls should be packed with thick glass wool.
4.Should provide with a thermostat control.
5.Working temperature should be from ambient+5 ºC to 80ºC having an accuracy of +1 ºC
6.Should have an approximate inner chamber dimension of 350mm x 250mm x 125mm.
7.Should be operated on 230V, 50 Hz single phase AC supply
8. US FDA (510K) / European CE(Issued from notified Body)/BIS Approved model should be offered

Constant temperature water bath Tank Capacity: (Temperature range 5 to 80 degree Celsius)

1. Double Wall, both outer and Inner chamber are Stainless steel with insulation between outer and inner chambers.
2. Special type of transparent PP/PVC/acrylic cover in the shape of inverted V to avoid evaporation of water and draining of condensed water back into water bath.
3. Shaking speed (Approximately): 25 to 200 strokes/min.
4. Temperature Range: from 5 to 80 o C with accuracy of ± 1 o C
5. Thermostatically controlled with Regulator.
6. Mercury thermometer must be provided
7. Digital temperature indicator cum Regulator
8. Removable stainless steel tray with the following capacities (Approximately) must be provided.
    a.100 x 10-12 flask
    b.250 x 4 - 6 flask
    c.500 ml x 2 - 4 flask
    d. Test tube racks.
9. US FDA (510K) / European CE(Issued from notified Body /BIS Approved model should be offered

Complete Chromatographic Unit for paper & TLC

1. TLC Basic Kit, consisting of (Nanomat 4)
2. smartCut plate cutter to cut TLC/HPTLC glass plates up to 20 × 20 cm
3. Twin Trough Chamber for 10 × 10 cm plates, with stainless steel lid
4. Twin Trough Chamber for 20 × 20 cm plates, with stainless steel lid
5. smartAlert solvent front monitor (only suitable for glass plates)
6. Viewing Box 4 for CAMAG UV lamps of the 022.91XX series
7. UV lamp 4 dual wavelength 254/366 nm, 2 × 8 W
8. Glass Reagent Sprayer, all glass, with 100 mL erlenmeyer flask
9. Saturation pads, pack of 100 (20 × 20 cm)
10. Capillary dispenser consisting of universal capillary holder (022.7786), one dispenser
11. magazine for 1 µL capillaries (022.7661and one package of 5 × 100 disposable capillary pipettes 1 µL
12. Dispenser magazine for 2 µL capillaries, without capillaries
13. Dispenser magazine for 5 µL capillaries, without capillaries
14. Disposable capillary pipettes 2 µL, pack of 5 × 100
15. Disposable capillary pipettes 5 µL, pack of 5 × 100
16. MERCK TLC plates silica gel 60 F 254, 20 × 20 cm, pack of 25
17. US FDA (510K) / European CE(Issued from notified Body /BIS Approved model should be offered

Centrifuge Machine (16 tube)

1. Should have a maximum speed of 5000 RPM with steeples regulator
2. Should be supplied with safety lid and lock. (Brushless Motor)
3. Should have digital speedometer and timer.
4. Should have imbalance detector and automatic cut off.
5. Standard mark on quality and safety is Compulsory.
6. Should work on a220VAC +/- 10 %, 50Hz AC Supply.
7. US FDA (510K) / European CE(Issued from notified Body /BIS Approved model should be offered

Complete Electrophoresis apparatus with power supply (Paper, PAGE, agarose)

1. Electrophoresis apparatus with power pack capable of running both paper and gel electrophoresis
2. Dual Chambers, each with buffer capacity of 300ml
3. Power pack with both constant voltage and current indicators with user manual.
4. Vertical Gel Appartus
5. Should be able to run two slab gels appr 10x8cm simultaneously
6. Complete Gel casting system for casting multiple gels
7. Power connecor integral with safety lid
8. Silicon rubber gaskets
9. Supply atleast four sets of 2 mm thich notched and plain glass plates
10. Supply atleast four sets of 1 mm spacers
11. Supply atleast four Nos of 1 mm thick comb for 8-24 samples
12. Horizondal gel Appartus
13. Gel tank size 8x11 inches(midi gel appartus) and 3x6 inches (mini gel appartus) with platinum electrodes and dams
14. Complete Gel casting system for casting multiple gels
15. power connecor integral with safety lid
16. Supply atleast four sets of gel casting trays
17. Supply at least six numbers of 1 mm thick comb for 8-20 samples
18. Compatible DC Power supply
    - Compatible microprocessor-based power supply to run at least 2 units at constant voltage or current with automatic cross over
    - Output range programmable,10-500V, 4-500 mA in 1 mA step, 100 W maximum
    - Single-unit increments in settings and read-outs for precision and reproducibility
    - Easy to read digital display
    - Ensure safety features for overload, sudden load change, short circuit protection etc
19. Electro Blotter for transfer of proteins from acrylamide gel to nitrocellulose
20. Vertical Tank with safety lid and connecting leads
21. Blotting pads with holders -2 Nos. compatible with the vertical gel apparatus
22. Only US FDA(510K) /European CE (issued by Notified Body)Approved model should be procured.

Densitometer with computer

1. Densitometer (or) Gel scanner with the necessary accessories and software either of these with the following features to be procured along with electrophoresis system
2. Scanning & processing all gels including those specified above
3. Facility to store the scanned image of the gel
4. Facility for curve editing and entry of patient demographics
5. Availability of quantification and quality control features
6. Storage of patient data and results – up to a minimum of 10000 Samples
7. Facility to generate a comprehensive report containing patient demographics, scanned image of the gel, curve and quantification data.
8. Only US FDA(510K) /European CE (issued by Notified Body)Approved model should be procured

System, Configuration and Accessories

- All necessary standard accessories like those required for sample application to be provided along with the instrument. Others PC with software should be provided.

Incubator 37oC

1. Capacity: 120 L
2. Interior chamber: SS 316 for easy cleaning and decontamination
3. Timer: 1 min. to 100 hours and hold position
4. Minimum turbulence and no cross contamination
5. Adjustable safety thermostat for temp setting at 1 deg C increment
6. Temp Accuracy : +/-1%
7. Internal glass door for the observation
8. With minimum two adjustable shelfs
9. Audiovisual Alarm to Indicate when temperature deviates more than 1°C from setpoint, and when program or time has finished. Equipment should have provision to mute the alarm.
10. Peltier heating with continuous air circulation and Heating by natural/forced convection for homogenous temperature distribution
11. Temperature range: +5° C to 60°C
12. There should be a Membrane Keypad with LCD/LED Display to set and display operating parameters, current status, running time and alarm conditions for time and temperature.
13. The Equipment should have Interior lighting facility, and insulated door fitted with heavy hinges
14. Power Supply:230V,50 Hz

System Configuration Accessories, spares and consumables

a. Incubator as per specification
b. All consumables required for installation and standardization of system should be provided free of cost
c. Should be supplied with all the accessories required for the functioning of the equipment.
d. Power Cord

Standard, Safety

- US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered.

Fume cupboard

1-**Operational Requirements**

The cupboards shall be fume cupboards with exhaust systems comprising of PVC centrifugal fan, ductwork, discharge cowl and supports.

2-**Technical Requirements**

Service

GPOs are to be located on the outside face of the fume cupboard and are to have RCD protection. The fume cupboard Microprocessor control panel shall be located on the outside face of the fume cupboard and shall include the exhaust system start, gas and power start, light on/off, emergency shut down and a visual light to indicate power is live to the fume cupboard.

Other (piped) Services:

The outlets to other services (e.g. gas, water) shall be finished in polycoat powder lacquer, and shall be located inside the fume cupboard and be colour coded to match control valves. All pipe work between control valves and outlets shall be preplumbed and tested by the fume cupboard supplier.

Controls:

All services, other than electrical, shall be individually controlled and the controls shall be located on the outer face of the fume cupboard and not protrude beyond the line of the face of the fume cupboard. The unit shall include battery back-up that is automatically charged when the fume cupboard is running.

Fixed Volume fume Cupboard

The quantity of air extracted from the conditioned air space through each fume cupboard shall remain constant. The quantity of air through the open sash of the fume cupboard shall be modulated to maintain an average air velocity of 0.5m/s across the open sash in any sash position. As the sash is lowered it will open up a bypass baffle at the top of the fume cupboard, allowing air to flow into the top of the fume cupboard thus balancing the fume cupboard.

Fixed

The sash shall be easily moveable vertically rising panels, glazed with armour plate glass. The sash to be counterbalanced by a one piece balanced weight, supported by cables running through a stainless steel ball bearing pulley. The bottom of the sash will have a full width pull handle of a type that will minimize the airflow disturbance across the sash opening.

Maximum Working Sash Opening:

To reduce the volume of air exhausted from the laboratory the fume cupboards maximum working sash opening shall be limited to 500mm by a physical stop preventing the sash being opened further.

Minimum Sash Opening:

Stops shall be fitted to provide a minimum opening of at least 50mm below the sash.

Design of Sash Opening:

The sash opening shall incorporate aerodynamic features to promote non-turbulent entry of room air into the fume cupboard working chamber.

Baffle

Internal removable air distribution baffles shall be fitted to the rear and top of the fume cupboard chamber. An anti-roll baffle shall be fitted to the top front of the fume cupboard chamber

To ensure scavenging of fumes from behind the sash. The baffle fastening system shall also serve as fixing points for Lab zone laboratory equipment scaffold.

Lightining

Light capable of providing illumination at the work surface shall not be less than 600 lux and shall be located outside the fume cupboard working chamber behind a 5mm non-opening transparent or translucent panel, sealed from the interior chamber. For cleaning or replacement a three-pin plug will be provided.

Sink

The work surface is to be provided with sinks as specified in the Fume Cupboard Schedule.

CONSTRUCTION

The fume cupboard shall not have wall cavities but be of single wall construction.

The chamber baffles and floor should be constructed from nonporous white rigid PVC.

The sash whether acrylic or glass must be suitable for the application.

Exhausts

Exhausts from different fume cupboards shall not be combined.

Fan

The fan shall be the made from corrosion resistant materials. The impeller shall be a one piece 36 blade polypropylene construction, statically and dynamically balanced. The casing shall be either PVC or Polypropylene. The pedestal shall be galvanized steel. A drain point shall be provided in the fan cowling.

Fan Stack Discharge

A velocity cowl shall be fitted to the fan stack discharge to maintain a maximum fume discharge velocity of 10m/s.

UPVC Duct Work

Fume cupboard exhaust ductwork and associated vertical discharge cowls shall be made from light weight corrosion resistant unplasticated polyvinyl chloride (UPVC).

Circular ductwork with a minimum wall thickness of 3mm should be used where possible. Blends should be of moulded radiused construction with a minimum wall thickness of 2.5mm. Duct is to be joined via spigots or sockets with an approved solvent or hot air welding. All fabricated ductwork whether rectangular or circular, shall be hot air welded. All joints are to be air tight.

Schedule Of Fume Cupboard

The attached schedule details the fit-out requirements of each fume cupboard.

Fume Cupboard monitoring

All fume cupboards shall be mounted on white powder coated steel under bench with under bench cupboard complete with doors, handles and shelves. Infill panels above the fume
Cupboard to ceiling shall be provided by the builder and adequate access panels shall be provided for servicing of fume cupboard light, controls and sash movement systems.

Variable Flow System

The fan inverter shall indirectly work off sash position and incorporate a pressure transducer that monitors the duct pressure and compares the sash position against the expected duct pressure and if the pressure is below what is expected (in any sash position) the fume cupboard shall initiate the emergency shutdown procedure. Provision may be made to boost the exhaust flow rate above the face velocity requirements

Fume Eliminator

The fume eliminator shall be for horizontal air flow and shall be the deflector blade design incorporating packs of hooked panel blades. Wide angle, full coverage, corrosion resistant water spray jets (with solenoid control valve) shall be positioned in the inlet duct of the eliminator.
Inlet and outlet transitions shall be designed to achieve good flow distribution across the whole blade area. Materials of construction should be either PVC or Polypropylene. Water to the jets shall be arranged to turn on and off with the exhaust fan.

Fume Wet Scrubber

The fume scrubber should be designed to either fit directly onto the top of the fume cupboard (to eliminate ducting) with the exhaust gases passing vertically up through the scrubber, or where site space restrictions do not permit the installation of a vertical scrubber on top of the fume cupboard, a horizontal roof mounted scrubber can be used. In either case the scrubber shall be of the packed design.

Vertical Scrubber:

The scrubber shall be designed to fit directly onto the fume cupboard exhaust outlet. The exhaust air shall pass up through a packed bed of polypropylene pall rings. Inlet and outlet transitions shall be designed to achieve good flow distribution across the whole section of the packed bed. Immediately above the packed bed will be wide angle, full coverage, corrosion resistant water
spray jets with solenoid valve. A transparent window shall be incorporated into the scrubber body, providing a view of the working water spray jets. Above the sprays there shall be a mist eliminator bank effective to 99%‡15 of the saturated exhaust air before it enters the duct. Water to the jets shall be arranged to turn off with the exhaust fan.

Spray Water Recirculating Tank:

A water recirculating tank shall be positioned on the underside of the fume eliminator or horizontal wet scrubber. The recirculating tank shall incorporate a level float connected to the water supply and a 240 Volt pump providing water at pressure to the sprays. The tank shall include an inspection window in its side.
Connection between the eliminator or scrubber and the water recirculating tank shall be by hand toggle clamps.

Baffle Wash down Facilities:

Water sprays shall be positioned behind the cupboard baffles and be arranged to activate on fan shut down. The cupboard work surface should have an integral trough/slump to collect wash down water.

Heat Shields

Heat shields or heat resistant baffles, where fitted, shall be designed to provide adequate protection for the inner surfaces of the fume cupboard. They shall be easily removable for cleaning .Heat shields shall not be positioned so that they compromise the safe and efficient operation of the fume cupboard.

Thermal Detector

1-Operational Requirements

The cupboards shall be fume cupboards with exhaust systems comprising of PVC centrifugal fan, ductwork, discharge cowl and supports.
US FDA (510K) / European CE(Issued from notified Body)/BIS Approved model should be offered.

Digital Analytical Balance

1. Microprocessor based single pan Analytical Balance with High accuracy & precision is required. Reading of the weight by digital display.
2. Weigh accurately up to 3rd decimal place
3. Auto self-calibration facility
4. Auto zero Setting, TARE setting

5. One touch calibration
6. Weighing capacity up to 120g
7. Readability and repeatability 0.001g
8. Stabilization time < 5 second
9. Liquid Crystal Display (LCD) for display
10. US FDA (510K) / European CE(Issued from notified Body)/BIS Approved model should be offered.

Balance Micro

1. Readability 1 µg (0.001 mg)
2. Weighing range 6 g
3. Reproducibility 0.0015 mg (0 to 0.2 g) 0.0025 mg (0.2 to 6 g)
4. Linearity +/- 0.007 mg
5. Stabilization time 4 Sec
6. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Spectrophotometer

1. Basic mode: Absorbance, %T, concentration
3. Wavelength scanning mode
4. Kinetics mode – including time/drive
5. DNA/Protein analysés mode
6. Multi – wavelength
7. Performance validation mode
8. Display: LCD
9. Light source: Tungsten – Halogen and deuterium
10. Monochromator: Littrow type with 1200lines/mm grating
11. Detector: Two silicon photodiodes (and 2 spares)
12. Wavelength range (approximately): 190 – 1100nm
13. Wavelength accuracy: ± 0.3nm
14. Wavelength resolution: 0.1nm
15. Wavelength repeatability: ±0.05nm
16. High resolution Varaible spectral band pass (0.5, 1 ,2 4 nm)
17. Photometric range: -3.5 to +3.5 A, 0 –300%T and 0 – 9999conc
18. Photometric accuracy ,±0.002A(0to0.5A),±0.004A(0.5to1A
19. Scan speed: up to 2500nm /min (return 3000nm/min)
20. Noise drift: Less than 0.001A/hr after warm up
21. Noise: Less than 0.0001A @500nm OA
22. Baseline flatness: ± 0.002A
23. Stray light: Less than 0.05%T @220nm and 340nm
24. Cuvette volume: Maximum 1ml
25. No of cuvettes minimum 5 quartz Cuvette

Accessories

26. PC and laser printer should be provided User manual and service manual to be provided
27. US FDA (510K) / European CE(Issued from notified Body)/BIS Approved model should be offered.

ELISA (Demonstration)

1. Predilution facility should be present
2. Random access, provision for multiple assays.
3. Parallel sample pipetting should be present
4. 6 filters with a minimum range of 400-700 nm are required.
5. Minimum 10 measurements.
7. Volume of wash liquid dispensed variable & adjustable.
8. User friendly software with option for manual intervention
9. Residual volume/ well should be <3µl
10. User friendly software with option for manual intervention
11. Temp. range-room temp to 37 deg C +/- 1 C.37 deg

12. Plate incubator Bottom.
13. Liquid & Clot/foam/bubbles detection should be present.
14. Color monitoring check should be provided
15. There should be no carryover of sample.
16. Password protection to prevent unauthorized person's access to software.
17. Printer to provide printed reports of tests. Patient name, ID keyboard entry & individual report printouts in preset format.
18. Teflon coated metal probes/ through disposable tips. (Both if possible)
19. Facility to store at least 50 assay protocols
20. Facility to program samples, standards and controls in replicates
21. Display of assay scheduling, start and finish times
22. Automatic Quality Control Equations like Westgard rules, Levy Jennings charts.
23. Curve fits like Cubic Spline, Sigmoid, Polygon, LogLog, 4-parameter, point to point, Linear, Quadratic, spline, lin/log.

Reader Specification

1. Dynamic Range 0.0-3.0 OD
2. Precision <2% CV (2-3.0 OD)
3. Linearity +/- 1% (<2.00 OD)
4. Accuracy ± (1% of the reading +0.005A from 0 to 1.5A) ± (2% of the reading +0.005A from 1.5 to 3.0A)

Washer Specifications –

5. Manifold configuration 8-Way
6. Wash cycles possible – not less than five
7. Incubator Specifications –
8. Temperature minimum range 25 - 40oC
9. Temperature accuracy +/- 1oC
10. Facility for shaking

Sample pipetting –

11. Precision at 25ul <3% CV
12. Accuracy at 25 ul +/- 2%
13. Dispensing volume minimum 5 µl

Reagent Pipetting –

14. Reagent Pipetting precision <3% CV
15. Reagent Pipetting Accuracy +/- 2%
16. 4 System Configuration Accessories, spares and consumables

System as specified-

17. All consumables required for installation and standardization of system to be given free of cost.
18. 20 nos. uncoated micro well plates to be supplied

Environmental factors

19. The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
20. The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%

Power Supply

21. Power input to be 220-240VAC, 50Hz fitted with Indian plug
22. Resettable overcurrent breaker shall be fitted for protection
23. Suitable voltage corrector/stabilizer
24. Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
25. Only US FDA (510K) Approved model should be offered

Arterial blood gas analyser (ABG)

1. Compact system for measuring pH, pCO2, pO2, -HCO3 & four Electrolytes like Na, K, Ca+ and Cl - in blood.
2. All should be measured in a single injection / aspiration of Sample.

3. May have provision of modular platform for future up gradation to include glucose, lactate & haemoglobin the same machine with the inspiration of single sample.
4. Should be able to analyse all parameters using low blood volume directly from syringe or capillaries.
5. Fast and accurate result of test made available in about 60 seconds.
6. Automatic Calibration by liquid calibrators with flexible time mode. Instrument should have Stand-by mode facility and Economy mode.
7. It should not be cartridge-based system.
8. Start-up Kit, Calibrators, Consumables, Accessories and spares required performing initial 500 tests.
9. All the consumables and spares should be quoted separately unit wise.
10. Compatible online UPS with battery backup of at least one hour
11. Only US FDA (510K) Approved model should be offered.

Skills Labs

Basic Life Support (BLS), CPR (cardiopulmonary Resuscitation) mannequin

1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials.
2. The texture of the mannequin should be as close to the feel of the baby/adult skin as relevant.
3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevent and suitable for simulation.
4. It should have features to demonstrate opening of airway, head tilt/chin tilt and jaw thrust techniques.
5. Adult CPR Mannequin should have disposable airways.
6. Adult CPR Mannequins should have removable, reusable faces.
7. Adult CPR mannequin should have an indicator which confirms correct chest compression technique.
8. It should have compression spring for consistent resistance.

Various Types of injections- Subcutaneous, Intra-muscular, Intra-venous

1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials.
2. The texture of the mannequin should be as close to the feel of the baby/adult skin as relevant.
3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevent and suitable for simulation.

4. Intramuscular injection training model should have lifelike human torso with intramuscular injection site in upper outer quadrant of palpable gluteal region on both side (left and right).
5. Should have intramuscular injection in ventrogluteal site below iliac crest on both side (left and right).

Gynecological examination mode/mannequin including ICUD (Intra Uterine Contraceptive Device) Training model

1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials.
2. The texture of the mannequin should be as close to the feel of the baby/adult skin as relevant.
3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevent and suitable for simulation.
4. Anatomically accurate sagittal or coronal section of uterus and vagina suitable for demonstration of insertion and removal of IUCDs.
5. Should have uterus, ovaries and fimbria.
6. Model should have a transparent window for easy view of cavity.

Neonatal & Pediatric resuscitation mannequins

1. The material of mannequin should be of polyvinyl and silicone rubber, free from any hazardous material.
2. The texture of the mannequin should be close to the feel of the baby/adult skin as relevant.
3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevent and suitable for simulation.
4. Newborn mannequin should have features for training essential newborn care (ENBC) and newborn resuscitation.
5. Newborn Mannequin should facilitate effective bag and mask ventilation, chest must rise only with correct technique.
6. The newborn mannequin should include the following: Squeeze bulbs for simulation of cord pulsation, spontaneous breathing, auscultation of heart sound and cry.
7. The new born mannequin should demonstrate clearing of airways, perform suction; monitoring of ventilation and pulsation.

Whole body mannequins

1. The Manikin should be a full body manikin designed to run advance life support course.
2. The manikin should allow to teach patient assessment and physical examination skills including
   a. Head to toe examination
   b. Pupillary reaction with multiple scenarios
   c. Tongue swelling (angioedema)
   d. Carotid pulse
   e. Visible chest rise
   f. Lung auscultation including normal and abnormal breath sounds
   g. Pneumothorax
   h. Heart sound including normal and abnormal

i. Bowel sound
j. Blood pressure measurement
k. ECG monitoring

3. The manikin should allow to teach airway technique including Headtilt chin lift, C-E technique for Mask holding, jaw thrust. All basic, supra glottis, advanced airways and surgical airway procedures
4. The manikin should have CPR feedback as per 2015 guidelines. The manikin should have feedback on depth chest compression, chest recoil, rate of compression, interruption time, ventilation volume and should also provide score on over all CPR skills.
5. Should allow to perform needle decompression and chest drain Should have IV arm with veins that IV accesses as a part of drug therapy.
6. The manikin should generate all ACLS normal and abnormal ECG rhythms.
7. The manikin should be able to receive real Defib shock of 360/200 Joules.
8. The manikin should have automatic carotid, brachial and radial pulse, the pulse should have synchronized with ECG and blood pressure.
9. The manikin should have facility to have vocal sounds for patient to participant communication.
10. The manikin should have visible chest rise coordinating with the set respiratory rate. The lung sound, chest rise, and RR should coordinate with each other.
11. The manikin should be controlled by a wireless, touch screen control unit.

Trauma mannequin

1. Mounted to a base but can be easily transfer to adults mannequin for use in full body trauma scenarios.
2. Recognition and assessment of the following
    1. Palpable fractures.
    2. Open depressed skull fracture.
    3. Le Fort I & III
    4. Nasal fracture,
    5. Mandibular fracture (Left)
    6. Fracture of C-6 Vertebra.
    7. Unequal pupils,
    8. Hemotympanum.

Physical Medicine & Rehabilitation

Skeleton Traction set

1. Should be able to deliver decompression therapy.
2. Should have a touch screen interactive display for easy treatment set-ups and easy angle selection and must come with treatment protocol manual; Must provide along with the package Angle reference chart.
3. Should be able to automatically calculate and digitally display the rope pull angle for decompression and traction as per the treatment protocol.
4. Should provide protocol manual for light therapy and lumbar and cervical protocol manual Must be a build in computerized software package and protection against accidental setting of

force-must have a safety switch for emergency shut off. Hold time: Ito 99 Sec with Digital Display

5. Rest time: I to 99 Sec with Digital Display
6. Traction Force: 4-45 Kg (With Double 90 Kg)
7. Cervical: 4-15 Kg (Each 1 kg step)
8. Lumbar 23 to 45 Kg (Each 2 kg Steps)
9. Safety Switch.
10. Should come with Flexion stool, Knee bolsters, Cervical pillow, Ankle bolsters, and decompression belts thoracic and pelvic.
11. Should provide with a 4-section motorized table hi/low with clamps, frame attachments for connecting the traction unit.
12. Should operate from AC 220 VAC ± 10 %, 50 Hz & with Suitable capacity Servo Stabilizer.
13. US FDA (510 K)/European CE (Issued by a Notified body) approved model should be offered.

Interferential therapy unit

1. Dual output Channels and isolated between channels
2. Should have 0-30 operation programs
3. Symmetrical Balanced Sine Wave
4. Output Current:0-100 mA
5. Interferance Frequency 2-160 Hz
6. Output Frequency 4000Hz (with ±1% tolerance) fixed on Channel 1
7. Modulating Frequency 4002 — 4160Hz (with ±1% tolerance) adjustable on Channel 2
8. Treatment Timer Continuous, 15, 30, 45 or 60 minutes
9. 2pole/4pole multi vector mode
10. Patient Safety Fuse

11. Accessories, -

One set Patient wire IFT
Two set Fixation straps
One jell bottle
One Power cable
One operating manual
Big and Small rubber electrode

12. Should operate from AC 220 VAC ± 10 %, 50 Hz & with Suitable capacity Servo Stabilizer.
13. US FDA (510 K)/European CE (Issued by a Notified body) approved model should be offered.

Short Wave Diathermy

1. The unit should offer minimum 20 preset therapeutic protocols with electrode placement images to make operation of the simple and convenient.
2. Should have an output of up to 500 W in continuous mode.
3. 800 to 1100 w in pulse mode.
4. Pulse repetition frequency of 20 to 200 Hz adjustable in 10 steps
5. LCD Screen display of parameter Treatment timer with all standard.
6. 30 minutes treatment timer & tuner control .

7. **Accessories**
Condenser pad with cable
Disc electrodes with arms and cables.
Patient safety switch

8. Should operate from AC 220 VAC ± 10 %, 50 Hz & with Suitable capacity Servo Stabilizer.
9. US FDA (510 K)/European CE (Issued by a Notified body) approved model should be offered.

Hotpacks & Hydrocollator

1. The Unit should be provided with thermostat temperature control.
2. The unit should have detachable insert rack to hold and suspend packs for heating.
3. The Unit should made of stainless steel with rubber wheels for mobility.
4. Tank Capacity 30-50 Liters approx
5. Filled Weight 50 kg - 80 kg approx
6. Temperature Range upto 90° C)
7. Thermal Cut-out Temp (88° C ± 8° C)
8. Heating Up Time Time to (70° C) - 3 Hours
9. Cool Down Time Time from 160° F (70° C) - 2 Hours
10. Device should be Safety Class Type B and Safety Tests UL 544
11. Heating Indicator
12. It Should have Drainage valve .

13. Accessories

1. Includes two Oversize HotPacs,
2. Three Standard size HotPacs
3. Neck Contour HotPac.
4. Forceps and Tongue

14. US FDA (510 K)/European CE (Issued by a Notified body)/ISO /BIS approved model should be offered.

Exercise table

1. Made up of solid wood, Should have 4 legs
2. Plinth Size: High and Low
3. Top 19 mm thickness ply.
4. 4 inch cushioned with rexin cover legs cross section 8 x 10 cm.

Static Cycle

1. Accurate instrumentation to measure heart rate, speed, distance, time and energy.
2. Should have digital display showing speed, time, distance and calorie used.
3. Body made up of stainless steel stationary exercise Cycle.
4. Should have comfortable saddle and foam fitted handle.
5. Should have adjustable design to fit all heights and weights.
6. Should have maximum user weight of 100kg.
7. Buidin hand grip pulse sensor.
8. Should have Resistance system with manual control.
9. Should have large adjustable softer HR seat
10. US FDA (510 K)/European CE (Issued by a Notified body) approved model should be offered.

DENTISTRY

DENTAL X-RAY-INTRA ORAL WITH RVG

1. RVG is used for digital dental X-rays which can be instantly viewed and evaluated with minimal radiation exposure
2. High resolution RVG based on CCD/CMOS technology with optical fiber.
3. Maximum reduction in patient radiation as compared to X-ray film.
4. Should have easy positioning of sensor inside the mouth
5. Should supply sensor with minimum active area 600mm².
6. Should have a Pixel size: 20 µm x 20 µm
7. Size of the sensor in mm x mm with tolerance +/-2mm. Adult 43mm x 31mm & pediatric 40mm x 30mm.
8. Sensor cable length (meters) 3.5m - 4m.
9. Thickness of the sensor should be less than 5 mm.
10. Spatial resolution approx. 20-25-line pairs/mm.
11. Computer with LCD/LED color monitor 20-inch screen, latest processor, HDD 1TB, 8 GB RAM & Laser Printer & 60 minutes backup Online UPS.
12. Intra oral X-ray unit should be DC based. (8mA/65-70 kv) with option for wall mount/ mobile stand.
13. Should have positioning devices a. Bitewing b. Periapical c. Endodontic.
14. X-ray unit should be supplied with lead apron, thyroid collar.
15. Power input to be 220-240VAC, 50Hz fitted with Indian plug
16. Servo Voltage stabilizer of appropriate ratings
17. USFDA (510 K)/ European CE (Issued by notified body) & AERB (If applicable) approved model should be offered.

DENTAL X-RAY –EXTRA ORAL(O.P.G) –DIGITAL

1. It should be digital.
2. Suitable for Adult and Pediatrics
3. Minimum total filtration shall be 2.5 mm Al.
4. Heat capacity shall be ≥20,000 HU.
5. Focal spot size should be 0.6 mm.
6. Constant potential; high-frequency required.
7. Automatic Exposure Control (AEC) is required which is used to control the length of x-ray exposure.
8. The exposure timer controls the length of the x-ray exposure; typical exposure times are 0.1 to 5 seconds for cephalometric radiography and 5 to 20 seconds for panoramic radiography.
9. Patient selection Switches (Thin, Normal and Obese)Feather touch keypad and length of exposure cable should be 5 to 6 meters.
10. Ease of operation as all the functions can be selected from the remote control as well as timer.
11. An excellent output of 60 kV to 80 kV, 0mAs to 15 mAs.
12. Exposure time shall be ≤15 sec
13. Audible and Visual indication of “X-Ray On” (Radiation indications).
14. Source to Image Distance(SID) 400-500 mm
15. MAGNIFICATION : 1.2-1.5x

16. Machine should be provided with following items,1. Two numbers of BARC approved whole body lead aprons with all attachments and thyroid color.
17. Should operate from AC 220 VAC ± 10 %, 50 Hz & with Suitable capacity Servo Stabilizer.
18. US FDA (510 K)/European CE (Issued by a Notified body) approved model should be offered.

FULLY LOADED DENTAL CHAIR ELECTRICALLY OPERATED

ELECTRICALLY OPERATED DENTAL CHAIR WITH COMPRESSOR UNIT

1. It should have two 3 way syringes (tip autoclave), with 3 spare tips.
2. It should have 2 Straight handpiece, 2 Air Rotor, 2 Contra Angled Handpiece, 1 Xray view box.
3. It should have two high speed Air Rotor terminal with water control on coupling supplied with Hand piece.
4. Brushless micro motor (35,000 rpm or higher) terminal having straight and contra angle hand pieces.
5. It should have Ultrasonic Scaler with 5 scaleing tips and one set of perio-curette tips.
6. All hand pieces /terminals should be kept on Autoclavable & 6 spare autoclavable pads should be supplied (over hanganging).
7. It should have movable latest LED Light with glass reflector ON/OFF, intensity control, Detachable, autoclavable, handle, Minimum28,000 Lux or higher at 80 cm distance.
8. It should have light cure unit.
9. It should have high and low vacuum motorized suction with auto drain and auto flush motorized suction should have minimum volume of 250 Itrs/min and provision for disinfected air exhaust.
10. It should have auto zero, gargle, P1 and P2(erasable programme) positions.
11. Chair should have up and down, backward and forward movement hand and foot control operated.
12. Seat, backrest and head rest-synchronized movement..
13. Chair should have Minimum & maximum height 360mm & 700mm.
14. Base should solid metal with heavy casting.
15. It should have LED based X-ray viewer.
16. It should be provided with rotatable right arm rest (90 degree).
17. It should be provided with one doctor’s stool and one assistant’s stool with adjustable backrest tilt including an adjustable ring for foot rest.
18. Suitable Oil Free Air Compressor (Medical grade).tank and dryer. Also built in Thermo cut for excess of heat, Auto head release valve, automatic cut off, safety release valve, & drain valve gauge.
19. Electrical point, water inlet and outlet facility will be provided by hospitals but All consumables required for installation and standardization of system to be given free of cost.
20. (a) It Should have one instrument trolley with acid and fire resistant table top fitted with modular drower / shalves. (b) Unit should have removable axillary tray(stainless steel), transparent water booster. It should also have one instrument trolley fitted with drawers/ shelves.
21. All the outlet and inlet for the services to chair should be concealed in a box at foot area or within the unit for infection control purpose.
22. The unit shall be capable of operating continuously in normal room temperature.

23. Complete installation of the system including water input and drainage system, air compressor, required electrical connection has to be installed.

24. Should operate from AC 220 VAC ± 10 %, 50 Hz & with Suitable capacity Servo Stabilizer.
25. US FDA (510 K)/European CE (Issued by a Notified body) approved model should be offered.

Dental Instruments List

Extraction Forceps (Set of 7)	Two sets
Elevators (Cryers, Straight, Coupland's, Apexo, Cross bars, Lyndo levien)	Two sets each
Periosteal elevators	5(five) pieces
Mirror handle	20(twenty) pieces
Miror top – 4 No. & 5 No.	50 (fifty)
Probe – Curved & Straaight	20(Twenty) pieces
Tweezer	20(Twenty) pieces
Scissors- Small & Medium	5 (five) pieces
Needle holder - Medium	5 (five) pieces
Bone rongeur	2 (two) pieces
Bone file	2 (two) pieces
Kidney tray - Medium	10 (ten) pieces
Artery forceps – Medium	5 (five) pieces
Wire cutter	2 (two) pieces
Austin's retractor	5 (five) pieces
Howarth's elevator	5 (five) pieces
Ehrich arch bar	100(hundred) pieces
Stainless steel wire – 26 SWG	100(hundred) spools
Stainless steel wire – 24, 26	20 each
Surgical burs -702 & 703	50 each
Autoclave apparatus	1 unit
Instrument lifters	4 pieces
Probe EXD57	5 pieces
Enamel Hatched	2 pieces

GMT	2 pieces
Burs (Round,tapered, straight, inverted cone	10 pieces each
Flat end tapered bur	10 pieces
Cement carrier	2 pieces
Excavators IN31011	
Endodontic excavators IN31051	2 pieces
Crown cutting burs	20 sets
Micro motor burs Round	10 sets
Composite filling instruments	2 sets
Composite finishing kit	2 sets
Endodontic access bur	50 pieces
Paseo reamers	10 pieces
GG drills 1-6, 31mm	2 sets
Endo block	5 sets
Broaches	10 boxes each
K files 21mm 15-40,25mm 40-80	10 boxes each
Finger spreader	2 pieces
Cement spreader	2 pieces
Bur stand	2 units
Locking tweezer	2 pieces
Haemostat straight	2 pieces
Endomotor	1 unit
Apex locator	1 unit
Fixed Orthodontic Instruments	1 set
Edentulous Trays	Two (2)
Dentulous Trays	Two (2)

RADIO-DIAGNOSIS

Emergency X-ray (Fixed 600mA)

1. Generator

a) Generator type must comply with ULTRA High Frequency type

b) Frequency must be 100 KHz or more.

c) kVp range 40 to 150

d) 600 mA or more at 100 kVp.

e) Exposure timers: 0.001 to less than 7 sec.

f) Generator must have high speed starter capability

g) Automatic Exposure Control

2. Generator Console

a) 19" Touch Screen Monitor which allows for improved workflow by allowing for quick selection of body parts and views

b) APR (Anatomical Programmed Region) with simple-to-use visual graphic interface with18 anatomical regions, each containing an unlimited number of standard or custom views. 100 views and 5000 techniques pre-loaded.

c) Positioning guide includes 160 Radiographic Exams with expandable radiographs and positioning pictures for each exam. It also includes detailed instructions on how position the patient, breathing instructions and what to look for in your resulting image

3. TUBE

· The tube must have 300KHU OR MORE

· Focal spot size must be 0.6/1.2 mm

· The tube must have the capability to reach 150 kVp

4. Tube Stand

a) Ceiling Mounted Systems

b) Telescopic column with 165 cm or more of vertical travel.

c) Telescopic column can achieve up to 180 cm of vertical travel

d) Longitudinal travel range of 350 cm with standard rail length of 427cm

e) Transverse travel range of 215 cm with standard rail length of 305 cm

f) Tube rotation about Vertical axis: -154°/ +182°, with detents at 0° and +/- 90°

g) Tube rotation about Horizontal axis: +/- 120°, with detents at 0° and +/- 90°

h) Cable concealment and management system

5. Table

a) Motorized Elevating and 4 way top floating

b) 280 kg Patient Weight Capacity or more

c) Elevating Range of 21" - 32.5" (53 - 83 cm) with collision avoidance electronics and safety lock-out control switch

d) Tabletop length: 85" (216 cm) with 32" (82 cm) of longitudinal travel

e) Tabletop width: 35.5' (90 cm) with 11.5" (29.2 cm) of transverse travel; (Extra wide design, for large patient comfort)

f) Flat top design for easy patient transfer and cleaning, with low absorption material

g) Fail - Safe electromagnetic braking system ensure safe, easy use

h) Recessed Foot Switches for all table movements, with float-top hand control switch

6. Wall Stand

a) Vertical travel: 60.0” (153 cm) or more

b) Minimum center pixel-to-Floor Distance: 13.75” (35 cm) or less

c) Features the exclusive “EZ-GLIDE” Hand control for easy and precise movement, Grip rotates +105º

d) FAIL-SAFE electromagnetic vertical braking system and integral counterbalancing ensure safe, easy use

e) Heavy Duty Single-column structure; floor-to-wall or floor-to-ceiling mount

7. Collimator
   a) Collimator type must be manual
   b) Laser type light localizer
   c) Lamp and Timer must be automatic
   d) The collimator must be able to rotate 360 degree
   e) The collimator must offer an integrated tape to measure SID
8. Grid: 10:1, 103lpi, 100cm focus or better.
9. Suitable Servo Voltage Stabilizer for complete system.
10. Patient Handgrips and Compression Band
11. ONLY US FDA (510K) Approved model should be offered.

800 mA X-Ray Machine with IITV

It should be a high frequency x ray machine with following specifications along with necessary construction changes in the existing area as per AERB norms.

A. Generator: HIGH FREQUENCY.

1. Generator should be high frequency output constant output.

2. Output 80 KW or more with frequency of 80 KHz.

3. Output at 80 KV should be 800 mA or more.

4. Fluro KV should be mentioned, at least 40 KV to100 KV, Fluro mA at least upto 3mA.

5. KV range 40 KV to 150 KV,

6. Digital display of selected parameters, routine and fluoroscopy (kV & mAs) with on/off magnetic contractor p u s h button Switch.

7. It should have automatic exposure control device.

It should confirm to AERB safety Codes.

Controls: (Dual control type, one separate controls unit with castors in machine room and other control unit from the console room).
With following selectors:

1. Selection of major Kvp

2. Kvp digital display

3. Minor Kvp control and display

4. Fluoroscopy Kvp selection

5. mA technique control

6. small and large focus mA selection fluoroscopic timer

7. fluro mA selector

A. X – Ray Tube and Collimator: (SINGLE X-Ray Tube).

2. Single X ray tube, for routine radiography and fluoroscopy should be provided.

3. The x-ray tube should be rotating anode high speed, compatible with the generator and must have dual focus.

Focal spots of following sizes

- Large Focus: 1.2/2.0 mm or better.
- Small Focus: 0.6/1.0 mm or better
- Tube with anode heat storage capacity 400 KHU or more.
- Motorized multileaf collimator having additional filters (for Dose Reduction) and a u t o shut provision for the light.
- The tube should have AERB and BARC approval.

360 degree rotatable. Electromagnetic locks for the various movements should be provided.

X – Ray Table: (R/F Type) with height elevation.

1. Table should have motorized movements. It should have floating table top . The table top should be made of low radiation absorption material which is waterproof.

2. 900 vertical and -12 Trendelenburg with automatic stop at horizontal position

3. Convenient height for the patients to get on and off the table is needed

4. Efficient Bucky with superfine grid to produce excellent image quality (grid ratio 10:1 or more with 50 lines per cm grid for SED, better is preferred)

5. The motorized Bucky should hold all cassette sizes, even 14 X 17. The Bucky movements should cover the entire table length and should h a v e electromagnetic lock.

6. Provision for minimum leakage of radiation during fluoroscopy.

D: Grid: Moving Grid.

1. Counter balance bucky with grid 100 lines per inch and grid ratio 10:1 or better, 100 lines per inch grid for SFD

2. Electromagnetic locks for bucky.

Collimator Multileaf:

· Motorized with light beam collimator

E: Image Intensifier (12 ")

1. Image intensifier with camera of the latest technology with high gain, high sensitivity suitable for high frequency 800mA X ray machine to fixed under the couch for no disturbance

2. High Resolution TV Monitor 17inches size (flat panel) with trolley.

3. Radiation safety of 800MA X ray machine and I I T V must be certified by AERB

4. (Atomic Energy Regulation Board) Govt of India

1. • Foot Switch fluoroscopy should have facility for controlling KV from screening device.
System should have Spot Film device, with glide back parking or ceiling free support for use with 8 x 10 ", 10 x 12".,14 " x 14" Cassette including Fluoroscopic lead glass and screen assembly with Bucky diaphragm with standard grid ratio (10:1) & lines (100 per inch) (better will be preferred). Spot film device should have features for attachment with I I T V system fluoroscopy

2. SFD grid should be the best in the market, 14 X14 inch and 6:1 ratio with 100 lines or better.

3. Image storage capacity: Image grabber of high capacity.

4. It should print on dry camera and storage on computer.

5. Auto lock facility for the spot film device should be provided

6. Lead protection for the fluoroscopy unit & lead curtain for the IITV

7. Other Radiation protection devices for screening and under couch fluoroscopy)

8. Provision for minimum leakage of radiation during under couch fluoroscopy

9. Fluro KV should be mentioned, at least 40 KV to100 KV, better will be preferred.

10. Fluro mAs should be 0.6 to 4 mAs in steps of 0.1mA

Digital display of selected parameters, with on and off magnetic contractor push button Switch. The unit should be AERB approved with all safety provision against collisions. Controls should be available on the spot film device.

F: Memory System

1. Permanent image storage capacity of 10 000 images.

2. 50 temporary image storage for quick review
3. CD writer facility
4. Flicker free images on the flat screen
5. 32bit image storage at 1024 X 1024 resolution for excellent image quality
6. Image sharpening
7. Image rotation
8. Gray scale stretch control
9. Image invert
10. Digital subtraction of images
11. Cine loop of 500frames should be stored permanently
12. Variable frame rate for cine loop, mention various combinations available
13. Image orientation
14. Patient details , date time operator details display should be possible
15. Image management in various folders with quick exploration facility
16. On screen measurements and help
17. Contrast enhancement of area of interest
18. Histogram of area of interest
19. Facility for image printing
20. Text annotation and removal directly on images

1. Frame averaging facility for smoother images
2. Gain adjustment of improved image quality
3. Automatic capture and storage of cine loops with foot switch
4. Thumb nail use for the whole study
5. Frame by frame review

6. Various printing formats should be available

7. LAN and DICOM connectivity

8. USB port

G. Column stand.

· Floor / machine mounted column stand having electromagnetic locks for tube cross arm and vertical and horizontal movements

G. High voltage transformer

1. High voltage filament transformer with silicon rectifier. Solenoid operated changeover switch, federal bushings.

2. All immersed in high grade high dielectric strength transformer oil

3. Sleeving – 8 nos and high voltage cables

G. Essential Accessories:

The following essential accessories should be provided with the unit.

1. Vertical Stationary grid with a vertical bucky stands with corresponding large cassette of CR or conventional as the department needs for spine topogram / scanogram /true size imaging.

2. Servo controlled Voltage stabilizer of required capacity.

3. View boxes of standard quality two and four film capacity, 2 in Number, (One each.).

4. AERB approval is a must. All the approval formalities to be completed by the company.

Regular radiation monitoring a s per BARC norms should be done by the company and should be included in the AMC/CMC. Elora registration should be completed by the company

G. Certifications:

1. AERB valid type approval for the quoted model. (Certificate to be attached.).

1. USFDA (510 K) & AERB Type approval approved model should be offered .3

CR System

CR system configuration shall include

a) Imaging plates (IP)
b) Image reader system
c) CR workstations
d) RIS interface
e) Remote ID and Preview stations
f) Accessories and consumables
g) Dry / Laser Imager

CR Compatible imaging plates Following sizes are required

a. 35 cm x 43 cm - 4 Nos.
b. 24 cm x 30 cm - 4 Nos.
c. 18 cm x 24 cm – 4 Nos.
d. Mammogram 18 x 24 – 1 No
e. Long view cassettes for limbs - 1 set
f. Indicate the expected life span of the reusable CR imaging plates (Minimum Five Years)

Image Reade

a. Multi stack reader with 4 input and 4 output,
b. Various image-processing protocols available for the respective regions of the body
c. Apprx. 120 Ips/hr for larger size IP i.e. 14"x17"
d. Mechanism for accepting exposed Imaging Plates with out patient demographics, for Causality /Trauma workflow requirement
e. Mechanism for Re-routing the newly acquired Images to the preconfigured CR workstation
f. Capability of retrieving (Service Intervention) at least last 10 scanned images, as part of contingency plan.
g. Capability for quick check of the image and exam data of at least the last 4 Imaging Plates scanned at the x- ray room
h. Protocol for verifying the connectivity status of configured image destinations
i. Spatial resolution of the digital image shall preferably be 2kx2kx12 bits for optimal resolution.
j. Should be able to read mammographic cassettes at 20 pixels / mm. Dual side reading preferred
k. Features Remarks Identification and Preview System Functional requirements:
l. Capability of interfacing to HL7, Non-HL7, Proprietary, DICOM Work list or user defined Windows/DOS /Linux based interface protocols to HIS/RIS.
m. Please specify whether you have tested interfacing with HL7-DICOM Bridge. As and when required the equipment should be integrated with PACS without any additional cost.
n. Mechanism for retrieving Demographics of at least last 10 patients identified on a particular Identification Terminal.
o. Customizable Graphic User Interface (GUI) in Identification station with facility of selecting DICOM print & Storage destination.
p. Indication of Over Exposure on the preview module.
q. Mechanism for User release from Preview terminal in case of Auto-routing Images to Pre-defined DICOM Destinations.
r. Customizable Graphic User Interface (GUI) for Preview terminal.
s. Solution for storing patient demographic data for multiple exams in RIS/non RIS environment.
t. It should be possible to put a custom configurable data field in the demographic information of the patient linked with the image.

Software

a. System should include the following Software applications: Please list all the optional software(s) which are available with you for enhancing the workflow and service in the Digital Radiology environment for the following
b. Advanced Processing Software like gradation processing, dynamic range control, multi frequency processing, and edge enhancement.
c. Application Software
d. Connecting Software
e. Visual Output Software
f. Quality Monitoring Software
g. Virtual collimation
h. The system should include the following SW applications as standard:
i. Full Leg/Full spine image processing.

Quality control software.

a. Software, which enables to see in the preview terminal the deviation from normal exposure and with the details of the deviation on the CR workstation.
b. Software masking of the collimation areas.
c. Special attention should be placed on pediatric applications.
d. Software for storing images on any DICOM 3 (or newer versions) compliant stations.
e. Software for printing on any DICOM printer.
f. Features Remarks CR Workstation System configuration requirements:
g. Accept images from CR Reader without any loss of data
h. Capable of Archiving & Printing selected image to a standard DICOM destination in DICOM 3.0 Format.
i. Storing images in the local disk for pre-defined period.
j. Mechanism for accepting New images when the local disk is full
k. Should include 21" antiglare flicker free TFT/LCD color monitor
l. Should include 21" Monochrome antiglare flicker free Medical Grade TFT/LCD monitor with at least 3 MP resolution.
m. CD/DVD Burner
n. 160 GB or more on board storage
o. System Functional requirements:
p. Support DICOM Work list or user defined Windows/Dos based interface to HIS/RIS
q. Mechanism for retrieving Demographics of at least last 10 patient identified on that Terminal.
r. Customizable Graphic User Interface with facility of selecting DICOM print & storage destination.
s. Indication of Over Exposure on the preview module.
t. Mechanism for User release in case of Auto-routing Images to Pre-defined DICOM Destinations.
u. Functional requirement for CR workstation:
v. Built in routine for using predefined image processing parameters for image quality enhancement.
w. Mechanism for storing the Patient image based on name, date, exam, etc.
x. Capability of storing user defined image processing parameters.
y. Capability of overwriting predefined image parameter with user-defined parameters & storing these two images separately
z. Correcting typographically in Patient Demographic module, in case the RIS connection was down and manually data entry was done.
aa. Capability of changing W/l, Flipping, Rotating, Zooming,
bb. Collimating Annotating incoming image.

Auto-routing incoming image to predefined DICOM Store (SCP storage) or Print Destination (SCP Print Destination)

Mechanism for printing Multiple Images in one film, with the possibility of slide and True Size printing

Dry / Laser Image System Configuration requirements:

Print Images from CR Workstation, with three online tray

Capable of Printing Images in DICOM 3.0 format

Mechanism to print images 14x 17,11X14, 8 x 10 film sizes simultaneously.

Resolution should be 500-520 dpi or more

Capable of handling mammography plates.

Functional requirement for Laser /Dry Imager:

Capable of Printing images in High quality

Mechanism for printing images in 14 x 17,11X14 and 8 x 10 film sizes simultaneously.

Mechanism for Printing Multiple Images in one film, with the possibility of slide printing.

Provision for Distributed CR System should be present. Please quote separately for additional workstation image reader preview stations and image planes

Suitable UPS for the total configuration with 20 minutes backup

Out of S5 CR monitors one monitor should be 5 MP for viewing Mammogram

Racks to store the imaging plates / cassettes - 5 Nos.
Swivel chairs 10 Nos and computer tables 5 Nos. for workstation
US FDA (510 k) / European CE(Issued from notified Body) Approved model should be offered.

Digital Radiography

Digital Radiography (1000 mA)

GENERATOR

Should be a digital Radiography system with two flat panel detectors, capable to take digital images in horizontal, vertical and oblique positions of all skeletal body including spine and chest. Out of four major components (Detector, Acquisition software, X-ray tube and generator) at least 2 should be from same manufacturer of the main (complete) system

Generator

1. Generator should be of high frequency inverter technology for constant output
2. Should have at least 80KW power
3. The KV range from 40 to 150KV with 1KV Step
4. KV/ mA output specification- 1000mA at 80 KV, 800mA at 100KV
5. Should have automatic exposure control device
6. Should have anatomical programming for radiography
7. Should have over load protection feature
8. Should have a digital display for KV and mAs

X-Ray tube and collimator

1. Should be a high speed rotating anode high speed (8000 rpm or more), dual focus tube compatible with the generator
2. Should have focal spot sizes of 0.6mm (small) or less and 1.2mm (Large) or less. X ray tube loading should be at least 30 KW for small focus & at least 80 KW for large focus
3. Should have a multi leaf collimator having halogen/bright light source with auto shut provision for the light, auto collimation
4. Should have over load protection
5. Should have an anode heat capacity of 300 KHU or more

Ceiling suspended tube

1. Should be ceiling suspended type with auto-tracking with detectors
2. It should have movements in all directions i.e.3D 140cm or more
3. All movements should have electromagnetic brakes with fully counter balanced mechanism
4. It should have facility to display FFD/SID
5. It must have auto positioning, auto synchronization and auto centering with vertical Bucky and table
6. Tube rotation at vertical axis and horizontal axis +/- 135 degree or more

X-Ray Table with detector

1. Should be a carbon fiber/equivalent motorized up/down table, with four-way floating table top having a weight carrying capacity of minimum 200kgs
2. The buky travel should be 400 mm or more
3. It should have automatic exposure control with at least 3 fields
4. Should have tracking with X-Ray tube

Vertical detector stand

1. Should have an in-built detector capable to take digital images in horizontal, vertical and oblique positions with suitable motorized movements for all skeletal body including spine and chest
2. It should have provision to do chest radiography without grid
3. It should have automatic exposure control with at least 3 fields
4. Should be supplied with grids suitable for horizontal and vertical imaging
5. The Vertical Bucky should be capable of rotating on its axis across +90 to -15 degrees

Digital detector

1. The detector should be a flat panel detector of amorphous silicon with Cesium Iodide Scintillator.

2. The size of the detector should be 41cm x 41cm or more for both detectors
3. Should have spatial resolution of 3 lines pair / millimeter or better
4. Detector Quantum Efficiency (DQE) should be 60% or more @ Zero lines pairs
5. The active matrix size should be 2.8k x2.8k or more. Pixel size should be less than 150 um or less
6. Should have a minimum image depth of 14 bit

Image acquisition, image processing

1. The digital workstation should be based on the latest high speed processors of at least 64 bit with 20 inch 2 megapixel medical grade monitor or more
2. It should have the possibility of acquiring the image from the detector system. Should have preview time 5 seconds or better
3. It should have image storage of 1 TB or more
4. The system should have DICOM 3 (or newer) ready & compliance (DICOM Worklist, DICOM Store, DICOM point, DICOM modality performed procedure step etc.)
5. Complete Long Length Imaging (LLI) hardware & software be available on vertical Bucky with automatic stiriching software available on the acquisition console.
6. Post processing function must be available
7. Dry imager camera with at least 3 online film trays, 500 dpi or more for printing the digital images
8. CD, DVD – R/W drive should be supplied

Accessories

1. On line UPS with 30 minutes back up for both work station and Printer. Automatic servo voltage stabilizer for suitable k VA for the main equipment to be supplied by bidder
2. Lead glass of size 80cms x 120cms
3. Light weight Radiation protection Apron of 0.5 mm lead equivalence, AERB approved – 5 no's, Thyroid Shield (AERB approved) -02, Lead Goggle (AERB approved)-01
4. One additional workstation should be provided with UPS, CPU, 1 MP 19" monitor, workstation software, computer Table & 02 no's revolving chair
5. Should be supplied with X-Ray view box (LED Type) Double – 2 No
6. Lead lining of 02 nos LEAD door (patient entry + Console room) as per AERB norms must be provided by vendor

Quality Certificates

1. USFDA / European CE by Notified body and AERB Approval for whole system Any other certification from any regulatory authority will be the responsibility of the supplier
2. Approval of site plan and registration of the installation from AERB shall be the responsibility of the successful bidder
3. The equipment must have typed approval of the model quoted on the date of opening of the tender.
4. QA test should be done free of cost during warranty period (once in every year) and yearly QA test shall be done in the CMC period also and the rates shall be included in the CMC offered.
5. QA test of the machine as per AERB guidelines will be responsibility of supplier during warranty & during CMC, cost is added in CMC cost of the machine

Mobile X-ray Machine 100 mA

General-purpose mobile diagnostic x-ray system used in a variety of routine x-ray imaging applications.
1) High Frequency generator of 50KHz or more compatible with conventional and computerized radiography.
2) Must have a digital display of mAs and kV,
3) Ergonomically designed unit with total soft touch switches for various operations.
4) Self Diagnostic Program with indicators for earthing fault error, KV error or filament error.
5) kV range at least 40kV to 100kV, digitally displayed mAs range at least 0.5 to 250 mAs or more.
6) Exposure time range at least 10 ms to 5s.
8) Tube power rating at least 4 kW.
9) Adjustable multileaf collimator, rotatable 90ºwith patient centring light.
10) Must be supplied with protective dust cover at least for control panel.
11) Should be compatible with various basinet size in NICU & PICU.
12) The generator should have microprocessor/micro-controller based electric overload system. Settings
1) KV increase & decrease switches.
2) mAs increase & decrease switches.
3) Machine On/Off Switch.
4) Collimator lamp On/Off switch.
5) X-rays ON indicator should available.
6) Foot switch should available for trigger X-rays. Dimensions (metric)
1. Unit should have max. 7 foot in height, 2 foot in width and 5 foot in length.
2. Weight -Maximum 80-90 Kg.
Configuration
1) The unit must have an effective braking system for parking, transport and emergency braking.
2) The tube stand must be fully counterbalanced for rotation in all directions.
3) It must have an articulated arm for imaging with any patient position.
4) All cables should be concealed in the arm system.
5) Unit base wheels must be easily accessible for cleaning.
2) Should work on 220VAC +/-10%, 50 Hz.
3) US FDA / European CE (issued by notified body only) & AERB Type Approved model should be offered.

Ultrasonography equipment and color Doppler (Additional unit independently for OBGY).

1. system should have dedicated presets for application- Abdominal, Obstetrics & Gynaecology, vascular, paediatric, small parts, MSK, fetal Echo, urology, TDC, interventional radiology
2. System must be offered with a minimum 19 inch High resolution flat panel Medical grade display monitor with nearly infinite position adjustments.
3. System must be offered with 4D imaging with quantification software for general imaging and obstetrics & gynaecology applications.
4. System should have tomographic ultrasound imaging quantification to analyze multiple parallel slice of a volume data set, Review of 3D/4D, color 3D data set
5. System should have at-least Four univerasl active probe ports with electronic switching facility.
6. System should have minimum 1000 frames per second or more. Please specify through data Sheet.
7. The system should have 2 Lac or more digital processing channels.
8. System should support multi-frequency/broad band probes spanning a frequency of 2-16 MHz of even better
9. B mode & color mode should be available simultaneously side by side real time display. Digital zoom facility for region of interest in real time and frozen.
10. Image storage facility on inbuild hard disc or CD/DVD-Rw facility should be available. In built

11. hard disc with capacity of 500 GB. System should have extensive image management capability including thumb nail review, cineloop editing etc.
12. Auto trace & automayic Doppler calculations should be available in Live & frozen images.
13. Should have the state of the art Transmit Real time Compound Imaging Technology with multiple transmitted lines of sight, wherin Multiple Coplanar images from different viewing angles are obtained and combined into single compound Image at real-time frame rates for improves visualization.
14. System must be offered with speckle Reduction imaging technology to remove speckles and clutter artifacts
15. System should be capable of scanning depth of 30 cm.
16. System must be offered with a 2D frame rate of least 1000 frames/second.
17. System must be offered with user friendly high resolution user interface 9 " touch panel and backlit keyboard. User friendliness will be given priority.
18. Fully optimized CEUS mode should be available with simultaneous acquisition of B-mode and Contrast images in real-time in full screen or Side-by-side display. Micro-vascular Imaging, and persistence imaging should preferably be available to assess slow micro-vessel perfusion
19. System should have THI & should be able to work in combined mode of harmonic imaging and real time compound imaging to get excellent image quality
20. System should be capable of FUSION / navigation to allow Fusing real time ultrasound images with images acquired from other imaging modalities such as eg. CT,MRI,PET.
21. The system shall be capable of providing a " GPS" alike functionality. This allows the operator to mark a specific point of interest within the image (e.g. Liver lesion). While moving the transducer, the system indicates position and distance relative to the marked target.
22. The system should be quoted along Elastography imaging for Breast & Thyroid on appropriate probe and convex probe for liver.
23. The system should be DICOM ready.
24. System should have inbuilt Gel Warmer
25. Following probes to be quoted as standard
26. 1-5 MHz Convex Transducer with +/- 1 MHz variation acceptaed for General Imaging, Renal. OB/GYN, abdominal imaging with capabilities of CEUS. Must have Tissue Harmonic Imaging. Probes must have compatibilities of Elastrography Imaging of Liver.
27. 4-10 MHz Linear Array Transducer with +/- 1 MHz variation for entirely covering frequency range accepted for Vascular, breast, Musculoskeletal, small parts, elastography imaging.
28. Broad band Endocavitary Probe for TV/TR Application with frequency range between 5 to 9 MHz +/- 1 MHz variation with reusable biopsy guide
29. 2-6 MHz Broadband 4D volume transducer, with +/- 1 MHz variation for entirely covering frequency
30. 5-16 MHz Matrix Linear probe, +/- 1 MHz variation for entirely covering frequency
31. Only US FDA Approved model should be offered.

D & C set with MTP Set

1. Sponge holder, Anterior Vaginal wall retractor
2. Sims's speculum
3. Volsellu
4. Allis's forceps
5. Cmettec
6. Dilator Set
7. Saction canula set

Caesarion Set

1. BP Blade
2. Sponge holder green army tage-4
3. Doyen's retraction-1
4. Dissecting forceps toothe & plain -- Radiant Warmt
5. Allis's forceps- 6
6. Artery forceps- 6
7. Needle holder- 2
8. Scissors's - Straight
9. Towel clip- 4 curved

Hysterectomy Set (Abdominal & vaginal)

1. sponge holder
2. Abdominal retractor
3. Dissecting forceps - toothed & plane
4. Allis' Forceps- 6
5. Scissor- Straight & curved
6. Towel clip – 4 pc
7. Needle holder – 2 pc

SSaile

1. Kocher's clamp- 6
2. Landon's Retractor
3. Trolley for instruments
4. Tray

PSYCHIATRY

Electro Convulsive Therapy (E.C.T.) machine preferably with ECG & EEG monitoring

1. Should deliver current of bi-directional square wave ultra-brief pulse of 0.3ms.
2. Should have facility of Right Unilateral (0.3ms) ultra-brief stimulation.
3. Should have 4 channels EEG, 1 channel ECG and optical motion sensor to monitor the movement during seizure for providing assessing seizure efficacy.
4. Should have four different stimulus parameter knobs to vary pulse width, frequency, duration & current.
5. Should have facility to monitor real time dynamic impedance during procedure & also static impedance.
6. Should have LCD with Touch screen display with impedance display.
7. Should have protection against paddle to paddle short circuit or open circuit conditions.

8. The Stimulus Control push button to be hinged for prevention of accidental delivery of stimulus and should have visual indication of the status of Stimulus enable, Delivery or fault
9. Should have stimulus current from 500-900mA, Frequency 20-120Hz, Pulse width – 0.3-1msec, Stimulus duration of 0.5-8sec.
10. Minimum Power: 0.3 Joules for 220 ohm patient impedance
11. Maximum Power: 200 Joules for 220 ohm patient impedance.
12. Charge: 4.0 – 1152m Coulombs.
13. Should have 2 channel thermal chart recorder with gain knobs for higher resolution printing.
14. Should have facility to connect system to any External PC and will be provided with monitoring software to view physiological monitoring. The traces should be available in real time throughout the treatment. The data can be stored with all the treatment parameters on the PC or can be converted in to text format. Software should have features:
15. View up to six traces of real-time monitoring on a PC monitor: 4 EEG, 1 ECG, 1 Optical Motion Sensor
16. Equipment should be US – FDA approved

Lithium analyzer

1. Assay type 1-Point
2. Reaction time / Assay points 10 / 7
3. Wavelength (sub/main) 480/505 nm
4. Unit mmol/L (mg/dL)
5. Traceability: The lithium calibrator C.f.a.s. is traceable against AAS
6. Calibration mode Linear
7. Measuring range: 0.05-3.00 mmol/L (0.03-2.08 mg/dL)
8. US FDA (510 K) Approved model should be offered.

PHYSIOLOGY

Binocular Microscopes

1. Body - Inter changeable, inclined Binocular body, 360-degree rotatable head.
2. Eyepieces - Highest quality 10 X wide field anti fungus field eyepiece, FOV 22 mm.
3. Objectives - Par focal, antifungal coated 4x, 10x, 40x and 100x (oil immersion) with plan achromatic correction for FOV of 20 mm.
4. Optical system - Infinity corrected
5. Stage - Horizontal mechanical stage preferably 100 x 140 mm with fine Vernier graduations designed with convenient coaxial adjustment for slide manipulation preferably through 30 x 70 mm.
6. Sub stage - Abbe condenser N.A 1.25 focusable, continuously variable iris diaphragm.
7. Illuminator - Built-in LED light source with white light.
8. Finish - A durable textured acid resistant finish.
9. Should provide dust cover and immersion oil.
10. US FDA and/ European CE (Issued by notified body) approved model should be offered.
11. Power Supply 220VAC +/- 10 %, 50Hz fitted with Indian plug.

Spirometer ordinary

Electronic with computer attachment and print out with software for complete analysis:
1. Should be electronic with computer attachment and print out with software for complete analysis
2. The System should be an economically oriented lung function measuring system for the determination of the static and dynamic lung volumes using the classical FRC- Helium rebreathing and the Diffusion Capacity by using the single Breath technique.
3. . It should also be possible to measure Diffusion Capacity (DLCO) by Single-Breath intra breath technique (non breath hold method)
4. Indian predictive values should be available for all measurements and both methods of estimation of lung diffusion.
5. The proper medical reference from where these values have been incorporated should be clearly mentioned.
6. The system should measure the following : .
a) Slow and forced spirometry (Inspiratory and Expiratiory Flow Volume Curve)
b) Lung sub volumes - Functional residual Capacity (FRC), Residual Volume (RV) . Total Lung Capacity (TLC) by FRC-Helium multiple breath technique
d) Diffusion capacity of the lung Single Breath Real Time & Single Breath Intrabreath (Non - Breath hold technique)
7. The system should measure the following parameters :
a) Slow and forced Spirometry, VT, BF, MV, ERV, FVC, FEV1, VCin, VCex, MEF 50, MEF 75, PEF,MVV etc
b) Lung Sub volumes: FRC, RV, TLC, RV% TLC etc. c) Diffusion Capacity of the Lung: DLCOSB, DLCO SBc, VA, KCO, KCOc).
8. The system should have an easy to exchange, bidirectional heated pneumotach with the following specifications.
Range - Range 0 to ± 20 L/sec Accuracy ± 2% Resistance <0.05Kpa/(L/sec)
9. The system should have multi gas Analyser with the following specifications:
a) Carbon monoxide analyser : Range - Range 0 to 0.4% CO Accuracy ± 0.003 % CO Resolution 0.0002% CO Reproduciblity 0.0006%
b) He Analyser :Range - Range 0 to 10% He Accuracy ± 0.05% He Resolution 0.005% He Reproducibility 0.02%
c) O2 analyser Range - Range 0 to 100% Resolution 0.05% O2 Accuracy ± 1.0% O2 Reproducibility 0.1%
10. The system should have a demand valve unit for direct breathing (no inspiratory bag) from pre-mix gas container, to minimize wastage of gas.
11. Branded PC with Core i3 2.8GHz or more, Min. 4GB RAM, Min. 250GB HDD, DVD R/W, 20" Display with Licenced Operating System Windows 7 Professional or Higher, Keyboard, Mouse, HP color Printer)
12. System software should have facility for entry of patient data and saving of this information in a data base system. Software should be compatible and the latest . It should be possible to configure different report out put formats
13. It should be possible to upgrade the system to the following:
a) Airway resistance by shutter method.
b) Respiratory impedance by Impulse Oscillometry system.
c) Respiratory muscle strength, Respiratory drive.
d) Compliance - Static / Dynamic system
e) Body Plethysmography. f) Aerosol Provocation system.
g) Ergospirometry & Stress test ECG.
14. The system should have fully computerised calibration procedure for flow sensor and gas analysers. The system should also have a check procedure during start-up.
15. It should be possible to integrate/connect the system in a local Area Network (LAN). The data base must be accessed in a novel authorised operating system.

16. The software for diffusion must have program for patient training of DLCO Test without gas.
17. The software must be able to set values for discard volume, Alveolar time & other parameters according to user requirement.
18. Power Supply Power input to be 220-240VAC, 50Hz Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
19.Only US FDA (510 K) /European CE (Issued by Notified Body) Approved model should be offered.

Gas analyser automatic for CO2, O2, N2

1. Should be able to work with Aesthesia machines, Gas mixtures, Respiratory care systems & Medical oxygen supplied by delivery equipment
2. Compact and light weight
3. Microprocessor controlled for enhanced performance
4. Large easily read backlit LCD display
5. Easy user operation
6. Low/high oxygen alarm
7. Audible and visual alarms
8. Measurement range 0-100 %
9. Fast sensor response and long life
10. Flexible cable, sensor-15mm mount adaptor, t adaptor - 22 mm m/f and 15mm f
11. Accuracy ±2%
12. Spare oxygen sensors to be supplied in a phased manner till the end of warranty period
13. US FDA / European CE (Issued from notified Body) Approved model should be offered.

Bicycle ergometer

a. Bicycle ergometer Work Load Range: 10 – 600Watt Independent Rpm: 20 – 130rpm.
b. Work Load range Dependent RPM Lap Time: 9h 59min 59sec
c. Load Steps : 1 – 99 Watt
d. Time Steps : 1 – 99 Min
e. Load Programs: Manual 1 Load/Step PWC 170, 150, 130 HR Steady State Safety Protection.
f. Automatic Load: Heart rate
g. Reduction: Blood pressure Blood Pressure D
h. Acoustic signal: ECG Alarm Signal Manual : By Stop
i. Button Check: Calibration Dynamic Static Adjustments (Height): 83cm – 110cm Saddle: 68cm – 108mm Handle bars: free rotation Accuracy of load: 2% or 3 Watt Input/output
j. External Control: RS – 232
k. Inputs: Analogue control Start signal Heart rate Blood pressure s Blood pressure D ECG Alarm Outputs: work load Pedaling Speed Step Marker
l. Power supply: 220v – 240V,
m. Weight: approx 46Kg
n. US FDA / European CE (Issued from notified Body) Approved model should be offered

Polygraph (Digital)

The system should be able to record and analyse.

- Pulse PPG, blood pressure, ECG, Pulse Transit time, Heart Rate variability (HRV)
- ECG Multi leads configurations for real time cardiac axis & vector analysis.
- Digital microphone for heart & Lung sounds studies.
- Pulse Wave velocity, Deep breathing test, Valsalva Menuever.
- SPO2 Acceleration (3 Axis), Activity, GSR & Temperature, EEG, EMG NCV etc.
- Dynamometer to study Hand Grip Test.
- Four channel balance board for static posturogtraphy or body Sway studies.

Hardware Specifications:

- Simultaneous recording for at least 12 and more parameters.
- High sampling rate of 40 KHz or more.
- Should have Fully Isolated stimulator for constant current 7 voltage stimulation output rang (0-20 mA) with pulse duration: 50-200 us.
- Must have preferred parameters for wireless monitoring ECG, SPO2, PPG, Registration, GSR and Temp etc.
- The software should have step by step instructions, protocol and experimental design for performing various experiments in physiology teaching applications. Also should have sample data for animal experiments for demonstrating to the students.
- Must be supplies with ECG, EMG, EEG, NCV, Isometric Force and reflective drop counter transducer for animal studies.
- Facility for automatic analysis in while data recording and after recording for ECG, Heart Rate Variability, Blood Pressure, Peak analysis, spectrum analysis etc.
- Should have option for Mathematical function and statistical analysis and export options to other software like MATLAB, Excel, Quick Time, Wav, Text etc for desired interpretation of the data.
- The software should provide an easy file sharing option to a distant user with-out involving any cost with a 10 year of free updates and upgrade.
- The system should have upgrade Options for:
  - Non Invasive Beat to Beat Blood Pressure monitor for tilt table testing.
  - Non Invasive had held Tonometer for vascular function testing.
  - Non Invasive skin blood flowmeter.
- Compatible Desktop Computer
- Outside Proper demonstration to be carried out before finalizing.
- US FDA / European CE (Issued from notified Body) Approved model should be offered
-

Technical Specifications of Physiograph Machine with transducers & other relevant access.

1. Should be supplies as a standalone recorder to monitor & record the data on three channels colored TFT Monitor.
2. System should have built in stimulator.
3. System should have facility to store the recording and review the recorded data on inbuilt TFT screen without need of any computer.
4. A software should be provided free of cost along with the system to review an printing the recorded data from PC whenever required, (No need to quote cost of computer)
5. Should be supplied with Forcer Transducer, Isotonic Transducer & Volume transduced.

6. For human experiment, transducers/ electrodes to perform following tests i.e. ECG, EEG, EMG, GSR, Pulse, Respiration, Hand dynamometer Phonocardiogram & Temperature should be supplied.
7. US FDA / European CE (Issued from notified Body) Approved model should be offered

Ophthalmoscope (Direct)

1. Disposable Otoscope Tips - 10 nos.
2. Reusable Otoscope Tips - 4 nos
3. AA batteries required.
4. Original Hard Case
5. US FDA (510k) / European CE(Issued from notified Body) /BIS Approved model should be offered.

Centrifuge, high speed with tachometer

1. Should have a maximum speed of 5000 RPM with steeples regulator
2. Should be supplied with safety lid and lock. (Brushless Motor)
3. Should have digital speedometer and timer.
4. Should have imbalance detector and automatic cut off.
5. Standard mark on quality and safety is Compulsory.
6. Should work on a220VAC +/- 10 %, 50Hz AC Supply.
7. US FDA (510K) / European CE(Issued from notified BodY Approved model should be offered

ECG

E.C.G (12 Channel)

1. Simultaneous 12 Channel ECG recording with 12 lead simultaneous acquisition

2. Should have visual alarm for open lead

3. Should have a digital display of 12 channel ECG

4. QWERTY Alphanumeric keyboard.

5. Built-in ECG Parameters measurements and Interpretation

6. Minimum 40 ECG Storage inbuilt memory.

7. 3 Operating modes: Automatic, Manual and Rhythm

8. Should have a maintenance free digital thermal array printer

9. Printer should work with standard thermal paper (should be available in Local Market)

10. Should have 12 lead ECG preview display before taking printouts and should have printer on/off selection.

11. Should have ECG lead annotation facility

12. Machine should have sufficient battery backup for taking at least 25 nos ECG on a fully charged battery

13. Should supplied with 2 patient cable sets, 8 clip on electrodes, 12 chest electrode with silicon rubber bulb, 12 packets of recording paper,1 bottle of jelly and 12 nos. reusable button type electrode

14. Should operate on mains(220V-50Hz) and rechargeable battery

15. Recording speed should be 25 mm/ sec and 50 mm/ sec.

16. Should have defibrillation protection.

17. CMRR should be>90dB or ECG machine should have digital processing with atleast 7000 samples per second from each lead wire.

18. Frequency response 0.05 Hz to 150 Hz.

19. Should have a digital filter for AC and EMG.

20. Should be supplied with suitable stabilizer.

21. Should supplied with a suitable Trolley with following specifications

a) Trolley should made of Stainless Steel / Powder coated frame with SS 304 grade Top

b) Should be a 3-shelf (including the top) cart, one with a drawer for storing the accessories and consumables.

c) Should have four superior castors (two with brakes)

d) Trolley should have at least 30" height and the shelves should have sufficient space for storing the accessories

e) Top shelves shall be surrounded by railing.

f) Trolley should have a suitable cable arm firmly affixed having holder for ECG cables while not in use

22. Should work on a220VAC +/- 10 %, 50Hz AC Supply
23. . US FDA (510K) / European CE(Issued from notified Body Approved model should be offered

Otoscope

1. 2.5 V(White Led Light) Pocket Scope
2. Auriscope With Aa Battery Handle
3. Wide-Angle Viewing Lens Allows For Instrumentation Under Magnification.
4. Suitable capacity LED Light source, Monitor, Light source cable etc. with required accessory
5. ONLY US FDA (510K) / European CE (issued by notified Body) Approved model should be offered.

PHARMACOLOGY

Manikins for demonstration of intravenous injection, enema, local, intramuscular injections, intracardiac injection and other routes of drug administration

1. The Manikin should be a full body manikin designed to run advance life support course.
2. The manikin should allow to teach patient assessment and physical examination skills including

a. Head to toe examination
b. Pupillary reaction with multiple scenarios
c. Tongue swelling (angioedema)
d. Carotid pulse
e. Visible chest rise
f. Lung auscultation including normal and abnormal breath sounds
g. Pneumothorax
h. Heart sound including normal and abnormal
i. Bowel sound
j. Blood pressure measurement
k. ECG monitoring

3. The manikin should allow to teach airway technique including Headtilt chin lift, C-E technique for Mask holding, jaw thrust. All basic, supra glottis, advanced airways and surgical airway procedures
4. The manikin should have CPR feedback as per 2015 guidelines. The manikin should have feedback on depth chest compression, chest recoil, rate of compression, interruption time, ventilation volume and should also provide score on over all CPR skills.
5. Should allow to perform needle decompression and chest drain Should have IV arm with veins that IV accesses as a part of drug therapy.
6. The manikin should generate all ACLS normal and abnormal ECG rhythms.
7. The manikin should be able to receive real Defib shock of 360/200 Joules.
8. The manikin should have automatic carotid, brachial and radial pulse, the pulse should have synchronized with ECG and blood pressure.
9. The manikin should have facility to have vocal sounds for patient to participant communication.
10. The manikin should have visible chest rise coordinating with the set respiratory rate. The lung sound, chest rise, and RR should coordinate with each other.
11. The manikin should be controlled by a wireless, touch screen control unit.

PATHOLOGY

LED Binocular Microscope with Scanner, 10X, 40X, & Oil immersion lenses and inbuilt Battery backup power source (For Students)

Body - Inter changeable, inclined Binocular body, 360-degree rotatable head.

2. Eyepieces - Highest quality 10 X wide field anti fungus field eyepiece, FOV 20 mm.

Objectives - Par focal, antifungal coated 4x, 10x, 40x and 100x (oil immersion) with plan achromatic correction for FOV of 20 mm.
4. Optical system - Infinity corrected
5. Stage - Horizontal mechanical stage preferably 120 x 132 mm with fine Vernier graduations designed with convenient coaxial adjustment for slide manipulation preferably through 30 x 70 mm.
6. Sub stage - Abbe condenser N.A 1.25 focusable, continuously variable iris diaphragm.
7. Illuminator - Built-in LED light source with white light.
8. Finish - A durable textured acid resistant finish.
9. Should provide dust cover and immersion oil.
10. Only US FDA (510 K) /European CE (Issued by Notified body) Approved model should be offered.

Manual Rotary Microtome

Technical Specification
1. High precision machine suitable for both delicate as well as hard tissue sectioning
2. Section thickness settings 1-60 µm with settings in 1,2,5 increment at different levels
3. Specimen advance 28 mm or more
4. Vertical stroke 60 mm or more
5. Provision of step trimming
6. Adjustable specimen clamp at atleast 50 x 45 mm with orientation in X,Y axis
7. Single disposable blade holder for accommodating both high and low profile blades
8. Lateral coarse feed
9. Integrate removable section waste tray
10. Spare low and high profile blades in dispenser pack of 50 blades: 6 packets each
11. Only US FDA (510 K)/ European CE (issued by notified Body) Approved model should be offered

Automated Rotary Microtome

1. Fully automated motorized rotary microtome along with manual operation having microprocessor controlled panel with provision for motorized cutting via operating panel or foot pedal control.
2. Precise micrometer feed system via stepper motor permits precision sectioning selectable at least from 2.0-40/60 micron in 0.5 micron increments.
3. Trimming section selectable from 2 micron onwards.
4. The vertical specimen stroke length of 70mm, larger specimen can be sectioned. The specimen holder should be clamp type and hold 60mm size block.
5. Suitable knife holder for high profile and low profile should be provided.
6. The specimen retraction should occur on return stroke.
7. Knife angle position locking facility should be provided.
8. Cold light source.
9. Precise specimen orientation with zero point indication, with an orientation 6º X-Y axis helps in marking perfect orientation of the sample for sectioning.
10. Motorised coarse feed in two speeds 30 micron/sec and 90 micron/sec. Variable sectioning speed adjustable from 0.5 to 420 mm/sec.
11. Disposable blade holder with lateral displacement feature that can hold both high and low profile blades and knife holder which can accommodate 16 cm C&D type knifes.
12. Knife holder should be vibration free.
13. Integrated section waste tray.
14. Accessories

15. Microtome disposable blades (high profile coated) - 20 packets (50 blades/pack). Total 1000 Nos.
16. Microtome disposable blades (low profile coated) - 2 packets (50 blades/pack).
17. C type knife 16 cm - 3 Nos
18. Cold plate (Dry type)
19. Only US FDA (510 K)/ European CE (issued by notified Body) Approved model should be offered

Cryostat

1. Open top, healed sliding window, corrosion proof, stainless steel cryo chamber with good fluorescent illumination.
2. Cooling via two separate refrigerator system.
3. Temperature of cryo chamber should be at least -30º C. Facility for integrated quick specimen freezing up to -45º C. Separate cooling should be adjustable up to -50º C.
4. Temperature of cryo chamber should be maintained within ± 2º C of set temperature and maintained by hermetically sealed compressor system.
5. Automatic programmable defrosting and manual defrosting should also be possible.
6. Fully motorized microtome - movement controlled by manual as well as foot switch.
7. Microtome should be encapsulated to support efficient spray disinfection.
8. Microprocessor/Microcontroller based touch key control panel with LCD display for all functions incrading microtome.
9. Space for other specimen rack minimum 6 blocks. Removable section waste tray.
10. Section thicknes setting must be outside the cryo chamber.
11. Disposable bladeholder for low and high profile blades and knife which can hold minimum 16cm C type knife.
12. Specimen holder can hold specimen size upto 70x50mm . Section thickness cutting 1-60 micrometer.
13. Specimen retraction around 50 micron.
14. Trimming in steps from 5 to 150 Microns.
15. Motorised coarse speed 500 micro meter/sec and 1000 micrometer/sec.
16. Cryo cabinet should be of appropriate size.
17. Accessories
18. Microtome knife 160µm - 4 Nos.
19. Suitable UPS
20. Two bottle of low temperature oil
21. High and Low profile blades - 5 packets each
22. Specimen holder of appropriate size - 20 Nos
23. Freezing compound at least 10 bottles
24. Glass holding device for knife and blades.
25. Only US FDA (510 K)/ European CE (issued by notified Body) Approved model should be offered

Paraffin embedding bath

1. Embedding station should have 2 separate components cold plate heated paraffin dispensing module.
2. Module should allow flexibility to arrange embedding work flow in the either direction.

3. Capacity of Paraffin reservoir should be 3 lit. capacity with vacuum lid, easy to clean, scratch resistant, heated wailing surface with paraffin drain system.
4. Adjustable paraffin flow rate.
5. Two heated removable paraffin waste tray.
6. Paraffin outlet:manual or foot pedal operated paraffin outlet.
7. Removable and interchangeable cassette and mould warmer.
8. Large peltier cooling spot, even for super mega cassettes.
9. Adjustable temperature for all modules between 55 to 70 Deg C
10. Heated forceps holder which is easily removed for cleaning.
11. Capacity of approximate ranging 100 to 150 cassettes.
12. Programmable timing and temperature.
13. Magnifier (essential)
14. Illuminator (essential)
15. Main:230V,50 Hz
16. Height - 400 mm
17. Width - 500 mm
18. Depth - 700 mm
19. Weight - 30 Kg
20. Size of working surface - 2 x 175 mm
21. Size of cold spot - 70 mm
22. Accessories
    a. Removable holder.
    b. Paraffin scrapper
    c. Freezer
    d. Replacement bulb
    e. Set of fuse
    f. Set of power cords
    g. Cassette - 50,000 labels
23. Only US FDA (510 K)/ European CE (issued by notified Body) Approved model should be offered

Heated Paraffin Embedding Module

1. The instrument should incorporate two separate systems for cold plate and heated paraffin embedding module.
2. Temperature range of cold plate: -5®C, adjustable in steps of 1 deg C.
3. At least 60 cassette molds capacity with acrylic cover.
4. Two number of Paraffin collection tray.
5. Heated embedding module should have adjustable paraffin dispenser control with paraffin flow rate adjustment.
6. Paraffin reservoir capacity of at least 3 litres.
7. Working temperature range between 50-75®C.
8. Foot switch operated.
9. Precisely metered and adjustable gravity feed paraffin dispenser to deliver the right amount of paraffin.
10. Large warm working surface on either side for keeping a minimum 10 cassettes on each side.
11. Flow adjustment in continuous mode.
12. Heated removable paraffin waste tray.
13. Six forceps holder with temperature range of 50-75®C
14. Working surface of cold plate should not be less than 300 x 350mm

15. Should have a magnifying lens adjustable in any position and white light illumination for specimen orientation.
16. All functions of the system controlled through electronic system with digital program able on and off timer
17. The system should work on 220-240 V, 50 Hz.
18. Provide Power back up (UPS)
19. Only US FDA (510 K)/ European CE (issued by notified Body) Approved model should be offered.

Automated Tissue Processor

1. Microprocessor controlled tissue processor with changeable duration in each station, delay start of at least 7 days, vacuum application and agitation at station.
2. It should have capacity to hold 150 to 200 tissues cassettes
3. Reagent Jars and wax impregnation bath should be of material resistant to chemicals like chloroform, xylene, alcohol etc. Metal jar preferable.
4. The wax bath temperature should be such that fumes from reagent will not be emitted out of the system and there will be minimal wastage due to evaporation. Extra two wax impregnated bath to be supplied with the instrument
5. Capsule basket holder - 2 hanging types.
6. Duration time of 60 second in each section to reduce carry over contamination.
7. Maximum safety concept with a liter beaker in case of power failure.
8. Audible alarms, error messages and warning message for maximum safety.
9. Electronic locking facility to avoid inadvertent operation.
10. US FDA / European CE(Issued from notified Body) Approved model should be offered.

Autoclave

Technical Specification
1. Horizontal rectangular high-pressure steam sterilizer
2. Chamber cpacity: 75 litre
3. Electrical Power : 18/36 KW or Sufficient wattage of Industrial immersion type water heater to generate steam with in a reasonable period of time on 3 phase 440 v 50 HZ ac supply
4. Working pressure and Temperature : 1.06 Kgf / sq.cm -1.2 Kgf /sq.cm at 121 Deg C
5. Material of construction
6. Inner chamber, Jacket, Door : SS 316.(5mm-10mm)
7. Outer Chamber : SS 304 (insulated properly)
8. Steam generator : Non corrosive SS /Chromium plated Brass
9. Heater Plate : Brass/Stainless steel
10. Pipe Line : Complete with SS
11. Stand : Stainless Steel/High quality non corrosive Steel Instrumentation
12. Temperature, Pressure and vacuum gauges, steam traps , vacuum driers, water level indicator on steam generator Safety devices.
13. Pressure switch and safety valve, self-locking of door when chamber is under pressure: vacuum breaker for jacket.
14. Steam generator with gauge glass valves and Low water protection with audiovisual indicator.
15. Entire cycles of sterilization should be controlled by a microprocessor unit and it should also have manual operation facility.
16. Accessories

Additional Accessories required: 1. heating element 2 set extra with each machine.
Requirements at installation: 1. Necessary Pipeline works for water inlet and steam outlet should be done.
Cable for connecting to wall socket should also be provided
17- US FDA / European CE (Issued from notified Body) Approved model should be offered.

Ultrapure water solutions - Distilled water plant

a) Ultrapure water purification system
b) Reverse Osmosis based System.
c) Resistivity of water produced should be between 10-15 meg Ohms-cm.
d) Purified Water Flow Rate: Should be at least 8 Liters per hour
e) Storage tank of at least 25 Liters
f) Should have self-diagnostic control feature automatically giving alarms.
g) Filtration System: LV. 1 20" 5µm PP filter
h) Resistivity MΩ-cm:17.0-18.2
i) Micro-organisms should be < 1 cfu/ml
j) Pyrogen level should be +/< 0.001 EU/ml
k) Monitor system: LCD
US FDA / European CE (Issued from notified Body) Approved model should be offered.

Water bath

1. Should have a double walled construction.
2. The inner chamber and top lid should be made of stainless steel.
3. The space between the two walls should be packed with thick glass wool.
3. Should provide with a thermostat control.
4. Working temperature should be from ambient+5 ºC to 80ºC having an accuracy of +1 ºC
5. Should have an approximate inner chamber dimension of 350mm x 250mm x 125mm.
6 Should be operated on 230V, 50 Hz single phase AC supply.
7. US FDA / European CE (Issued from notified Body) Approved model should be offered.

Centrifuge Machine (16 tube)

1. Should have a maximum speed of 5000 RPM with steeples regulator
2. Should be supplied with safety lid and lock & Brushless motor.
3. Should have digital speedometer and timer.
4. Should have imbalance detector and automatic cut off.
5. Standard mark on quality and safety is Compulsory.
6. Should work on a220VAC +/- 10 %, 50Hz AC Supply.
7. US FDA / European CE (Issued by notified body) Approved model should be offered.

Autopsy Tables

Technical Specifications
1. Approximate Dimension:-1820 X 600 X 900 (LxWxH)

2. It should be made of stainless steel (steel grade 304) with a frame made of rugged torsion-resistant stainless steel profiles.
3. It should have 4 stainless steel swivel locking castors.
4. Tabletop depth should be of approx. 15mm sloping towards the drain.
5. Large radii on all inside corners should be provided for easy cleaning.
6. 10 litre removable container with bayonet lock, mounted beneath the downspout, should be attached to a rack in the base frame.
7. Airtight compartment should be mounted beneath the table top to serve as an odour-free storage of drapes.
8. It should have stainless steel full extension drawer and a removable stainless-steel tray provided with a perforated plate and a removable lid
9. System Configuration Accessories, spares and consumables.
Stainless Steel Bucket 50 Ltrs
Headrest
Body support shim
10. US FDA / European CE(Issued from notified Body) / BIS/ ISO Approved model should be offered.

Fully Automated high throughput Multi-Stainer Workstation

1. High throughput robotic strainer to process up to 11 racks at one time (capacity of each of rack - so specimen slides)
2. Simultaneous staining of various staining protocols.
3. 18 reagent stations and 5 wash stations of 450 ml capacity.
4. 16 programs up to 25 programmed - permanent memory capacity.
5. Incubation time setting is from 0 second up to within 59 sec.
6. Integrated oven with temperature setting for 30º to 65º C for optimal slide drying.
7. Continues loading and unloading of sliding via rack entry and exit door.
8. Load/unload station one each.
9. Specimen slide throughput of at least 200-600 slides per hour.
10. Agitation programmable from 0 to 20 times or continuous.
11. Up and down movement of robotic arm can be programmed
12. Fume extraction fan with charcoal filter to remove hazardous fumes.
13. Vibration to slide rack during lifting to reduce carry over contamination.
14. Audible warning buzzer in case of any error during operation.
15. Staining jars / reagent stations contain lids to reduce the evaporation.
16. US FDA / European CE(Issued from notified Body) Approved model should be offered.

Fully Automated Embedding System (Heated embedding module & cold plate)

1. Embedding station should have 2 separate components cold plate heated paraffin dispensing module.
2. Module should allow flexibility to arrange embedding work flow in the either direction.
3. Capacity of Paraffin reservoir should be 3 lit. capacity with vacuum lid, easy to clean, scratch resistant, heated wailing surface with paraffin drain system.
4. Adjustable paraffin flow rate.
5. Two heated removable paraffin waste tray.

6. Paraffin outlet: manual or foot pedal operated paraffin outlet.
7. Removable and interchangeable cassette and mould warmer.
8. Large peltier cooling spot, even for super mega cassettes.
9. Adjustable temperature for all modules between 55 to 70 Deg C.
10. Heated forceps holder which is easily removed for cleaning.
11. Capacity of approximate ranging 100 to 150 cassettes.
12. Programmable timing and temperature.
13. Magnifier (essential)
14. Illuminator (essential)
15. Main:230V,50 Hz
16. Height - 400 mm
17. Width - 500 mm
18. Depth - 700 mm
19. Weight - 30 Kg
20. Size of working surface - 2 x 175 mm
21. Size of cold spot - 70 mm
22. Accessories
    a. Removable holder.
    b. Paraffin scrapper
    c. Freezer
    d. Replacement bulb
    e. Set of fuse
    f. Set of power cords
    g. Cassette - 50,000 labels
    h. Stainless steel capsules for matismould.
31. Only US FDA (510 K) / European CE (issued by notified body) Approved model should be offered.

Fully Automated Flexible Cover slipping Workstation

1. Should produce slides with superior optical quality for reliable long-term storage.
2. It should allow for each single glass slide separately and without bubbles.
3. It should have active carbon filters for safety.
4. It should have the storage capacity of about 200- 350 pcs. of slides.
5. Should be capable of cover slipping 200- 300 slides per hour
6. Should be able to handle slide racks of various manufacturers and should be adaptable to individual laboratory requirements
7. Should be used with common range of mounting media including mounting with wet mount ants. Should dispense adequate amount of mount ant for cover slipping each slide.
8. Should be equally useful for histopathology and cytopathology slides
9. Should be highly reliable, cause minimum wastage and form a fully automated walk-away system.
10. Should have an inbuilt system for fume extraction to minimize exposure of lab personnel
11. Instrument should have an operating voltage suitable for Indian plugs. Voltage supply 230 V-50/60 Hz.
12. Should be provided with UPS 30 minutes battery backup.
13. Only US FDA (510 K) / European CE (issued by notified body) Approved model should be offered.

Water Bath For Tissue Floatation

1. Required to thoroughly straighten sectioned paraffin embedded tissue specimens without creating
2. wrinkles, folds or distortions.
3. Chamber completely encircled by sheathed heater for uniform, broad surface heating with insulated body to present heat loss and temperature fluctuation is required.
4. Rectangular / Circular with a capacity with in the range of 3-5 litres.
5. Temperature range with in 30-60º C.
6. Temperature controller with increments of increments of 1º C or less. LED display of temperature.
7. Stainless steel/ aluminum body. Inner surface should permit easy identification of tissue sections.
8. Outer surface should be powder coated.
9. Safety system to prevent over heating should be present.
10. Indicators for POWER ON and HEATER ON.
11. Indicate if timers/alarms are present.
12. Reset table over current breaker shall be fitted for protection.
13. US FDA / European CE (Issued from notified Body) Approved model should be offered.

Balance single pan

1. Easy to read Large back light GRAPHICAL LCD display with A.E.P.(Advanced Eye protection)(NEW)
2. Standard RS 232C Interface Ps/2 output
3. Hanger for Below Balance weighing
4. Fully automatic internal Calibration with built in weight
5. Complies GLP/GMP.
6. Dye cast aluminum design for long term stability and accurate results.
7. Various weighing units like, mg ,ct. oz, dwt ,mon, GN
8. User selectable Stability and filter level Spacious draft shield interior.
9. Technical data: Capacity 220 gm: Readability 0.1mg: REPEATABILITY (+/-) 0.1mg;linearity (+/-) 0.2mg; PAN Size (mm/inch) 90Ø; response time: 03sec, display Back light LCD graphical display; calibration automatic external units of measure; G,mg, ct, GN, mo, oz, dwt, T are range full operating; temperature 5deg. C to 40 deg.C., housing dimension(342.5mmX212mmX341mm – WDH.

10. US FDA / European CE (Issued from notified Body) Approved model should be offered.

Balance, chemical with weights

Technical Specification
1. Microprocessor based single pan Analytical Balance with High accuracy & precision is required. Reading of the weight by digital display.
2. Weigh accurately up to 3rd decimal place
3. Auto self-calibration facility
4. Auto zero Setting, TARE setting
5. One touch calibration
6. Weighing capacity up to 120g
7. Readability and repeatability 0.001g
8. Stabilization time < 5 second
9. Liquid Crystal Display (LCD) for display

10. US FDA / European CE (Issued from notified Body) Approved model should be offered.

Binocular Microscope for Students

1. Body - Inter changeable, inclined Binocular body, 360-degree rotatable head.
2. Eyepieces - Highest quality 10 X wide field anti fungus field eyepiece, FOV 20 mm.

Objectives - Par focal, antifungal coated 4x, 10x, 40x and 100x (oil immersion) with plan achromatic correction for FOV of 20 mm.

4. Optical system - Infinity corrected
5. Stage - Horizontal mechanical stage preferably 120 x 132 mm with fine Vernier graduations designed with convenient coaxial adjustment for slide manipulation preferably through 30 x 70 mm.
6. Sub stage - Abbe condenser N.A 1.25 focusable, continuously variable iris diaphragm.
7. Illuminator - Built-in LED light source with white light.
8. Finish - A durable textured acid resistant finish.
9. Should provide dust cover and immersion oil.
10. Only US FDA (510 K) /European CE (Issued by Notified body) Approved model should be offered.
11. Power Supply 220VAC +/- 10 %, 50Hz fitted with Indian plug.

Microscope for Diagnostic & Research Work Type with Attachment for Camera

1. Research microscope with digital image analysis system.
2. Magnification 40X-100X for observation. Optical system fly-eye optics (infinity corrected optical system).
3. High intensity and uniform eco-illumination.
4. Trinocular eyepiece tube with variable incline at 10-20-degree angle and extension up to 30mm with for 25mm.
5. Should be antifungals type.
6. There should be provision to attach camera which should be included in the main tender.

Eyepiece lens 10X (2 pcs) with both sides diopter adjustment (fov 25mm) objectives. High performance chromatic aberration free plan-objective suitable for bright field microscope.

a. Achromat 4X na 0.10, wd 30.00 mm or better
b. Achromat 10X na 0.25, wd 7.00 mm or better
c. Achromat 20X na 0.45, wd 3.90 mm or better
d. Achromat 40X na 0.65, wd 0.65 mm or better
e. Achromat 100X na 1.25, wd 0.23 mm oil or better
f. Nose piece-sextuple revolving nosepiece.
g. Condenser-swing out condenser within and vertical movement.

7. Adjustable course and fine focusing.
8. Stage-ceramic coated XY stage with two slide holder capacity at a time.
9. Illumination-high performance white LED illumination (auto intensity reproduction function)/ 100W halogen illumination. 3 spare white light illumination bulbs should be supplied with each unit at no extra cost.
10. Accessories- Apart from the spare bulbs, lens cleaning paper and at least 2 units of branded research grade immersion oil units should be supplied premiers care at no extra cost.
11. Digital scientific grade color CCD camera:- Digital color camera with 2/3”high density CCD chip, of at least 5 million pixel resolution. At least 14-bit dynamic output. Binning zoom, and live capability should be there. Sensitivity equivalent to ISO 60 or better. Dynamic range 1000:1 or better.
12. Microscope camera and image analysis software should be compatible with options for up gradation to newer version as and when available within warranty period at no extra cost.

13. Image acquisition software should be user friendly, innovative and be supplied with the system at no extra cost. Installation drivers should be supplied. The image acquisition and image analysis software should be compatible.
14. Computer for camera photography: branded desktop with intel i5 processor, at least 4GB RAM, 1TB HDD, DVD writer, optical keyboard, mouse, 22" color high dimension TFT screen should be supplied with the instrument.
15. Online UPS of at suitable capacity should be supplied with the instrument. All required cables and accessories should be provided.
16. US FDA/ European CE (Issued by a notified body) approved Model should be offered. Binocular

Microscopes with high end optics including 100X & LED Fluorescence for each Faculty/ resident working in lab plus 2 microscopes for technicians.

1. Binocular microscope with universal infinity corrected optical system
2. Halogen light source illumination
3. Rigid frame with ergonomics design
4. Binocular observation tube with inclination of 45/30 degrees
5. Built in torque adjustable focusing knob
6. Square mechanical stage with rigid hand coaxial control
7. Abbe condenser, Iris diaphragm
8. Revolving Quintuple nose piece (for objectives)
9. Plan achromat objectives 100X (Oil)
10. 100X objective should be spring loaded
11. Eye piece 10X (FOV 20)
12. Fluorescence attachment
13. Antifungal treatment should be applied to the observation tube, eyepiece and objective
14. Accessories, dust cover and power cord
15. Power requirement 220 V/50 Hz
16. US FDA / European CE(Issued from notified Body)Approved model should be offered.

Microscopes For every Tutor –Binocular Microscope with suitable high end lenses.

1. Binocular microscope with universal infinity corrected optical system
2. Halogen light source illumination
3. Rigid frame with ergonomics design
4. Binocular observation tube with inclination of 45/30 degrees
5. Built in torque adjustable focusing knob
6. Square mechanical stage with rigid hand coaxial control
7. Abbe condenser, Iris diaphragm
8. Revolving Quintuple nose piece (for objectives)
9. Plan achromat objectives 100X (Oil)
10. 100X objective should be spring loaded
11. Eye piece 10X (FOV 20)
12. Fluorescence attachment
13. Antifungal treatment should be applied to the observation tube, eyepiece and objective
14. Accessories, dust cover and power cord
15. Power requirement 220 V/50 Hz
16. US FDA / European CE(Issued from notified Body)Approved model should be offered.

Penta Head Microscope with High end Optics with HDMI Multi output Photographic camera (> 5 MP) including Software

1. The instrument should be sturdy, fitted with plan achromatic objectives 2/2.5x, 4x, 10x, 20x, 40x (spring loaded and 100x (spring loaded) on a reversed sextuple nosepiece with dick stop.
2. The optical system should be color corrected for infinity with antifungals property built in transmitted Kohler illumination.
3. The microscope stand should have co-axial focusing knobs for coarse and fine adjustment with upper limit stopper.
4. Present button for automatic light intensity level for photomicrography.
5. Wide field high point eye piece 10x, 22mm with diopter adjustment (+2 to -8) and rubber eye shield (pair) with inter pupillary distance of 48 to 75mm.
6. Trinocular eye piece inclined at 30-45 Degree with 360º rotation.
7. Rectangular scratch resistant stage with right hand control with double slide holder and Vernier calipers on XY axis.
8. Plan achromatic universal type swing-out condenser (dry type) with numerical aperture 0.9-1.2.
9. Transmitted light filters for day light, green and neutral light with density filters built-in die basic stand.
10. Illumination: LED ILLUMINATION- LONG LIFE
11. Power: 220-240V, 50 Hz
12. Vinyl dust cover
13. Multi head ergonomic 1 Trinocular set (with three-way light pam selector, 100:0, 80:0,0) +4 Binocular heads (2 on each side) with complete two color pointer unit (1 pc), ac adapter (1 pc), power cord (1 pc)
14. All the necessary adaptor and power card should be provided for functioning of microscope.

15. Digital Camera: Fire wire digital camera with the following features: Recent model with 18 Megapixel CCD camera with appropriate lens system and mounted
16. US FDA / European CE(Issued from notified Body) Approved model should be offered.

Microscopes for Deca Head Microscope

1) Microscope Frame: Upright microscope with Built in Koehler illumination for transmitted light LED (pre centred) uniform distribution, with lifespan of at least 50,000 hrs. or more (higher will be preferred).
2) Observation tube and Eyepieces:
Main Head: Trinocular observation tube with three-way light distribution (100:0, 20:80, 0:100), have 26 MM FOV or more.
Teaching Head: Binocular teaching heads Siedentop type for ten-person including main observer.
3) Eyepiece: Main observer: 10X magnification with F.O.V 26mm - 2 no's or more. With both side dioptre adjustment facility. LED arrow pointer tricolour, joy stick should be provided by supplier
Teaching head: for 1+9, 10X magnification with F.O.V minimum 22mm with both side dioptre adjustment facility.
4) Mechanical Stage: Ceramic coated coaxial stage with right-hand drive control with two slide holders.
5) Condenser: High quality swing out universal turret condenser for all application.
6) Nosepiece: Reversed Sextuple (Six position) revolving nosepiece.

7) Objectives: High performance objective should be suitable for bright field and polarizing application. Plan Fluor2X, Plan Flour 4X , Plan Fluor 10X, Plan Fluor 20X, Plan Fluor 40X , Plan Fluor 100X. Should provide required accessories for polarizer and analyser for simple polarising.
8) Teaching attachment: Teaching Head for Ten person including main observer. with eyepiece pointer 360 degree rotable and should have color variation and intensity control feature.
9) Should quote latest model as per above specification.
10) List of important spare parts and accessories should be available for next 10 years.
11) Vinyl dust cover for entire unit, immersion oil minimum100ml and other necessities for installation and commissioning of instrument should be provided by supplier only at their own cost.
12) US FDA / European CE(Issued from notified Body) Approved model should be offered.

Fully Automated Immuno-histo-chemistry Setup with Continuous supply of Important Antibodies, Lymphoma Panel etc

Operational Requirements

a. Fully Automated Random-Access System: Immunoassay of more than 90 different parameters all Hormones, all Tumor Markers, all Cardiac markers.

Technical Specification

a. System should be able to perform Routine & STAT assays
b. The Equipment should have a Throughput of not less than 100 tests per hour
c. Should have Two Precision Syringes for accurate delivery of Samples and Reagents.
d. System should have continuous Loading of Samples and Reagents. Must also have 12 or more reagent loading at a time & Triple Marker test capability.
e. Equipment must have a integrated Water and Probe Wash system. Centrifugal Washing technique and Automatic reagent level indication by Sensors.
f. Audible and Visual Alarms for all error messages.
g. Equipment must have facility for Automatic Dilution of Sample. The machine must also have On-Board Cooling of Samples and Reagents.
h. The Equipment should have flexible Windows based software, LIS interface and real time system monitoring. Optional Bar Coding & Color Coding with State-of-the-Art Software.
i. The equipment should be managed by a Computer and have RS232 interface, software for control. Data evaluation & management. Extensive QC graphics including L-J plots, QC management.
j. The Specification of the computer should be having a microprocessor of speed not less than 3.0 GHz, 8 GB RAM, 380 GB HDD, 105 key ergonomic key Board, scroll mouse, 56 kbps modem, 32 MB AGP Card, 52x CD-RW Drive, with 17" TFT Digital Color Monitor with Operating system and compatible Laser printer for documentation having minimum 600 DPI resolution, not less than 12 pages per minute speed.
k. Only US FDA (510 K) Approved model should be offered.

Automatic High-Speed Slide Scanner for converting Slides in Digital Format with software and Database Management with backup for Data Storage

1) Type of scanner: Box type bench top
2) Slide type : System should handle all commercially available glass slides of 25 mm x 75 mm.
3) Capacity : At least 12 slides and above.
4) Objective type Apochromat 20x with NA of 0.75 or above (higher NA preferred)

5) Optional objective Apochromat 40x with NA of 0.95
6) Scan Magnification : 40x Image of 20x and 40x images
7) Type of scanning: Bright field and fluorescence
8) Automated tissue detection and cover slip detection
9) Scan time for 15 mm x 15 mm for 40 x image : Bright field 4 min. or less
10) Scan time for 15 mm x 15 mm for 30 x image Fluorescence three channel DAPI, FITC & TRITC around 15 minutes (actual scan time depends on the exposure time of each dye)
11) Scan resolution for 40x image 0.28 µm or better for bright field
12) Scanning method: Area/ Line scanning method with black skip facility
13) Type of slides : Surgical Pathology sections, IHC, TMA, cytology smears, fluorescence
14) Camera Bright filed/ fluorescence specify, type (CCD/CMOS), pixel size, number of pixels, Frames per second (speed), cooled/ non cooled
15) Fluorescence channels : Up to 9 channels, maximum channels preferred
16) Bright field light source : Xenon/ LED
17) Fluorescence light source : LED
18) Fluorerscence scanner should have FISH scanning capability with dark field preview and upto 16 bit depth
19) Multi layer scanning is required (Z stacking)
20) Barcode reading facility
21) US FDA / European CE (Issued from notified Body) Approved model should be offered
22) Control Computer minimum specifications:
23) Dual Intel Xeon E5- 26200v 3 12 cores processors
24) 16 (2x8) GB RAM, Min. 2 x 1 TB HDD, Min 128 GB SDD, LAN : 10/100/100 Mbit/s, DVD-RW
25) Windows 7 professional 64- bit (English)
26) Scanning station monitor should be flat screen, medical grade screens of 24 “compatible with sRGB format and minimum resolution of 1920 x1080
27) System should be supplied with integrated slide management software for universal image management, perpetual and concurrent user license for 50 licenses.
28) Teaching license for 50 concurrent users
29) Storage of at least approximately 18,000 digital slides

Optional software’s :

I) General purpose tissue segmentation software
II) Pattern recognition based tissue structure segmentation software
III) Automatic scoring of IHC nuclear stained samples HER2, EFGR
IV) Automatic scoring of IHC membrane stained samples HER2, EFGR
V) Parallel measurement of IHC stain intensity, cell nuclei, cytoplasm and membrane
VI) Simple reliable and fast IHC staining intensity measurement
VII) Automatic scoring FISH digital Slides

Five Part Hematology Analyzer

1. It should include 24 parameter including histogram for RBC, WBC and platelet.
2. Should be capable of processing 60 samples/hour.
3. Should have minimum 3 sampling mode. Manual mode, manual closed mode and capillary mode.
4. Sample volume should have manual mode for 85 ml and closed mode for 150 ml. or less thanthat.
5. Should have dual channel measurement.
6. Double dilution chamber.
7. Should have a data storage of 10,000 sample inclusive of Scattergrams and histograms
8. Should have a facility to store atleast 5000 patient information.
9. Should have flourescent base flow cytometry technology using semi conductor laser forWBC and WBC 5 differential measurement.
10. Should have hydrodynamic focussing DC detection method for measuring RBC and PLT with an integrated temperature sensor for monitoring shifts in room temperature.
11. Should have automatic floating thresholds for seperation of RBCs and Platelets during overlab of RBC and platelets abnormal lies.
12. Should have the facility to operate the instrument, QC data management and maintenance through dedicated software with computer (which should be supplied along with instrument)
13. QC data management should have L-J, XbarM and radar chart with real time QC.
14. Should have facility to classify normal and abnormal sample with colour code.
15. Should have facility to display pathological abnormalities and flagging.
16. Should have patient cumulative results and related flag system.
17. Should have impedance principle for counting and photometer for hemoglobin.
18. Should have dual channel measurement.
19. Double dilution chamber.
20. Sample volume less than 20 microlitres in whole blood and pre-dilute mode.
21. It should have various types of discrete mode and real time random access analysis to save reagent consumption and analysis time.
22. Sampling needle should have automatic wash from inside and outside.
23. LCD graphical user interface (GUI) for easy operation.
24. Large illuminated colored VGA/ LCD should display the result of all parameters and histogram together.
25. Should have capacity to store at least 20000 numeric patient results and 5000 graphics.
26. Should have inbuilt graphic printer.
27. Should have RS 232 serial and parallel port can be connected with LAN and laser printer.
28. Should have a membrane keyboard for routine operations and maintenance with option to attach external key board for patient demographic entry at instrument operation.
29. Should have extended analysis time for cytopenic sample.
30. Should have zero routine maintenance with automated slide maker and strainer.
31. Should have zero routine maintenance with automatic electronic aperture cleaning and back flush after each sample.
32. Instrument should accept all types of vacutainer tubes.
33. The instrument should have option for auto sampler, bar code.
34. Reagent cost per cycle including start up and shut done if 200 & 500 samples are processed at a time should be submitted separately in the financial bid.
35. There should be automatic storage of calibration data and extensive quality control programmed with LJ plot for at least 8 control and at least 25 runs per lot.
36. Only US FDA (510 K) Approved model should be offered.

Automated Urine Analyzer

1. Should be a strip-based system.
2. Analyzer capable to analyses the following 10 parameters with one single strip.

a. Protein b. Blood (hemoglobin) c. Leukocytes d. Nitrite e. Glucose f. Ketone
g. pH h. specific gravity i. bilirubin. urobilinogen

3. Wavelength measurements - 470nm,555nm, 620 nm
4. Memory for 1000 patient results with time and date,
5. The equipment should be provided with 100 strips.
6. US FDA / European CE (Issued by notified body) Approved model should be offered.

Binocular Microscopes with high end optics including 100X & LED Fluorescence for each Faculty/ resident working in lab plus 2 microscopes for technicians.

1. Binocular microscope with universal infinity corrected optical system
2. Halogen light source illumination
3. Rigid frame with ergonomics design
4. Binocular observation tube with inclination of 45/30 degrees
5. Built in torque adjustable focusing knob
6. Square mechanical stage with rigid hand coaxial control
7. Abbe condenser, Iris diaphragm
8. Revolving Quintuple nose piece (for objectives)
9. Plan achromat objectives 100X (Oil)
10. 100X objective should be spring loaded
11. Eye piece 10X (FOV 20)
12. Fluorescence attachment
13. Antifungal treatment should be applied to the observation tube, eyepiece and objective
14. Accessories, dust cover and power cord
15. Power requirement 220 V/50 Hz
16. US FDA / European CE (Issued from notified Body) Approved model should be offered.

Incubator

1. Specification capacity 250 Litre.
2. Double wall inner chamber highly polished stainless steel.
3. Temperature control up to 80° C.
4. Heating element of high grade, Nichrome wire.
5. Digital temperature display should be available.
6. Temperature setting should be programmable.
7. US FDA / European CE (Issued by notified body) Approved model should be offered.

Automatic Hematology Slide Stanier.

1. The Instrument should be compact, equipped with robotic arm for X-Y-Z directional movement, space saving with continuous washing of slides with fresh water.
2. High slide throughput up to 400 slides/hour, depending on the program selected.
3. The machine should be programmable, so that multiple racks (at least 11 slideracks together if necessary, each rack accommodating 30-40 slides) can be run simultaneously, at different stages of

staining. The racks should be made of corrosion resistant hard plastic and two sets of racks should be provided with machine at no extra cost.
4. Should be able to run different protocols simultaneously for routine H & E & other special stainsin multiple batches to continuous loading and parallel processing.
5. Minimum 25 reagent stations of at least 250ml capacity including wash stations.
6. Programmable for up to 15 programs or more, of up to at least 25 steps with incubation time setting from 0 sec to 99 min or more.
7. Continuous loadingand unloading of slides via rack entry and exit of machinefor parallelprocessing.
8.Gentle vibration to slide rack during lifting to reduce carryover contamination.
9.Easy-to-clean and resistant surfaces made out of polyester epoxy resin or stainless steel. 10.LCD screen display of time, date and cycles with touch controls and menu.
10.Audible remote alarm to signal possible problems, errors and reagent change etc.
11.A fume hood completely covering the slide plates to prevent hazardous fumes from entering the lab area and an activated charcoal filter to minimize solvent vapors should be provided.
12.Suitable UPS with maintenance free batteries for minimum 1-hour back-up should be supplied with the system at no extra cost.
13.A portable tool set should be supplied with each machine for minor technical need at no extra cost.
14. Only USFDA (510 K) approved model should be Offred.

Balance single pan

1. Easy to read Large back light GRAPHICAL LCD display with A.E.P.(Advanced Eye protection)
2. Standard RS 232C Interface Ps/2 output
3. Hanger for Below Balance weighing
4. Fully automatic internal Calibration with built in weight
5. Complies GLP/GMP.
6. Dye cast aluminum design for long term stability and accurate results.
7. Various weighing units like, mg ,ct. oz, dwt ,mon, GN
8. User selectable Stability and filter level Spacious draft shield interior.
9. Technical data: Capacity 220 gm: Readability 0.1mg: REPEATABILITY (+/-) 0.1mg;linearity (+/-) 0.2mg; PAN Size (mm/inch) 90Ø; response time: 03sec, display Back light LCD graphical display; calibration automatic external units of measure; G,mg, ct, GN, mo, oz, dwt, T are range full operating; temperature 5deg. C to 40 deg.C., housing dimension(342.5mmX212mmX341mm – WDH.
10. Only USFDA /European CE (Issued by Notified body) approved model should be Offred.

PAEDIATRICS

CPAP Machine

1. Device should able to deliver CPAP of 1 to 10 cmH2O increments of 1 cm, using an underwater bubble system.
2. The device should have an in-built air oxygen blender to deliver FiO2 21% to 100% (+/- 2%) with an adjustable flow in the range of 0-15 L/min (+/- 0.5 L/min);

3. Should have a heated wire servo-controlled humidifier with display temp near patient end of the circuit; to be supplied with 2 reusable infant water chamber.
4. Should be supplied with 2 reusable heated wire silicone tubing circuit for infant/New born.
5. Should be able to deliver CPAP using available patient interfaces nasal prongs/ nasopharyngeal prongs;
6. For devices based on underwater bubble systems the water chamber should be reusable; to be supplied with 2 reusable water chamber.
7. Should be provided pressure release valve at 15cm H2O to 17 cm H2O;
8. User's interface:
9. For a flow driving system a pressure display is required.
10. Audio visual alarm for low pressure, high pressure, power failure, low O2.
11. Physical Characteristics
12. Weight (lbs, Kg) :< 8 Kgs
13. Noise (in dBA) : <60 dB; Alarm >65dB
14. Heat dissipation : Yes
15. Mobility, portability : Portable
16. Energy Source (electricity, UPS, Solar, gas, water, CO2 …)
17. Power requirement : 220VAC, 50 Hz
18. Battery Operated : with at-least 6 hours battery backup
19. Tolerance (to variations, shutdowns) : ± 10% of input
20. Protection : OVP, earth leakage protection
21. Power consumption :< 140 Watt
22. Other energy supplies: electric/battery driven.
23. Accessories, Spare Parts, Consumables
24. Each device should be provided with 30nasal prongs (At least three sizes suitable for neonates weighing < 1000grms, 1000-1500grms &> 1500 grams).
25. Air and O2 hose of 3m length each along with the appropriate socket;
26. Environmental and Departmental Considerations
27. Operating condition: Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances.
28. Only US FDA (510 K) Approved model should be offered.

Mechanical Ventilator (Neonatal & Child)

1. Advanced technology ventilator for use in NICU, suitable for ventilating Premature Neonates patients.
2. Should have facility for Invasive and Non-Invasive ventilation
3. Microprocessor controlled system with individual selection of various ventilation parameters & PEEP.
4. 12" inch size full colour, total touvh screen operation for big display to access from long distance.
5. Machine should be Compressed air (medical oil free air compressor of the same brand as ventilator).
6. Should have battery backup at least 30min.
7. It should allow the user to deliver conventional ventilation as well as HFOV.
8. Should have the following modes of ventilation:

a. Assist/ Control
b. Volume control
c. Pressure control
d. Pressure support
e. SIMV with pressure support (Pressure and volume control)
f. PEEP
g. Inverse ratio Ventilation
h. Non-invasive ventilation-BIPAP, CPAP and Nasal C PAP

i. Apnea ventilation, user selectable, volume & pressure control
j. HFOV.
9. Should have facility to measure and display of the following parameters:
a. Airway Pressure (Peak & Mean)
b. Tidal volume (Inspired & Expired)
c. Minute volume (Inspired & Expired)
d. Respiratory mechanics
e. Spontaneous Minute Volume
f. Total Frequency
g. FiO2
h. PEEP
i. Plateau Pressure
j. Use selector Alarms for all measured & monitored parameters
k. Occlusion Pressure
l. Pressure Flow & Volume curves
10. Automatic compliance and leakage compensation for circuit.
11. Conventional ventilation& HFO Ventilation Mode Parameters:
a. BPM: 4to150
b. Inspiratory Time: 0.1 to 3.0 sec
c. CPAP Pressure: 0 to 35 mbar
d. Inspiratory Pressure: 0 to 60 mbar
e. FIO2: 21% to 100%
f. Tidal Volume 2-300 ml with Volume Guarantee
g. HFO Mode Parameters:
h. HFO Frequency should be wide range with 3 to 20 Hz i. MAP-0-45M Bar
i. I: E Ratio: 1:10 to 4:1, MAP-5-40m CmH2O, Delta P- 0-100 CmH2O, RR-4 to 150 bpm, Ti-0.1-5 sec, P-0-60m Bar.
12. Alarm
a. Alarm :- a. Adjustable Alarm. - Low/high minute volume, low/high pressure, low/high tidal volume, low/high rate, apnea time, low/high oxygen
b. Special alarm - O2 cell Failure, flow sensor, battery, power supply, gas supply, oxygen concentration,
13. Should have inbuild Nebulization assembly facility.
14. Ventilator, Compressor & Humidifier should be Same Trolley/cart mounting for easy transportation.
15. Humidifier
a. Servo controlled heated Respiratory Humidifier.
b. Display Should be of LED /LCD.
c. Temperature control settings & Temperature range: 28-40 deg.
d. Temperature should be adjustable.
e. Jar should be autoclavable
16. Standard Accessories/spare & Consumable.
a. Silicon breathing circuit circuit (Neonatal reusable) - 5 complete set.
b. Nebulization assembly compatible circuit 5 complete set.
c. Humidifier - 1 No.
d. Hose for O2 connection with connector - 5 mts.
e. Hose for compressed air with connector - 5 mts.
f. Test lung - 1 No.
g. HME filter – 10 no
h. Inbuilt / integrated nebulizer-1 N0
i. All sensors and other non-consumable items (other than reusable silicon ventilator circuits) should be free of cost during warranty and CMC.

17. Ventilator, Humidifier & Compressor Power Supply input to be 200-240VAC, 50 Hz fitted with Indian conditions plug .
18. Suitable online UPS with commensurate capacity for all ventilators including compressor & Humidifier with maintenance free batteries for minimum Two hours back-up should be supplied.
Ventilator, Humidifier & Compressor Should be US FDA (510 K) approved Model should be offered.
1) Reusable consumables (other than reusable silicon ventilator circuits) should last during the warranty period.
2) Ventilator & Humidifier any additional reusable consumables are required during the warranty period those will be supplied free of charge by the supplier.
3) The life expectancy of the reusable consumable is expected to be of at least one year from the date of installation of the same. The reusable consumables will be procured at the prices accepted as per the contract.

LED Phototherapy Unit

1. Source should have a high life preferably minimum of 50,000 hours.
2. Spectrum: peak at 440 to 470 nm, no irradiance in UV or IR ranges
3.Spectral Irradiance of at least 40 $\mu W \cdot cm^{-2} \cdot nm^{-1}$ at 45 cm distance between bed and light unit
4. Minimum have an effective surface area of 1500 cm2 to adequately cover the babies
5.Light head should be compact to use along with the radiant warmer & should be provided with tilting facility (at least 90 degree on each side) so that the unit is not coming directly under warmer.
6.Light unit should have white LED's for examination purpose
7.Head height adjustable, approx.: 1.33 to 1.60 m
8.Integrated timer for monitoring therapy hours & lamp usage hours.
9.Sturdy mobile stand
10. The base of the unit should be such that it will go beneath any Incubator/radiant warmer/bed
11. Antistatic castors, 2 with breaks
12.Option of mounting on radiant warmer
13. Option of keeping directly on the roof of incubator
14. Cooling Fan to be provided to dissipate the heat created by LED's
15. Coating: Epoxy/powder coated body for scratch and rust prevention and PU (Poly Urethane) coating for plastic
16. US FDA (510 K) approved Model should be offered.
17. Power supply -Power input to be 220-240VAC, 50Hz

Ophthalmoscope

1-Disposable Otoscope Tips - 10 nos.
2-Reusable Otoscope Tips - 4 nos
3-4 AA batteries required.
4-Original Hard Case
5-US FDA / European CE (Issued from notified Body) Approved model should be offered.

Radiant Warmer

1. Should have microprocessor based heater control and manual modes of operation.
2. Should have user friendly touch sensitive control panel with large easy to read LED displays for actual and set temperatures.
3. Should have Quartz Infrared Heater/ Calrod Heater with parabolic reflector / J shaped reflector for uniform heat radiation.
4. The heater unit should be protected by a suitable grill.

5. The heater unit should be swiveling type/ recessed heater type and should be able to position effortlessly for performing various procedures including X rays etc .
6. The probes should be detachable type and should be supplied as 2nos for each machines.
7. Should have memory back up to retrieve set data against power failure.
8. Should have calibration free temperature sensors.
9. The heater should automatically cut off at 38ºCelsius irrespective of the set parameters.
10. Should be mounted on four smooth running swiveling casters with integrated brakes.
11. Should have a monitor stand and IV drip pole.
10. Should have alarms with visual indicators for the following i. Temp high Temp low ii. Probe failure iii. Power failure, iv. Heater failure etc.
11. Should have an examination light with ON/OFF switch.
12. Should be provided with integrated baby bed system with cassette tray compatible for taking X-ray.
13. Should be provided with withdraw able bed with head raising facility on both end.
16. Should be supported with easily removable side flaps.
14. The unit should be made of mild steel tubular structure pretreated and powder coated.
18. Should work with input 200 to 240Vac 50 Hz supply.
15. The mains supply voltage variation may be 180-270V and frequency variation max. 3 %. The necessary protective device shall be there with the machines.
16. US FDA / European CE (Issued from notified Body) Approved model should be offered

Pulse Oximeter

1. Should have plethysmograph wave form with numeric display for SPO2 and Heart rate on LCD/TFT display screen.
2. Should have a SPO2 range of 0 to 100%.
3. Should have SPO2 accuracy of ±2%.
4. Should provide bar graph for pulse strength.
5. Audio and visual alarm for both upper and lower SPO2, Heart rate.
6. Beep sound and alarm sound should have separate volume control.
7. Should have a minimum of 2 hours' back-up time.
8. Should be a portable, light weight and desktop model.
9. Should work with input 200 to 240Vac 50 Hz supply.
10. Should have trend data of at least 24 hrs.

a. US FDA / European CE (Issued from notified Body) Approved model should be offered

Digital Weighing machine for Baby

1. Tabletop, light and portable.
2. Built in rechargeable battery.
3. Easy to clean baby tray (acrylic).
4. Zero weight adjustment facility.
5. Quick, clear digital read outs.

6. Measurement does not change with position of baby on the pan.
7. Provision to measure the height of the baby in its laying position.
8. Accuracy: 5g, resolution: 1g, limit: 10gm to 15kg.
9. Auto setting to 0.00 once a the machine is switched on or when no external weight has been put on.
10. 4XAA battery(rechargeable) or equivalent; one hour backup.
11. US FDA / European CE (Issued from notified Body) Approved model should be offered
12. Should have model approval from Legal Metrology Dept., Govt. of India.

OTORHINOLARYNGOLOGY-DEPARTMENT

Otoendoscope, Nasalendoscope, Laryngeal telescope with camera, monitor and light source for teaching purposes (1 Unit of the above may be placed either in Minor OT or Endoscopy room or in the OPD in the Consultant Chamber)

Oto - Endoscopes

1. Straight forward Telescope 0 ° 2.7 mm 16 cm Length
2. Straight forward Telescope 30 ° 3 mm 14cm length-1
3. Straight forward Telescope 0 ° 4 mm 16 Cm Length- 1
4. Strait forward Telescope 30 ° 4 mm 16 Cm Length- 1
5. Pneumatic adapter for Oto- Endoscope With all the attachments-1

NASAL ENDOSCOPES

1. Nasal Rigid Endoscope. – One

- Straight forward telescope,0 degree enlarged view, size: 4.0 MM
- Rod lenses system, Length: 16-18 cms, Autoclavable, Fiber optic light transmission incorporated.

2. Nasal Rigid Endoscope. – One

- Forward oblique 30 degree enlarged view, size: 4.0 MM rod lenses system, Length:16-18 cms, Auto clavable, Fiber optic light transmission incorporated.

3. Nasal Rigid Endoscope. – One

- Wide Angle Forward- Oblique Telescope 45°, enlarged view, diameter 4 mm rod lenses system, length 14-18 cm, cm, autoclavable. Fiber optic light transmission incorporated.

LARYNGEAL ENDOSCOPE

- Strabo-Laryngoscope with integrated lateral telescope 70 deg length 17 cm, autoclavable, fiber optic light transmission incorporated.

TECHNICAL SPECIFICATION OF DESKTOP COMPOSITE DOCUMENTATION TERMINAL WITH INBUILT CAMERA, MONITOR, LIGHT SOURCE AND STROBOSCOPE

- Video Camera Image Processor system.
- The camera System must have Fibroscope telescope and colposcope compatibility
- Compact light weight and ergonomically designed system providing High Resolution and bright images
- System must provide both analog and digital output, output port must include DVI output besides Composite and Y/C output to insure compatibility with a wide range of monitors

• Built in more reduction filter on camera head
•Iris Area control switch (full/center) will be preferable
Brightness Level control Switch between high and low will be preferred

- **Camera Head**
- Compact and light weight design.

- Must be immiscible, ETO compatible and must be compatible with video adapter to connect the telescope and fibro-scopes.

Technical specification for strobe light source to Diagnosis of video Disorders with Advanced LED Technology

- Compact, lightweight and ergonomically designed.
- Long life LED light source minimizes lamp replacement, while reducing energy and noise.
- It should have no flickering in Video, no blackouts
- Should have good illumination in permanent and Stroboscopy mode.
- Should have adjust duty cycle, choice between more resolution or more brightness depending on application
- Should have Noise free No side tone distraction during examination.
- Should have Noise free No side tone distraction during examination.
- Within milliseconds the system picks up frequencies and turn them into an optimal illuminated and sharp image or slow motion playback of vibrating vocal folds
- Should be supplied with HD larangoscope,10mm,70 Deg and Autoclavable light guide cable with 3 M
- Arrow buttons for intuitive control
- Connection socket for pedal control without lag time Stroboscopy mode can be activated via a special footswitch
- Should have flexible storage possibilities
- SD card slot for high storage capacity
- USB ports for external hard drives, USB flash drives
- MPEG4 video recording with sound via microphone input
- Compatible with medical-grade USB Color Printer
- Picture gallery for records
- Playback of saved videos
- Patient information input and reports
- Technical Specification of Camera Head:
- Image sensor: 1/4'' CCD-Chip.
- Resolution:> 450 lines (horizontal).
- Pixels- 752(H) x 582(V)
- Signal-to-noise ratio: >= 60 dB.
- AGC: Microprocessor controlled
- LENSE: Integrated optical zoom lens system 25-50mm
- Min. sensitivity:3 Lux (f 1.4).
- Power input:100 W Power supply
- Power supply:100-240 VAC
- Weight:Approx 7 kg
- Interfaces
- a Video interface
- b DVI-D (in/out)
- c- Audio: 3.5 mm jack Interfaces
- d-(rear), Line-in, Line-out
- e-Footswitch port: 5-pin
- f-socket for footswitch
- gLEMO socket (side)
- e-Printer port: USB
- Light Source

- Lamp: LED
- Color temperature: Light source 6400 K
- Average life span:
- approx. 30,000 hours Image format
- Image Format:JPEG
- Video codec:MPEG-4
- Video format:PAL/NTSC
- USB 2.0; Storage interface
- Storage interface:SD memory card
- (SDHC-compatible)
- Screen size: 15" LED backlight
- Resolution: monitor 1024 x 768
- contrast:1:700
- Loudspeaker:Power: 2 W
- Scope of supply should include of :
    - Complete Integrated Desktop Documentation Terminal with accessories
    - Stroboscope Kit
    - One USB of minimum 8GB capacity
- ONLY US FDA (510K) approved model should be offered .

Anaesthesia machine

1. Powder coated structure.
2. Active Anti Hypoxic Electronic device - to ensure no nitrous flow with loss of O2 pressure.
3. Ratio Control – 28% mixed ratio between O2 & N2O Gas Flow
4. Should have Electronic Flow meter for O2, N2O & Air
5. Should have Electronic display of Gas pressure in the user interface display
6. Cylinder Pressure and operating pressure should be indicated electronically in user interface display.
7. Oxygen Driven Nitrous Supply through Electronically
8. Inner connection of tubing's should be made of alloy metal or PPU tubes
9. Audio Visual alarms should be available for Oxygen Failure warning Device
10. Electronically measured cylinder pressure, quick-release system for docking and release.
11. Electronically controlled Voice controlled technology valve for High precision pressure relief cum non return valve should be available
12. The vaporizer should be electronic with an injector. The container of the vaporizer chamber should be minimum 300 ml (10,1 oz.). Refilling of inhalation agent should be possible during running mode. The liquid level in the vaporizer should be displayed both on vaporizer and control display and an alarm should be given when the level becomes too low. The desflurane vaporizer should not require to be warmed up before.
13. Provison to connect two electronic controlled vapouriser simultaneously with electronic switching.
14. Switching between manual and automated ventilation should be possible. The system shall contain a continuously adjustable pressure relief safety valve settable between 0-80 cm H20. Total system volume should be as low as possible and not exceed 3 liter including absorber.
15. Gas Inlet port for O2 & N2O, pin- index type 1 each & O2,N2O & Air non-interchangable type hose 1 each
16. Direct Central Pipe Line connectivity to Machine.
17. Standard Maggils circuits,all rubber antistatic tested.
18. Alloy metal tray for working / writing table with reading lamp.
19. 5.9" Castor wheel with Individual breaks. 4 wheels with individual locking brake.

20. Double Oxygen outlet available for circuirs
21. Operating gas pressure available on the user interface
22. 2 - B" type cylinder carrying facility at back side.
23. Circle Absorber shall contain a continuously adjustable pressure relief safety valve settable between 0-80 cm H20. Total system volume should be as low as possible and not exceed 3 liter including absorber.

24-Ventilator Specifications:

- The equipment shall contain functions for volume- and pressure regulated ventilation.
- The ventilator shall contain the functions "Spontaneous Breathing" and "Manual Ventilation".
- The ventilator shall have the following modes: VCV, PCV, PRVC, SIMV
- The ventilator shall have Pressure Support mode with backup functionality
- The ventilator should not contain any moving parts
- The equipment shall handle high- to low flow anaesthesia during both non-rebreathing and partial rebreathing conditions. Switching between different breathing systems shall be a simple operation.
- It shall be possible to regulate the I:E ratio between 4:1 to 1:10
- The equipment shall include an integrated continuous PEEP-function ranging from 0 to at least 45 cm H2O.
- The set PEEP level should be visible on the control display
- The set pressure should be adjustable between 0 - 120 cm H20
- The set tidal volume should be adjustable between 20-2000 ml (0,67- 67 oz.)
- The breathing frequency should be adjustable between 4-100 breaths/min
- The maximum flow rate should be approximately 200 l/min
- The equipment should provide a fast rise time in Pressure Controlled mode without overshoot.
- The equipment should have an easy accessible timer displaying hours, minutes and seconds.
- The equipment should have tools for performing a lung recruitment maneuver
- The lung recruitment manoeuvre should be automatic
- It should be possible to measure and visualize dynamic compliance breath by breath
- Predictive body weight settings should be available for the ventilator settings
- It shall be possible to pause ventilation and fresh gas flow for a defined time period."

25. Should have single/Double absorbent chamber canister. Easily removable for changing. Supplied with all standard accessories including Bains Circuit.
26. Closed circuit system , Sodalime canister, Single/Double Chamber
27. Pediatric Circuit (Jackson Rees)
28. Auxiliary O2 Supply point
29. Mask of Different size (2 each- 1 to 5)
30. Reservoir bag- 3 litre/5 litre/0.5 litre- 2 each
32. US FDA (510K) approve model should be offered.

Cautery machines

1. This electrosurgical diathermy unit should be for both adult and fetal use.
2. Unit should have advanced microcontroller based technology.
3. Unit should have self test during power ON.
4. Unit should have bipolar, monopolar cut and coagulation with digital wattage indicator.
5. The machine should have intuitive control touch screen panel with simple information displays and easy to understand error alerts.
6. Machine should have two conventional three pin monopolar receptacles which can be used interchangeably and one bipolar receptacle.
7. Unit should have at least 3 cut modes all of which be controlled by instant response technology. Cut modes should be:
8. Low cut for delicate tissue or endoscopic cases.
9. Pure cut for clean, precise cases

10. Blend for cutting with homeostasis.
11. Power efficiency rating of more than 95% for cut performance is desirable.
12. Unit should have facility to use monopolar and bipolar function without switch over.
13. There should be closed loop coagulation for all monopolar and bipolar modes.
14. Unit should have at least following coagulation modes:
15. Monopolar coagulation system should have different setting for endoscopic and delicate tissue work i.e voltage contact coagulation, non contact coagulation, low voltage coagulation and coagulation of large tissue areas with superficial necrosis.
16. System should have monopolar shared coagulation facility.
17. Unit should be compatiable with three button switch monopolar pencil to adjust the power output from sterile field. The function of 3 buttons are:
18. For monopolar coagulation
19. For monopolar cut
20. For dissection with coagulation
21. Bipolar coagulation system should have different settings like auto, precise standard and macro settings.
22. System should be compatible with others devices including-
23. Argon coagulation system.
24. Ultrasonic surgical aspirators.
25. Smoke evacuator
26. Bipolar current monitor
27. System should be compatible with and used as the electrosurgical energy source for:
28. Control RF ablation system.
29. Electroblade rotary resection system
30. Pacemaker lead extraction system.
31. Unit should have HF leakage monitoring system.
32. Unit should have Split Type Patient Plate contact monitoring System for Maximum Patient Safety (Unit should not be deliver power until and unless Maximum area of the patient plate is not covered to completely minimize the risk' of post operative H. F. burns).
33. Unit should have Audio Visual Patient plate Error Monitoring System.
34. Unit should have simultaneous coagulation facility in monopolar coagulation.
35. Unit should have HF leakage monitoring system.
36. Unit should have Time-out Facility to prevent accidental activation.
37. There should be soft coagulation mode to do precise surgeries in soft organs like Liver.
38. Power range of monoploar and bipolar modalities:
39. Monopolar Cut:The maximum power output should be 300W for pure and low modes and 200W for blend mode.
40. Bipolar:The maximum power output should be atleast 95W.
41. RADIO FREQUENCY GENERATOR FOR UNIPOLAR ,BIPOLAR and THERMO FUSION
42. Microprocessor based 300 watt energy device with monopolar; bipolar thermo- fusion & divider.
43. Real time tissue impedance monitoring technology to deliver the selected power perfectly into a wide range of tissue types reducing thermal spread, RF interference and Neuro muscular stimulation and sparks.
44. Total device with operating hand-instruments should be European CE & USFDA approved.
45. Return Electrode Contact Quality Monitoring (REM) System.
46. System should have following features:
47. Output mode: Monopolar, Bipolar ,vessel sealing with independent cutting and Saline Bipolar
48. Monopolar cutting: Auto,Dry/Blend
49. Monopolar Coagulation: Spray, Forced/fulgrate & SOFT
50. Bipolar Cutting: Under water Saline
51. Bipolar Coagulation: Low, Medium & MACRO
52. Thermofusion with independent cutting (sealing capacity upto 7mm diameter vessels)

53. GENERATOR should include the following:
54. Electrosurgical Unit----- 1EACH
55. Footswitch (UNIPOLAR , BIPOLAR, VESSEL SEALER) 1EACH
56. Bipolar Active (LAP/OPEN)
57. Monopolar Active (LAP /OPEN)
58. Saline Bipolar Active (MIS UNDER WATER)
59. Only US FDA (510K) approve model should be offered.

Suction machine

1.Vaccum /LPM : - 700 MM Hg , 50 Litres/Min
2.Pump Type- Double rotary vane type
3.Flutter free vacuum control knob,
4.Wide mouthed 2 x 2 LITRE (light weight, unbreakable and clear) with self-sealing bungs and mechanical over flow safety device.
5.Noise (in dBA)- 50 dB
6.Collection container & its cap, suctions tube tips, a vacuum gauge, two sets of moisture & microbial filters and control knob
7.SiliconeTubing:8 mm ID x 2 mtr (PVC), 2x2 lt jar (one set
8.It should be Mobility, portability.
9.Equipment shall operate on 220V-240V, 50 Hz, single phase electric supply.
10.ISO/ BIS approve model should be offered.

General Operative Set

1. SCALPEL HANDLE, NO. 4, 13.5 CM-1
2. SCALPEL HANDLE, NO. 3, 12 CM-2
3. OPERATING SCISSORS, SH/BL, CVD., 14.5 CM-1
4. SCISSORS, DELICATE, SH/BL, CVD., 14.5 CM-2
5. DISSECT. SCISSORS, BL/BL, CVD., 14.5 CM-1
6. DISSECT. SCISSORS, FINE, CVD., 11 CM-1
7. SCISSORS, JAMESON, CVD., 15.5 CM-1
8. NASAL SCISSORS, FOMON, KNEE BENT, 14 CM-1
9. TC-DISS. SCISSORS, FINE, CVD., 14.5 CM-1
10. TC-IRIS SCISSORS, SH/SH, CVD., 11.5 CM-1
11. DRESSING FORCEPS, MEDIUM WIDE, 14.5 CM-2
12. TC-DRESSING FORCEPS, ADSON, 12 CM-1
13. TC-DRESSING FORCEPS, POTTS-SMITH, 20 CM-1
14. TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM-2
15. TISSUE FORCEPS, ADSON, 1X2 T., 12 CM-1
16. FORCEPS, ADSON BROWN, 7X7 T., 12 CM-2
17. HAEM. FORCEPS, MOSQUITO, CVD., 12 CM-10
18. FORCEPS, MOSQUITO, 1X2 T., CVD., 12.5 CM-12
19. FORCEPS, LERICHE, 1X2 T., CVD., 15 CM-8
20. FORCEPS, PEAN, DELICATE, STR., 14.5 CM-2
21. FORCEPS, KOCHER, 1X2 T., STR., 14 CM-2
22. HAEMOSTATIC FORCEPS, PEAN, STR., 14.5 CM-2
23. HAEMOSTATIC FORCEPS, PEAN, STR., 18.5 CM-2
24. TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM-7
25. TOWEL FORCEPS, BACKHAUS, SHARP, 13 CM-1
26. TOWEL FORCEPS, BERNHARD, STR., 16.5 CM-1
27. TOWEL FORCEPS, PEERS-BERTRAM, 14.5 CM-1
28. FORCEPS, GROSS-MAIER, STR., 26.5 CM-1
29. HOOKLET, SHARP, 1-PR., 16.5 CM-2

30. HOOKLET, SHARP, 2-PR., 16.5 CM-2
31. HOOKLET, BLUNT, 1-PR., 16.5 CM-2
32. HOOKLET, BLUNT, 2-PR., 16.5 CM-1
33. RETRACTOR, VOLKMANN, SH., 3-PR., 22.5 CM-1
34. RETRACTOR, VOLKMANN, SH., 4-PR., 22.5 CM-1
35. RETRACTOR, VOLKMANN, SH., 6-PR., 22.5 CM-2
36. RETRACTOR, VOLKMANN, BL., 3-PR., 22.5 CM-1
37. RETRACTOR, VOLKMANN, BL., 4-PR., 22.5 CM-1
38. RETRACTOR, VOLKMANN, BL., 6-PR., 22.5 CM-2
39. RETRACTOR, KOCHER, SHARP, 1-PR., 22.5 CM-1
40. RETRACTOR, LANGENBECK, 30X11 MM, 22 CM-2
41. RETRACTOR, LANGENBECK, 40X11 MM, 22 CM-3
42. RETRACTOR, LAHEY, 29X6 MM, 19.5 CM-2
43. RETRACTOR, KOCHER, 61X20 MM, 23 CM-2
44. RETRACTOR, MIDDELDORPF, 22X22 MM, 23 CM-1
45. WOUNDSPREADER, SHARP, 3X4 T., 13.5 CM-1
46. SPREADER, ADSON, SHARP, 3X4 T., 13.5 CM-1
47. SUCTION TUBE, ADSON, CVD., Ø 4 MM, 20 CM-1
48. SUCTION TUBE, FRAZIER, 2.0 MM, 19.5 CM-1
49. SUCTION TUBE, FRAZIER, 2.3 MM, 19.5 CM-1
50. SUCTION TUBE, FRAZIER, 2.7 MM, 19.5 CM-1
51. SUCTION TUBE, LUER, Ø 3.0 MM, WL: 110 MM-1
52. GUIDE NEEDLE, ANG., KNIFE SHAPE, 14 CH-2
53. TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM-2
54. TC-NEEDLEHOLDER, MAYO-HEGAR, 16 CM-1
55. TC-NEEDLEHOLDER, DE BAKEY, 20.5 CM-1
56. LIGATURE NEEDLE, DESCHAMPS, BLUNT, 21 CM-1
57. LIGATURE NEEDLE, DESCHAMPS, BLUNT, 21 CM-1
58. BONE CURETTE, SPRATT, OVAL, NO. 1, 17 CM-1
59. RASPATORY, SEDILLOT, CVD., 23 CM-1
60. BONE RONGEUR, BEYER, CVD., 18 CM-1
61. EAR DRESS. FCPS., JANSEN, BAYO., 16 CM-3
62. EAR POLYPUS FORCEPS, STRUEMPEL, 8 CM-1
63. NASAL SPECULUM, HARTMANN-HALLE, NO. 2-1
64. NASAL SPECULUM, KILLIAN, 50 MM, NO. 2-1
65. NASAL SPECULUM, KILLIAN, 85 MM, NO. 4-1
66. NASAL TAMPON FORCEPS, WESTMANCOTT, 20 CM-1
67. SEPTUM FCPS., BRUENINGS, NO. 2, 16.5 CM-1
68. NASAL CUTT. FCPS., WEIL-BLAKES., 3.0 MM-1
69. KNOCHENSTANZE N. HAJEK-KOFLER, DREHBAR-1
70. SEPTUM SCISSORS, CAPLAN, SERR., 20 CM-1
71. ELEVATOR, FREER, SH/BL, W/O PIN, 18 CM-1
72. TONGUE DEPRESSOR, BRUENINGS, FEN., 19 CM-1
73. TONSIL SEIZ. FORCEPS, WHITE, CVD., 18 CM-1
74. TONSIL FORCEPS, BLOHMKE, 1X2 T., 20 CM-1
75. NEEDLE CASE, ROUND, PERF., F. 55-309-65-1
76. BOWL, METAL, H = 75, Ø 167 MM, 0.9 L-1
77. ELECTRODE HDL., 2 SWITCH, 4 M CABLE-1
78. BALL ELECTRODE, (SYN), Ø 4 MM-1
79. BIPOLAR FCPS., ANG., BL., 2.0 MM, 20 CM-2
80. CONTAINER MS, 60X30X16 CM, HANDLE GREY-1
81. Tray DIN, 480x255x33 mm-1

82. Tray DIN, 480x255x73 mm-1
83. COLOR-TAG, RED-2
84. CODING LABEL, WITH TEXT, WITHOUT HOLE-2
85. US FDA (510K) / European CE (issued by notified body only) approved model should be offered.

ENT Operating microscope for major Operation Theatre (with camera attachment & monitor for teaching and recording)

1. Magnification

The system must have a 5-step magnification changer with a 6:1 ratio with Magnification factors 0.4x - 2.5x or more

The system must offer an optical magnification range from 1.4x to 20x or more with flat Apochromatic Optics

The adjustment of the interpupillary distance must offer a distance from 55 mm to 75 mm with diopter setting must offer a value between +5 and -8 dpt

The system must offer a field of view range from 8 mm to 151 mm

2. Focusing System

Apochromatic, continuous 200 - 430 mm or more working range

3. Tubes

Main Surgeon Binocular Tube should be Tiltable tube 0 to 180 degree or better

Eye piece 10x or 12.5x magnetic wide field eyepiece with integrated eye cups for Main Surgeon Binocular tube

Left – Right optical tube movement ± 25° without changing eyepiece position

4. Illumination

The system must offer LED illumination which includes 3 individual LEDs for RGB

The system must offer LED illumination with Xenon-like brightness

working distance of 200 mm, the system must offer a typical light intensity of 170 Klux

The system must offer a 5,500 K cooling LED system far away from field of view for better cleaning

The system must offer a one finger activation of the TrueLight mode for handling composite materials in a natural light environment.

The system must offer a one finger activation of an integrated Fluorescence Mode for caries and composite detection

The system must offer a one finger activation of an integrated polarization filter

5. Integrated HD Camera

The system must offer a fully integrated video camera for surgical microscope positioning with no additional load, no interfering lateral imbalance and no impact by external cables

The system must offer an integrated HD video camera in Full HD resolution with image capture and HD video recording functions.

6. Handgrip

Strong handgrips for adjustment of total microscope along with single button operation for all the operation like illumination, filter change (Green, Yellow), Working distance

7. Stand

Floor stand with Auto Balance or easy control X-Y-Z Spring balancing system.

Each castor must provide a cable detector

The system must offer a 120° coupling.

8. Filter

Special Filter for proper distinguish between vasculature & tissue

The system must offer integrated crossed polarizers that remove

specular reflections and aid in color mapping and shading.

1700mm or more & Arm length: 1500mm or more

User specific start position
Voltage 115 / 230 V + / - 10%, Frequency : 50 – 60 Hz.
US FDA (510K) / European CE (issued by notified body only) approved model should be offered.

FESS set

Rigid nasal endoscope 0 degree,4 mm and 2.7 mm size - 01
Rigid nasal endoscope 30 degree, 4 mm and 2.7 mm size -01
Light source and light cable -01 Endoscopic Camera with suitable- 01 display with recording & archiving facility. (with High Definition Camera) Sickle knife-01 Retrograde punch-01
Blakesley forceps – straight 1and upturn-01
Nasal suction cannula different sizes- -04 nos
Double curved suction cannula different sizes-4 nos
Sinus probe and curette-01
Lacrimal probes for endoscopic DCR -01
General Fess Instruments-01"
US FDA (510K) / European CE (issued by notified body only) approved model should be offered

Nasal endoscopy trolley

with 0 degree & 30 degree 4mm endoscope with light source, cable , monitor & camera
US FDA (510K) / European CE (issued by notified body only) approved model should be offered

Basic OT table

1. Electro- Hydraulic operation table
2. heavy weight of the patient. Complete with all accessories.
3. Electro-hydraulically powered for movements of height, tilting and Trendelenburg.
4. The base of stable construction with large twin-disk-castors for easy travel and maneuvering
5. Table top 500 mm x 1940 mm, Height range 600- 950 mm
6. Trend/Antitrend-20-25, latel tilt- 15-20 degree
7. The Operation table provided with corded hand control and override – control panel for additional safety.
8. The tabletop divided in 5 parts i.e., head plate (removable), back plate, seat plate and leg plates (removable).
9. Guided rails for X-Ray cassettes inserted from the head end.
10. Reverse positioning of patients on a special shoulder plate (three section) that can be connected at the foot end of the tabletop.
11. Back plate is motorised for easy movements
12. The Operation table should have safe positioning and adjustment due to optimal covering of moving joints.
13. The Operation table should provide optimal patient positioning in a supine position. The longitudinal shift feature of 290mm should give unobstructed imaging of vertebrae.
14. Mobile Operating Table, Electrohydraulic, SFC padding
15. **Standard Accessories:**

- Head Rest, Leg plates, pair, hinged and abductable, SFC padding
- Arm board, Radial Setting Clamp, Geopel knee crutch, Body Strap
- US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

ENT Operating microscope for minor Operation Theatre

1. Apochromatic 5 step Magnification with integrated green and Orange Filters
2. Objective lens 200mm, 300mm(with fine focussing), and f=400mm Objective lens
3. Straight Binocular tube f=170mm with IPD 55mm-75mm
4. Pair of widefield push-in eyepieces 10x with sleeves and magnetic locks, diopter setting from –8D to +5D

5. With objective lens f=200 mm and eyepieces 10x:
6. Magnifications 3.4x-5.1x-8.5x-13.6x-21.3x
7. Visual Field Diameter 61.8-41.2-24.7-15.5-10.0 mm
8. 120 degree inclined coupling
9. Front side handgrips
10. Coaxial Halogen Illumination/ Alternatively Long last Co axial LED illumination
11. Dual lamp system with quick change over
12. Continuously lamp intensity adjustment by control knob near to the surgeon
13. Automatic on/off switch for the lamp
14. Stable and sturdy floor stand on four lockable castors, column (height: minimum 1.7 m), spring-balance particulated arm, carrier arm, power supply unit, light guide 2 m, power cable 6 m
15. Sterilizable rubber caps for all knobs, dust cover, spare halogen lamp 12V 100W (12 Nos.)
16. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Puretone audiometer

1. Light weight with suitable carrying case to accommodate the main unit and accessories.
2. Channels:2 separate channels with independent attenuators.
3. Test frequencies 250Hz to 8000Hz
4. Hearing level range :
5. air-conduction 10db to 120 db
6. bone -10db to 80db(apprx)
7. masking 10db to 90 db (apprx) narrow band, wide band
8. Attenuator: 2.5db and 5 dB steps
9. Stimulous:continousn pulsed or warable tone
10. Total Hormonic distortion:
11. air: less than 2.5 % / bone: less than 5%
12. Power supply : suitable mains adapter: 230 VAC
13. Standard accessories
    - Microphone -Headphone
    - Patients' response switch required by the system
    - Power cord-Bone vibrator
    - Carrying case to accommodate the main unit & accessories
    - Headphone TDH 39 and TDH 49
14. Only US FDA (510K) Approved model should be offered.
15. sound Proof booth/ room

Brainstem evoked response audiometer with ASSR

1. Should have ABR, MLR, LLR, ASSR
2. Transducers: insert phone –Ear Tone 3 A, Head phone, Bone oscillator
3. Should have minimum 2 channels.
4. Polarity: Rarefaction, condensation, alternating
5. Should have Intensity: 0-99 nHL or above
6. Stimulus: Clicks, Tone burst
7. Should have user friendly repletion rate
8. Should have Notch filter 50 or 60 Hz.
9. Should have lpsi and contra noise masking
10. Should be Portable & built in isolation and shielding and test should be carry out in NICU or any locations in hospital
11. ASSR: up to 4 stimulus frequency per ear, intensity 0 to 125 dp SPL, frequency range 250 Hz to 8 KHz, users defined modulation,
12. Simultaneous testing of both ears

13. Upgradable to: Diagnostic DPOA, TEOAE – Adjustable pass criteria, frequency dominant spectrum vies
14. Ear probe tips – 2 packets (assorted)
15. Reusable cup electrodes – 6 nos
16. T 20 conduction gel – 3 nos
17. Nuprep gel 114 gm - 6 nos.
18. Desk Top Computer
19. Processor: Intel core i3
    - RAM : 4 GB
    - Hard Disk: 1TB
    - CD/ DVD
    - Monitor : LED/LCD 18.5 inch or above
    - Laser Printer
20. Should be provided with table/trolley (Wooden/Ply/ MDF) to keep BERA machine, computer, UPS and printer
21. Only UPS of suitable capacity with 30 minutes back up for BERA, Desktop and Printer shall be provide·
22. Only US FDA (510K) approved model should be Offered.

OAE Impedance audiometer (With sound treated air-conditioned room for audiometry)

1. Impedance Audiometer / Tympanometry
2. Audiometer impedance with contra ear testing facilities
3. Multifrequency
4. Probe Frequency- 226Hz, 678Hz,800Hz,1000Hz
5. Pressure Range- +200 to – 400 dapa
6. Volume Range - 0.1 ml to 6.0 ml
7. Accuracy - ±5% to ±10 dapa
8. Test Time- < 3 Seconds
9. Reflex Mode
10. Test Frequencies- 500, 1000, 2000, 4000 Hz ± 2%
11. Test Method- IPSI Lateral, Contralateral
12. Noise (Band) - WN/HP/LP
13. Intensities IPSI Lateral-70 to 110 dbHz
14. Intensities Contra Lateral- 70 to 120 dbHz (with TDH39)
15. Intensity Setting- Automatic or Manual
16. Eustachian Tube Function - Intact and Perforated mode
17. ETF Pressure Range-+ 300 to – 400 dapa
18. Test -IPSI Lateral Reflex Test with AGC, Reflex Delay
19. Test Programme- Reflex Test selectable
20. Memory- Test Result of both ears
21. Probe - Light weight, adjustable, Hand Held , With Built in control light & switch
22. Printer- Silent Thermal Printer , (with paper printer facility)
23. Display-Graphic LCD with adjustable contrast
24. Power Supply- Mains 100-240 Volts, 50/60 Hz 25 VA
25. PC Interface- USB Cable
26. Automatic self calibration
27. Oto Acoustic Emission (Screening unit) OAE (DP and TE)
28. TEOAE
29. 1.5 to 4 kHz
30. Sample Rate - 16 kHz
31. Stimulus Level- ca. 80 dB SPL peak Stimulus Type- Nonlinear click

32. Statistical stop criterion (TE Quick) or user defined stop criterion (SNR: 3, 6 or 9 dB) in 3, 4, or 5 out of frequency bands (1, 1.5, 2, 3, 4 kHz) (TE Diag) Window of analysis- 5-13 ms post stimulus
33. DPOAE
34. DP 2 to 5 kHz Sample Rate - 24kHz
35. Frequency Ratio f2/f1- 1.2
36. Level Ratio L12/L1- Scissor Paradigm Measurement Interval- 512 samples
37. Frequencies f2- 1.5, 2, 3, 4, 6, 8, kHz (single & multiple selections possible) Stimulus Levels L2- 35 to 65 dB HL (in steps of 5dB)
38. Also battery operated Multiple test methods
39. Database for at least 1000 tests
40. Data transfer to PC via USB or wireless Printing via PC/ Printer
41. Stimulus intensity: 40 to 70 dB SPL (DPOAE). 83 dB
42. SPL (TEOAE).
43. Maximum output (Protection): 90 dB SPL. Microphone system noise: -20 dB SPL @ 2 kHz (1 Hz bandwidth).
44. -13 dB SPL @ 1 kHz (1 Hz bandwidth).
45. Power supply: (4) AA/UM-3/R6 - alkaline (6V total) Battery life: Approximately 300 tests.
46. Display: LCD-display 4 line x 10 character.
47. Only US FDA (510K) approved model should be Offered.

Flexible Nasopharyngolaryngoscope

1. Should be able to view nasopharynx, larynx, trachea and hypopharynx
2. Should be able to take biopsy with flexible forceps
3. Should have suction and irrigation facility
4. Should have own LED light source.
5. Power Supply 220VAC +/- 10 %, 50Hz fitted with Indian plug.
6. Only US FDA (510K) approved model should be offered.

Electronystagmography

1. High quality ISO certified with sensitivity of 105 images per second binocular, 174 images/sec monocular
2. Goggle with one camera and goggle with 2 cameras (non-occluded and occluded view)
3. Able to perform all vestibular test including smooth pursuit test (tracking)
4. Compatible with latest window software
5. Laptop with minimum 1.8GHz, 2GB DDR3 RAM, 160GB hard disc with resolution of 1024x768 resolution or better
6. Rotatory chair, irrigator for water and air included
7. Only US FDA (510K) approved model should be offered.

Brainstem evoked response audiometer

1. Should have ABR, MLR, LLR, ASSR
2. Transducers: insert phone –Ear Tone 3 A, Head phone, Bone oscillator
3. Should have minimum 2 channels.
4. Polarity: Rarefaction, condensation, alternating
5. Should have Intensity: 0-99 nHL or above
6. Stimulus: Clicks, Tone burst
7. Should have user friendly repletion rate
8. Should have Notch filter 50 or 60 Hz.
9. Should have lpsi and contra noise masking
10. Should be Portable & built in isolation and shielding and test should be carry out in NICU or any locations in hospital

11. ASSR: up to 4 stimulus frequency per ear, intensity 0 to 125 dp SPL, frequency range 250 Hz to 8 KHz, users defined modulation,
12. Simultaneous testing of both ears
13. Upgradable to: Diagnostic DPOA, TEOAE – Adjustable pass criteria, frequency dominant spectrum vies
14. Ear probe tips – 2 packets (assorted)
15. Reusable cup electrodes – 6 nos
16. T 20 conduction gel – 3 nos
17. Nuprep gel 114 gm - 6 nos.
18. Desk Top Computer
19. Processor: Intel core i3
    - RAM : 4 GB
    - Hard Disk: 1TB
    - CD/ DVD
    - Monitor : LED/LCD 18.5 inch or above
    - Laser Printer
20. Should be provided with table/trolley (Wooden/Ply/ MDF) to keep BERA machine, computer, UPS and printer
21. Only UPS of suitable capacity with 30 minutes back up for BERA, Desktop and Printer shall be provide·
22. Only US FDA (510K) approved model should be Offered.
23.

OPHTHALMOLOGY

Automated Perimeter

1. Specification of Perimeter (Goldman Type) should have following: - High quality Goldman standard Imported automated full field perimeter with bowl size 30cm.Computer monitor should be inbuilt with the perimeter.
2. Maximum intensity 10,000Asb, Bowl illumination 31.5Asb
3. Through External PC / Internal hard disk drive with future upgradation to MOD
4. Stimulation duration 200ms, wavelenth Broad band visible light
5. Stimulus/Background color White on White
6. Maximum temporal range 90Deg.Suitable for central 30 as well as full field testing
7. Central field test patterns 30-2,24-2,10-2,Macula
8. Threshold test strategies are SITA, Normal, Dynamic, Fast and TOP
9. Threshold test strategies full threshold, Fast Pac, SITA, SITA Fast, SITA Standard
10. Screening field test P-60, FF-80,FF-120,FF-240,Nasal Step for periphery .
11. Screening test strategies Two zone, Three Zone and Quantify Defects
12. Stimulus Size I-V as per Goldman standards
13. Glaucoma hemifield test and Automatic Eye Tracking is available
14. Video eye monitoring, Trial Lens Holder,
15. Touch screen monitor as well as Keyboard & Mouse
16. Motorized chinrest, Motorized table with Laser Jet Printer
17. Glaucoma progression analysis software
18. Power supply to be 220-240VAC, 50Hz fitted with Indian plug.
19. Suitable UPS with maintenance free batteries & Back up time 30 minutes.
20. Only US FDA (510K) Approved model should be offered.

Ophthalmoscope (Direct)

6. Disposable Otoscope Tips - 10 nos.
7. Reusable Otoscope Tips - 4 nos
8. AA batteries required.
9. Original Hard Case
10. US FDA (510k) / European CE(Issued from notified Body) /BIS Approved model should be offered.

Streak Retinoscope

1. Should have an external focusing sleeve which is easy to grip and manipulate.
2. Should have crossed-linear polarizing filter.
3. Should allow one-hand operation for streak focus and 360º streak rotation.
4. Should be interchangeable to plane mirror and concave mirror mode by sleeve movement.
5. Should use halogen/Xenon streak lamp.
6. Should have 100% dust proof housing and multi-coated optics.
7. Should have detachable brow rest for spectacle wearer
8. Should be battery/ rechargeable battery operated.
9. Should have a carrying case.
10. US FDA (510k) / European CE(Issued from notified Body) Approved model should be offered.
11. Should be supplied with the following accessories.
    - Bulb 5 nos.,bulb Holder and bulb cover

Indirect Ophthalmoscope

1. Binocular Indirect ophthalmoscope with precision viewing up to 1.0 mm pupil size.
2. Spot size: 3 integrated spot size small spot, medium spot & large spot.
3. Filters: 4 integrated filters to choose form red filter, cobalt blue filter, yellow filter and diffuser.
4. Vertical adjustment, +/-4˚
5. Headband with Rheostat and Articulating Hinge to provide vertical adjustment of the rear band.
6. integrated flip up adjustment optics, which can be flipped, and locked at 0˚, 12.5˚, 47.5˚, 60˚
7. Aperture and filter adjustment levers: can be locked to the desired position required.
8. P.D. range from 46-75 mm.
9. 6V halogen Xenon bulb/LED.
10. Transformer compatible with voltage system of AC 220 -240 volts
11. Carrying case
12. Head Band Mounted Rechargeable battery
13. Accessories +20D lens.
14. US FDA (510k) / European CE(Issued from notified Body) Approved model should be offered.

Applanation tonometer

1.Goldman Applanation Tonometer
2.Beam splitter with co-observer tube
3. Lotmar Visometer
4.US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

1. <u>Photo Slit Lamp</u>

<u>1.The equipment should have following features</u>

<u>(i) Background illumination adapter.</u>

<u>(ii) Beam Splitter</u>

(iii) Digital Adapter.

(iv)Camera 12.2 mpx

(v)Software for photo Management

(vi)Power adapter.

(vii) Memory card 8 GB

(viii)Electric Table

(ix)Camera parameters are setup, so you don't have to figure out the correct settings.

2.Microscope
(i)Type Galilean- Type

(ii)Magnification change Revolving Drum

(iii)Total magnification Ratio 10x, 16x,25x (Standard configuration)

(iv)Eyepieces 12.5x

(v)Angle between eyepieces 13 degree .

(vii)Pupillary adjustment 55mm - 78mm

(viii)Diopter adjustment + - 6 D

(ix)Field of view 40 x (A:5.5mm), 25 x (A:8.5mm), 16x(A:13.5mm), 10x(A:22mm) 6x(A:34.7mm)

3.Slit Illumination

(i)Slit width: continuously variable from 1mm to 14mm. (at 14 mm slit become circle)

(ii)Lamp: 6V/20W Halogen Lamp

(iii)Slit angel: 0degree to 180degree (continuously adjustable both vertical and horizontal)

(iv)Slit inclination: 4 step 5degree, 10degree, 15degree 20dgree

(v)Filters: Thermal Safety, UV, Red free cobalt Blue.

(vi)Aperture diameters : A:14mm A: 10mm, A:5mm A:3mm, A: 2mm, A:1mm, A:0.2mm.

4.Base

Longitudinal movement : 90 mm

Lateral movement :100 mm

Vertical movement :30 mm

5.Chin –Rest

Vertical movement :80mm

Fixation : Green LED

6.Power:

Input voltage : 220V/110V +-10%

Input Frequency : 50Hz/60Hz.

Power Consumption : 30VA (max)

Output voltage : Lamp 6V (Continuously adjustable)

Fixation 3V

7.Dimension & Weight

Dimension : 740 mm x 450mm x 500mm

Gross Weight : 25 Kg.

Net Weight :24 Kg.

8.Working environment:

Temperature : +5 to +40

Relative humidity : ≤ 80%

Air pressure : 800 hpa to 1060 hpa

9.Storing nnvironment

(i)Temperature : -40 to +55

(ii)Relative humidity : ≤93%

(iii) Air pressure : 700 hpa to 1060 hpa

10 Transporting environment:

(i)Temperature : -40 to +55

(ii)Relative humidity : ≤93%

(iii) Air pressure : 700 hpa to 1060 hpa

11.Technical specification for the Camera.

(i)12.2-megapixel CMOS sensor captures enough detail for poster size photo-quality prints.

(ii) Lager 3.0 mch LED display to enhanced Live View

(iii) DIGIC III image processor should be last having acculate processing unproved Autofocus and framing rate.

(iv)EOS integrated Cleaning system plus Dust Delete Data detection in included software.

(v)Stores images on SD/SDHC memory cards.

12 Quality certificate: European CE/USFDA

Keratometer

1. Radius of curvature:5.5 to 10 mm (Increments: 0.01mm)
2. Corneal power:33.75 to 61.25 D when cornea equivalent refractive index is 1.3375 (Increments: 0.05D, 0.12D, 0.25D)
3. Axis:1˚ to 180˚ (Increments: 1˚)
4. Corneal periphery: Measurement area: 30˚
5. when radius of curvature is 8mm

CORNEAL DIAMETER MEASUREMENT

a. Corneal diameter:2.0 to 16.0 mm (Increments: 0.1mm)
b. Retroillumination: Available;
c. 2 images can be stored in memory
d. Built-in printer
e. Should work on 230 V,50 Hz
f. Power-saving system should be available

Accessories ,Spare and Consumable

g. Motorized table
h. Keratometry model eye (with contact lens holder)
i. Printing paper
j. Chin rest paper
k. Blower brush
l. Dust cover

6. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Synoptophore

Technical Specifications:

- Adjustable range of pupil distance: 50 - 75mm
- Movement of Optical Tubes

HORIZONTAL :

- Adduction +50 degree
- Adduction - 40 degree

VERTICAL :

- Hyper 30 degree
- Hypo 30 degree

TORSIONAL :

- Excyclo 20 degree
- Incyclo 20 degree
- Slide Illumination: Rheostat controlled 12V Lamp for each slide. After Image Illumination by 12V Lamp (for better Illumination)
- Auto Flashing: Auto Flashing of Slide Illumination either SIMULTANEOUS or ALTERNATE in RAPID & VARIABLE mode.
- Mode & Mode Selection: Five Modes of Slide Illumination namely NORMAL, FLASHING RIGHT, FLASHING LEFT, FLASHING R + L & AUTOFLASHING, can be selected by a single selector knob.

Standard Accessories to be included:

A set of slides containing 9 Pairs.

- Haidinger Brushes.
- Power Cord
- Dust Cover.
- Two Spare Bulbs 12V.
- Motorized Instrument Table

US FDA (510K) / European CE(Issued from notified Body)/ISO/BIS Approved model should be offered.

Schiotz's tonometer

1. High quality agate bearing for an extremely long service life.
2. Precision measurement on a scale of 0 to 20 subdivision and 0 to -1 subdivisions.
3. Reading of the scale with red pointer
4. Complete in a case with velvet-look inserts
5. Supplied with three weights (5.5 g, 7.5 g, 10 g) and a conversion table.
6. It should be Autoclavable.
7. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Cryo Unit

1. Should have interchangeable gun probes of six different sizes.
2. Should have interchangeable gun probes of six different sizes.
3. Diameter

- 25mm – 8 mm
- 2 mm – 15 mm
- 22 mm – 25 mm
- 19 mm – 13 mm
- 19 mm – 10 mm
- 8 mm – 10 mm

4. With a carrying case for keeping the gun.
5. Should be hand operated , light weight & have easy maneuverability
6. Should also be equipped with N20 / CO2 gas cylinder, with connecter with a filter, pressure regulator & trolley for cylinder and cylinder key.
7. Mains Power : 230 V,50 Hz
8. US FDA (510 K) / European CE(Issued from notified Body) Approved model should be offered

Operation Theatre Table for opthalmology

OT Table is required for general & ophthalmic surgery and should have X-Ray transluscent tops.

- Four section table top with divided foot section
- Table top should be constructed from a high-pressure laminate to permit x-ray penetration and fluoroscopy
- All table positioning, i.e., height, back section, lateral tilt, trendelenburg, and anti-trendelenburg, except foot and head section should be operated hydraulically
- Should have a manual position selector, whose location should be interchangeable between foot and head end
- The casings on the frame and centre supporting column should be made of hygienic stainless
- steel
- Mattress should be radio lucent and suitable for fluoroscopy
- Measurements :(all dimensions are approximated to +/_ 10 % variations)
    - Height: 730-1040 mm
    - Side tilt: + 15 degrees
    - Back section adjustment: - 15 degrees to 70 degrees
    - Foot section adjustment: - 90 to 0 degree, detachable
    - Trendelenburg: 25 degree
    - Anti trendelenburg: 25 degree
    - Head section adjustment: -40 to -30 degree, detachable
    - Maximum width: 555 mm
    - Length: 1950 mm

System Configuration Accessories, spares and consumables
a) System as specified
b) Accessories should include

- Padded arm rest with straps - pair with damps
- Anesthesia screen with clamps
- Side supports: pair with clamps
- Shoulder supports: pair with clamps
- Knee crutches: pair with damps
- X-ray cassette tray
- Kidney bridge
- SS bowl with clamps
- Infusion rod with clamp

US FDA (510 K) / European CE(Issued from notified Body) Approved model should be offered.

Suction machine

1.Vaccum /LPM : - 700 MM Hg , 50 Litres/Min
2.Pump Type- Double rotary vane type
3.Flutter free vacuum control knob,
4.Wide mouthed 2 x 2 LITRE (light weight, unbreakable and clear) with self-sealing bungs and mechanical over flow safety device.
5.Noise (in dBA)- 50 dB
6.Collection container & its cap, suctions tube tips, a vacuum gauge, two sets of moisture & microbial filters and control knob
7.SiliconeTubing:8 mm ID x 2 mtr (PVC), 2x2 lt jar (one set
8.It should be Mobility, portability.
9.Equipment shall operate on 220V-240V, 50 Hz, single phase electric supply.
10.ISO/ BIS approve model should be offered.

GENERAL SURGERY

Proctoscope

1. Working Attachment, for use with Proctoscope and Telescope Proctoscope with obturator O.D.: 24 mm, working length: 8 cm.
2. Straight Forward Telescope 30°, Eyepiece 45° angled, diameter 4 mm, length 9.5 cm, autoclavable, Fiber optic light transmission incorporated
3. Sponge Holder, working length 20 cm Dressing Forceps, total length 19 cm
4. Fistula Hook, total length 19 cm
5. Proctoscopy Punch, Through-cutting, cutting width 3.4 mm, straight jaws, sheath diameter 3.5 mm, working length 20 cm
6. Injection Needle, straight, LUER-Lock, tip diameter 1.0 mm, working length 14 cm Hemorrhoid Grasping Forceps, for use with ligature instrument
7. Ligature Instrument, for treatment of hemorrhoids, working length 17 cm including: Loading Cone,
8. Only US FDA (510 K) Approved model should be offered.

Operation Theatre Table

1. Should be multi purpose powered electro hydraulic OT table, C- Arm Fluoroscopic compatible, suitable for all major urological endoscopic surgical, open surgical procedures and vascular transplantation surgery, complete with a corded handset with battery level indicators and moulded, anti-static, seamless mattress.
2. Table top should have feature of movement with a traverse of minimum of 250 mm or more, either cranially or caudally
3. Should have full length X-ray translucent top with removable & interchangeable head and leg sections with an auto-locking mechanism.
4. Table must allow for unrivalled C-arm access and kidney break positioning without the need to move the patient.
5. Trendelenburg/ antitrend-: 20-25 degree, Lateral tilt- 15-20 degree, FLEX/Reflex- 220 degree/120 degree, Slide- 310 mm, Height- 600-1030 mm with 80 mm mattress
6. The brakes, wheels and castors should be controlled by two foot pedals (single foot pedal)
7. The table should feature an integrated stand by panel for controlling the movements in case of handset loss or battery failure
8. The table stem should be located under the middle of the back section making the tabletop eccentric.
9. Table should be able to carry heavy patients and have a capacity of up to 225 kgs
10. Table should also be suitable for tall patients and have a length of at least 2150 mm
11. Table should offer low minimum height enabling the surgeon to operate even when seated
12. The table should have divided leg section with mattresses, arm board & universal clamp
13. Should have facilities for manual operations in case of power failures.
14. System Configuration Accessories, spares and consumables
15. The table should be supplied with following necessary accessories:

16. Padded leg crutches with lithotomy holders: 1 pair
17. Arm supports – 2 nos
18. Gel heel pads – 1 pair
19. Body strap along with separate gel strap
20. Hand Surgery Board – 1
21. Elevated Arm Support – 1
22. Padded head, shoulder and arm rest – 1 set each
23. Padded lateral support and shoulder supports – 1 set
24. A square or L shaped anaesthesia screen frame with appropriate clamps / locks – 1 No.
25. Appropriate accessories' clamp.
26. Stainless steel drainage tray with sieve and drain tube for cystoscopy 1No.
27. US FDA (510 K) / European CE (Issued from notified Body) Approved model should be offered.

Pedestal lights

1. Light, for medical examination, on mobile stand.
2. Arm: 105 cm articulated, spring loaded arm, arm with on/off switch and incorporated electronic transformer.
3. Mobile stand with 5 swivel castors.
4. Power supply: 220 V.
5. Bulb: approx.12V/20W, halogen, light intensity: approx 20.000 Lux at 40 cm.
6. Lamp to emit natural white light: colour temperature 4000 K.
7. Reflector adjustable for positioning.
8. Free cord: length approx. 3 m.
9. To be supplied with: 1 spare bulb and 1 spare fuse.
10. Should have antiskid castor on/wheels for easy mobility.
11. Light head – should be shadow free light. Should have sterilizable focusing handle.
12. Depth of illumination – 70 cm minimum
13. Should be disconnectable from the stand
14. Bulb life should be minimum 1000 hrs.
15. Replacement of bulb should be easy
16. Heat dissipation should be efficient to keep the air at the surgeons head level cool.
17. Only US FDA (510 K) /European CE (Issued from notified Body) Approved model should be offered.

Suction machine

1. Vacuum /LPM: - 700 MM Hg , 50 Liter's/Min.
2. Pump Type- Double rotary vane type
3. flutter free vacuum control knob,
4. Wide mouthed 2 x 2 LITRE (light weight, unbreakable and clear) with self-sealing bungs and mechanical over flow safety device.
5. Noise (in dBA)- 50 dB A
6. Collection container & its cap, suctions tube tips, a vacuum gauge, two sets of moisture & microbial filters and control knob.
7. SiliconeTubing:8 mm ID x 2 mtr (PVC), 2x2 lt jar (one set extra)
8. It should be Mobility, portability.

9. Equipment shall operate on 220V-240V, 50 Hz, single phase electric supply.
10. US FDA / European CE/ BIS approve model should be offered.
11. ISO/ BIS approved model should be offered.

Anesthesia Equipment

1. Powder coated structure.

2. Active Anti Hypoxic Electronic device - to ensure no nitrous flow with loss of O2 pressure.

3. Ratio Control – 28% mixed ratio between O2 & N2O Gas Flow

4. Should have Electronic Flow meter for O2, N2O & Air

5. Should have Electronic display of Gas pressure in the user interface display

6. Cylinder Pressure and operating pressure should be indicated electronically in user interface display.

7. Oxygen Driven Nitrous Supply through Electronically

8. Inner connection of tubing's should be made of alloy metal or PPU tubes

9. Audio Visual alarms should be available for Oxygen Failure warning Device

10. Electronically measured cylinder pressure, quick-release system for docking and release.

11. Electronically /Pneumatically controlled technology valve for High precision pressure relief cum non return valve should be available

12. The vaporizer should be electronic with an injector. The container of the vaporizer chamber should be minimum 300 ml (10,1 oz.). Refilling of inhalation agent should be possible during running mode. The liquid level in the vaporizer should be displayed both on vaporizer and control display and an alarm should be given when the level becomes too low. The desflurane vaporizer should not require to be warmed up before.

13. Provison to connect two electronic controlled vapouriser simultaneously with electronic switching.

14. Switching between manual and automated ventilation should be possible. The system shall contain a continuously adjustable pressure relief safety valve settable between 0-80 cm H20. Total system volume should be as low as possible and not exceed 3 liter including absorber.

15. Gas Inlet port for O2 & N2O, pin- index type 1 each & O2,N2O & Air non-interchangable type hose 1 each

16. Direct Central Pipe Line connectivity to Machine.

17. Standard Maggils circuits,all rubber antistatic tested.

18. Alloy metal tray for working / writing table with reading lamp.

19. 5.9" Castor wheel with Individual breaks. 4 wheels with individual locking brake.

20. Double Oxygen outlet available for circuirs

21. Operating gas pressure available on the user interface

22. 2 - B" type cylinder carrying facility at back side.

23. Circle Absorber shall contain a continuously adjustable pressure relief safety valve settable between 0-80 cm H20. Total system volume should be as low as possible and not exceed 3 liter including absorber.

24. Ventilator Specifications:

a. The equipment shall contain functions for volume- and pressure regulated ventilation.
b. The ventilator shall contain the functions "Spontaneous Breathing" and" Manual Ventilation".
c. The ventilator shall have the following modes: VCV, PCV, PRVC, SIMV
d. The ventilator shall have Pressure Support mode with backup functionality
e. The ventilator should not contain any moving parts
f. The equipment shall handle high- to low flow anesthesia during both non-rebreathing and partial rebreathing conditions. Switching between different breathing systems shall be a simple operation.
g. It shall be possible to regulate the I:E ratio between 4:1 to 1:10
h. The equipment shall include an integrated continuous PEEP-function ranging from 0 to at least 45 cm H2O.
i. The set PEEP level should be visible on the control display
j. The set pressure should be adjustable between 0 - 120 cm H20
k. The set tidal volume should be adjustable between 20-2000 ml (0,67- 67 oz.)
l. The breathing frequency should be adjustable between 4-100 breaths/min
m. The maximum flow rate should be approximately 200 l/min
n. The equipment should provide a fast rise time in Pressure Controlled mode without overshoot.
o. The equipment should have an easy accessible timer displaying hours, minutes and seconds.
p. The equipment should have tools for performing a lung recruitment maneuver
q. The lung recruitment maneuver should be automatic
r. It should be possible to measure and visualize dynamic compliance breath by breath
s. Predictive body weight settings should be available for the ventilator settings
t. It shall be possible to pause ventilation and fresh gas flow for a defined time period."

25. Supplied with all standard accessories including Bains Circuit.

26. Closed circuit system , Sodalime canister, Single/Double Chamber

27. Pediatric Circuit (Jackson Rees)

28. Auxiliary O2 Supply point

29. Mask of Different size (2 each- 1 to 5)

30. Reservoir bag- 3 litre/5 litre/0.5 litre- 2 each

32. Only US FDA (510 K) approved model should be offered.

Autoclave

1. Horizontal rectangular high-pressure steam sterilizer
2. Chamber cpacity: 75 litre
3. Electrical Power : 18/36 KW or Sufficient wattage of Industrial immersion type water heater to generate steam with in a reasonable period of time on 3 phase 440 v 50 HZ ac supply
4. Working pressure and Temperature : 1.06 Kgf / sq.cm -1.2 Kgf /sq.cm at 121 Deg C
5. Material of construction

a. Inner chamber, Jacket, Door : SS 316.(5mm-10mm)
b. Outer Chamber : SS 304 (insulated properly)
c. Steam generator : Non corrosive SS /Chromium plated Brass
d. Heater Plate : Brass/Stainless steel
e. Pipe Line : Complete with SS
f. Stand : Stainless Steel/High quality non corrosive Steel Instrumentation

6. Temperature, Pressure and vacuum gauges, steam traps , vacuum driers, water level indicator on steam generator Safety devices.
7. Pressure switch and safety valve, self-locking of door when chamber is under pressure: vacuum breaker for jacket.
8. Steam generator with gauge glass valves and Low water protection with audiovisual indicator.
9. Entire cycles of sterilization should be controlled by a microprocessor unit and it should also have manual operation facility.
10. Accessories

a. Heating element 2 set extra with each machine.
b. Necessary Pipeline works for water inlet and steam outlet should be done.
c. Cable for connecting to wall socket should also be provided

11. US FDA / European CE (Issued from notified Body) Approved model should be offered.

Proctoscope

a. Working Attachment, for use with Proctoscope and Telescope Proctoscope with obturator O.D.: 24 mm, working length: 8 cm.
b. Straight Forward Telescope 30°, Eyepiece 45° angled, diameter 4 mm, length 9.5 cm, autoclavable, Fiber optic light transmission incorporated
c. Sponge Holder, working length 20 cm Dressing Forceps, total length 19 cm Fistula Hook, total length 19 cm
d. Proctoscopy Punch, Through-cutting, cutting width 3.4 mm, straight jaws, sheath diameter 3.5 mm, working length 20 cm
e. Injection Needle, straight, LUER-Lock, tip diameter 1.0 mm, working length 14 cm Hemorrhoid Grasping Forceps, for use with ligature instrument
f. Ligature Instrument, for treatment of hemorrhoids, working length 17 cm including: Loading Cone,
g. US FDA (510 K) Approved model should be offered.

Operation Theatre Table

1. Should be multi purpose powered electro hydraulic OT table, C- Arm Fluoroscopic compatible, suitable for all major urological endoscopic surgical, open surgical procedures and vascular

transplantation surgery, complete with a corded handset with battery level indicators and moulded, anti-static, seamless mattress.

2. Table top should have feature of movement with a traverse of minimum of 250 mm or more, either cranially or caudally
3. Should have full length X-ray translucent top with removable & interchangeable head and leg sections with an auto-locking mechanism.
4. Table must allow for unrivalled C-arm access and kidney break positioning without the need to move the patient.
5. Trendelenburg/ antitrend-: 20-25 degree, Lateral tilt- 15-20 degree, FLEX/Reflex- 220 degree/120 degree, Slide- 310 mm, Height- 600-1030 mm with 80 mm mattress
6. The brakes, wheels and castors should be controlled by two foot pedals (single foot pedal)
7. The table should feature an integrated stand by panel for controlling the movements in case of handset loss or battery failure
8. The table stem should be located under the middle of the back section making the tabletop eccentric.
9. Table should be able to carry heavy patients and have a capacity of up to 225 kgs
10. Table should also be suitable for tall patients and have a length of at least 2150 mm
11. Table should offer low minimum height enabling the surgeon to operate even when seated
12. The table should have divided leg section with mattresses, arm board & universal clamp
13. Should have facilities for manual operations in case of power failures.
14. System Configuration Accessories, spares and consumables
15. The table should be supplied with following necessary accessories:
16. Padded leg crutches with lithotomy holders: 1 pair
17. Arm supports – 2 nos
18. Gel heel pads – 1 pair
19. Body strap along with separate gel strap
20. Hand Surgery Board – 1
21. Elevated Arm Support – 1
22. Padded head, shoulder and arm rest – 1 set each
23. Padded lateral support and shoulder supports – 1 set
24. A square or L shaped anaesthesia screen frame with appropriate clamps / locks – 1 No.
25. Appropriate accessories' clamp.
26. Stainless steel drainage tray with sieve and drain tube for cystoscopy 1No.
27. US FDA (510 K) / European CE (Issued from notified Body) Approved model should be offered.

Pedestal lights

18. Light, for medical examination, on mobile stand.
19. Arm: 105 cm articulated, spring loaded arm, arm with on/off switch and incorporated electronic transformer.
20. Mobile stand with 5 swivel castors.
21. Power supply: 220 V.
22. Bulb: approx.12V/20W, halogen, light intensity: approx 20.000 Lux at 40 cm.
23. Lamp to emit natural white light: colour temperature 4000 K.
24. Reflector adjustable for positioning.
25. Free cord: length approx. 3 m.
26. To be supplied with: 1 spare bulb and 1 spare fuse.
27. Should have antiskid castor on/wheels for easy mobility.

28. Light head – should be shadow free light. Should have sterilizable focusing handle.
29. Depth of illumination – 70 cm minimum
30. Should be disconnectable from the stand
31. Bulb life should be minimum 1000 hrs.
32. Replacement of bulb should be easy
33. Heat dissipation should be efficient to keep the air at the surgeons head level cool.
34. Only US FDA (510 K) /European CE (Issued from notified Body) Approved model should be offered.

Suction machine

12. Vacuum /LPM: - 700 MM Hg , 50 Liter's/Min.
13. Pump Type- Double rotary vane type
14. flutter free vacuum control knob,
15. Wide mouthed 2 x 2 LITRE (light weight, unbreakable and clear) with self-sealing bungs and mechanical over flow safety device.
16. Noise (in dBA)- 50 dB A
17. Collection container & its cap, suctions tube tips, a vacuum gauge, two sets of moisture & microbial filters and control knob.
18. SiliconeTubing:8 mm ID x 2 mtr (PVC), 2x2 lt jar (one set extra)
19. It should be Mobility, portability.
20. Equipment shall operate on 220V-240V, 50 Hz, single phase electric supply.
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16. Direct Central Pipe Line connectivity to Machine.

17. Standard Maggils circuits,all rubber antistatic tested.

18. Alloy metal tray for working / writing table with reading lamp.

19. 5.9" Castor wheel with Individual breaks. 4 wheels with individual locking brake.

20. Double Oxygen outlet available for circuirs

21. Operating gas pressure available on the user interface

22. 2 - B" type cylinder carrying facility at back side.

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v. The ventilator shall contain the functions "Spontaneous Breathing" and" Manual Ventilation".
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bb. The equipment shall include an integrated continuous PEEP-function ranging from 0 to at least 45 cm H2O.
cc. The set PEEP level should be visible on the control display
dd. The set pressure should be adjustable between 0 - 120 cm H20
ee. The set tidal volume should be adjustable between 20-2000 ml (0,67- 67 oz.)
ff. The breathing frequency should be adjustable between 4-100 breaths/min

gg. The maximum flow rate should be approximately 200 l/min
hh. The equipment should provide a fast rise time in Pressure Controlled mode without overshoot.
ii. The equipment should have an easy accessible timer displaying hours, minutes and seconds.
jj. The equipment should have tools for performing a lung recruitment maneuver
kk. The lung recruitment maneuver should be automatic
ll. It should be possible to measure and visualize dynamic compliance breath by breath
mm. Predictive body weight settings should be available for the ventilator settings
nn. It shall be possible to pause ventilation and fresh gas flow for a defined time period."

25. Supplied with all standard accessories including Bains Circuit.

26. Closed circuit system , Sodalime canister, Single/Double Chamber

27. Pediatric Circuit (Jackson Rees)

28. Auxiliary O2 Supply point

29. Mask of Different size (2 each- 1 to 5)

30. Reservoir bag- 3 litre/5 litre/0.5 litre- 2 each

32. Only US FDA (510 K) approved model should be offered.

Diagnostic and Operative laparoscope including one High Definition with all accessories and hand instruments.

1. High Definition Laparoscopy System

a) High Definition Three Chip Camera System

b) Camera console 220 v with universal coupler & Autoclavable camera head

c) Pure Digital signal with high definition video(1280*1024 native resolution)

d) Resolution-2000 horizontal lines

e) 8 specialty settings

f) Integrated Flexible Scope filter

g) Signal to Noise ratio-70 db

h) Progressive scan technology both on camera head & console

i) Brightness Control on console & camera head

j) Aperture Control on console

k) Inbuilt 16 step digital Image Enhancer on console

l) Digital zoom & white balance on camera head

m) Integrated Gain/shutter/Enhancement with brightness control

n) Two peripheral control on camera head

2. Video Output

a) 2 DVI output

b) 2 SVHS & 1 RGB out put

c) One Composite out put

3. Automatic Light source

a) 220 V,300 W. Xenon Bulb(with one spare bulb)

b) Elliptical Bulb technology

c) Bulb Working life 5800hrs

d) Digital Bulb life counter on light source

e) Automatic /Manual Light Adjustment

f) Stand By Mode

g) Universal Jaw Assembly to adapt any make of fiber optic cable without adapter.

4. Fiber optic Cable

a) 6.5mm*7.5 feet Snap Fit cable

5. Monitor

a) 19'' Flat Panel Monitor Colour

6. Insufflator

a) 40Liter of high flow

b) Microprocessor controlled unit

c) Soft Approach Pressure control for safe recovery of abdominal pressure

d) Gas heating

e) LCD based central display monitor with multilingual text & graphics

f) AV warning signal

7. **Suction irrigation apparatus for Laparoscopic surgery**

Laparoscopes, Fully Autoclavable with working length 300mm

a) Wide angled distortion free view

b) Universal adaptor for other light sources

c) Yellow Glass index for optimum evenness of focus & contrast

d) 0 degree, 10mm

e) 30 degree, 10 mm

f) 0 degree , 5mm

g) Flexible video telescope

8. ONLY US FDA (510 K) Approved model should be offered.

9. Specifications for hand instruments

a) Laparoscopic hand instruments (reusable) with 310mm working length, take apart locking / unlocking mechanism, rotable with interchangeable handle with monoploar diathermy attachment (Except trocars and veress needle)

b) veress needle 12 cm length 4

c) Veress needle 15 cm length 4

d) Carbon-di-oxide gas tubing 4

e) Trocars sleeves 11 mm 4

f) Reducer 11/5 mm 2

g) Trocars sleeves 5.5 mm 4

h) Trocars (pyramidal tip) 10 mm 4

i) Trocars (pyramidal tip) 5 mm 4

j) Trocars washer 5 mm 100

k) Trocars washer mm 50

l) Laproscopic biopsy forceps 5 mm, 2

m) Maryland dissector 5mm with unipolar diathermy 2

n) Maryland dissector 5mm, high performance with bipolar

o) Cutting 2

p) Atraumatic graspers, 5mm 2

q) Metzenbaum scissors (5cm) with unipolar diathermy 2

r) Metzenbaum scissors (5cm) high performance with bipolar 2

s) cutting

t) Fan retractors 5 mm 2

u) Laproscopic cautery lead 4

v) Suction irrigation device with two way valve 2

w) L shaped hook electrode 5mm

x) L shaped hook 5mm , high performance with bipolar cutting2

y) Laproscopic bowel grasper 5mm, length 33-36 cm 2

z) Laproscopic spoon forceps 10mm length 33- 36 cm2

aa) Needle holder 5mm, 33 cm long 4

bb) Laproscopic suction cannuala, 10 mm 2

cc) Laparoscopic suction cannula 5 mm 2

dd) Clip applicator 10 mm Large, Medium, Small Clips

ee) Gall bladder extraction 5mm Large, Medium, Small Clips

ff) Hassan cannula

gg) Lap

hh) Eondotrainer

ii) Port closure needle

jj) Sterilization tray with cover 3 x 1

US FDA (510 K) / European CE(Issued from notified Body) Approved model should be offered.

Cystoscope & Resectoscope

Cystoscope with Light source, camera & Monitor

1. Sheath with obturator outer Diameter- 20 Fr
2. Working channel- 04-05Fr
3. Working length- 22cms
4. Self-dilating tip for ease of entry
5. Compatible 30degree an 0-degree HD telescope – 01 each
6. Telescope bridge – 01
7. Stone crushing forceps compatible with above sheath and telescope – 01 in no.

8. Resectscope sheath compatible with above mentioned telescope – 01 in no., with

a. Moveable thumb ring (working element) – 01 in no.

b. Spring loaded action with electrodes inside the sheath in rest position

c. Telescope Bridge – 01 in no.

d. Cutting loop – 10 in nos.

e. Coagulating hook electrode – 10 in nos.

f. Monopolar high frequency cord – 05 in no.

g. Protection tube for electrodes – 05 in no

9. Fiber optic cold light source: 1no. 300 watt Xenon bulb /LED (Bulb life 500 hrs minimum for xenon & LED Life 10000 hrs.

10. Should have 3 cheap camera

11. Should have 21" Medical grade HD Monitor.

12. Power supply 220VAC +/- 10 %, 50Hz.

13. On-line UPS with 60 minutes back up Entire system.

15. Only USFDA (510 K) Approved model should be Offred.

Flexible Video Colonoscope

Video colonoscope – insertion tube dia 3.7 mm, instrument channel 3.8 mm, angle of view 140 deg., focal range - 3 to 100 mm, total length 2000 mm.

Only USFDA (510 K) Approved model should be Offred.

Flexible Video Side viewing Gastroduodenoscopy for ERCP

a. Field of view 140 degree
b. Direction of view is side Viewing
c. Depth of field 4 to 100mm
d. Total length - 1340 to 1365mm
e. Working length more than 1000mm
f. Insertion tube outer diameter 10 mm to 12mm.
g. Distal end diameter 10 to 12mm
h. Bending section tip deflection

i. Up – 210 degrees
j. Down – 90 to 120 degrees.
k. Left - 100 to 120 degrees.
l. Right – 100 to 120degrees.
m. Instrument channel - Diameter – more than 3.5mm

VIDEO COLONOSCOPE

a. Field of view 140 degree
b. 2.Direction of view Forward viewing
c. 3.Depth of field 3 to 100mm
d. 4.Total length - 1600mm to 2100mm
e. 5.Working length more than 1300 mm to 1750mm
f. 6.Insertion tube outer diameter 13mm or more
g. 7.Distal end diameter 13 to 14mm
h. 8.Bending section tip deflection
i. Up – 180 degrees.
j. Down –180 degrees.
k. Left - 160 degrees.
l. Right – 160 degrees.
m. Instrument channels - Diameter – First channel more than 3.6mm/ second channel more than 2.6mm.

VIDEO PROCESSOR WITH LIGHT SOURCE COMPATIBLE WITH THE ABOVE MENTIONED VIDEOSCOPE.

a. Colour system Video HD Processor
b. Xenon lamp 100W
c. Out put for high video image transfer using External Software and computer
d. Convenient digital to digital recording of both still and moving images. using external software
e. Picture and picture display for any combination of endoscopic images.
f. Convenient index display for documentation.
g. Scope ID function for endoscopy suite management.
h. Power supply : 220 – 240V AC
i. Should include Air feeding & water feeding system with detachable water container.

HIGH DEFINITION LCD COLOUR MONITOR (FLAT PANEL)

a. Full digital High Definition TV compatible high resolution LCD monitor
b. LCD Screen 19 or more inches in size
c. Power supply 220 – 240 V AC
d. Computer connector

Hardware for recording, archiving and printing

State of the art hardware for recording, storing and printing reports compatible with the system
Furniture

Mobile cart with suitable compartments to house all the above equipment with built in plugs switches

System Configuration Accessories, spares and consumables System as specified

a. Biopsy forceps :3 each
b. Foreign body grasper (basket type) 2
c. Polypectomy snare:2
d. Standard tip canula:2 types – 10 each
e. Polypectomy cautery system :1 No
f. Endoscopic washer -1 no

Only US FDA (510 K) Approved model should be offered.

Flexible Video End viewing Oesophago-Gastroduodenoscope

SPECS OF SCOPE: (GI SCOPE)

1. Direction of view should be zero degree.
2. Minimum of 140 degree (app) of field of view.
3. Range of observation from 4 mm to 90 mm.(app)
4. Angulations of tip not less than 210-120 deg(Up) and 120 deg(down)with right to left movement of minimum 100 deg.(app)
5. Insertion tube outer diameter of less than 8 mm with a working length of not less than 1000 mm.
6. Distal end of less than 7.8 mm.
7. Instrument channel of more than 2.3 mm
8. Compatible with the video system specified.
9. Video processor with light source & Monitor
10. Power supply 200-240 V A/C
11. PAL type video signal. The camera should be 3 chips CCD with high definition (HD) Output with provision of recording
12. Controls for color adjustment, to enhancement and balance settings.
13. Controls to freeze images enhance a portion of frozen
14. Patient and physician data input keyboard.
15. Operates on Xenon lamp aapprox.150 W
16. Should have an Emergency changeover lamp.
17. 19” LCD color monitor with XGA resolution

System Configuration Accessories, spares and consumables

Only US FDA (510 k)Approved model should be offered.

Flexible Video Sigmoidoscope

1- Video Sigmoidoscope – insertion tube dia 13.2 mm, instrument channel 3.8 mm,angle of view 140 2-deg., focal range -4 to 100 mm, Angulation Up/Down 180/180 deg. R/L 160/160 deg. with 1700 mm workding length, total length 2023 mm.

Only US FDA (510 K) Approved model should be offered.

Flexible Video Bronchoscope

1. **OPTICAL SYSTEM:**
   a. Field of View-Minmum 120 degre
   b. Direction of View- 0 degree Forward
   c. Depth of field: 3 mm to 100 mm maximum
   d. Insertion Tube:
   e. Outer diameter (distal end):6.0mm(+-0.1mm)
   f. Outer diameter (Insertion tube):6.0mm(+-0.5mm)
   g. Working Length:600 mm
   h. Total Length:870 mm
   i. Instrument Channel
   j. inner diameter: 2.8mm or more
   k. Minimum Visible Distance:3mm from distal end
   l. Angulation Range
   m. Up: 180 degree
   n. Down: 130 degree
2. Scope should be laser and electro cautery compatible LASER COMPATIBILITY: ND: YAG, 810 nm diode.
3. VIDEO PROCESSOR AND LIGHT SOURCE:
   a. COLOUR SYSTEM: High Definition
   b. CCD should produce quality images to provide outstanding clarity, sharpness, mucosal structure and patterns of Bronchial tree
   c. SCOPE should have remote switches to adjust Processor function.

Lamp: 150 w Xenon bulb with emergency lamp provision for Illumination Video Signals:

   d.

4. **Video Signals**
   a. Analog Output : RGBS-1 Set
   b. Y/C-2 Set
   c. Composite-1 set
   d. Scope image spectrum with minimum three steps to get the vascular and mucosal pattern. Should display natural mucosal Color tone.
   e. Should have provision for ZOOM ADJUSTMENT.
   f. Suitable software for video recording and JPEG (Picture capture) Patient documentation should be possible.
   g. Should have provision for air pump.
   h. KEYBOARD FACILITY should be available for the data inputs.
5. **Monitor**
   1. 14 inches LCD colour monitor along with system (Medical Grade High Definition Monitor) Should have provision for accepting Y/C, BNC and RGB signal.
   2. COMPUTER WITH NECESSARY SOFTWARES WITH JPEG / VIDEO RECORDING FACILITY WITH LASER (COLOR) PRINTER
   3. Core 2 Duo Processor with Intel chip mother board 915. 4GB RAM with 500GB HDD
   4. DVD writer and COM PORT 4-5 USB ports,One free PCI slot
   5. 15 inches LCD monitor (FHD – Full High Definition)
   6. Windows Vista/XP professional Service pack – 2 (Operating system) LASER colour photo printer.
   7. UPS with BACK UP of 5 Hrs. Suitable mouse and KEY BOARD

8. Fully loaded with MS office, Adobe reader, Photo Editing software and media players (suitable to play recorded bronchoscope videos) with DVD/CD Burning software (Latest versions)
9. Suitable computer table ACCESSORIES FOR SCOPE
10. Cleaning Brushes (1 No.) Cylinder Cleaning Brushes (1 No.)
11. Needles for Trans bronchial Needles FNAC/Aspiration-4 nos Biopsy forceps with windows (4 nos.)
12. Cytology brushes (4 nos.) with suitable handles
13. Protected specimen brush (PSB) with sheaths (20 nos.) with suitable handles Alligator biopsy forceps (2 nos.)
14. Vertical stand to be provided for storing and drying the scope after use. Fogarty Balloon Catheter- (Inflatable) 2 Nos-
15. Stabilizer mobile trolley
16. sterilization tray for scope and acessories

Only US FDA (510 k) Approved model should be offered.

C-arm image intensifier

Technical Specification

1. Generator

Microprocessor controlled High Frequency generator with 2.2 Kw or More with integrated beam filters to reduce patient skin radiation dose

2. Collimator: IRIS or multi leaf

3. X Ray mode (kV & mA range): KV- range 40- 110KV Fluoroscopya)

Fluoroscopy should not exceed 5 mA .

b) Pulsed Fluoroscopy with last Image Hold Radiography –Radiographic mode for cassette exposures: minimum of 20mA

4. Image Intensifier:

9”or More Triple Mode Image Intensifier with CCD Camera

5. Image Processing:

a) Minimum 12 bit Digital Fluoroscopy Imaging Unit with dedicated video pipe-line processor

b) Archival memory CD/DVD mode.

c) Detachable Cassette holder for film recording.

6. Image Display:

Two 19” TFT/ LCD High resolution, high contrast and flicker free Monochrome Monitors of at least 1024 X 1024 matrix with automatic adaptation of monitor brightness to ambient light

7. System Functionality:

Vertical ,Horizontal and Orbital Travel should be available C arm rotation 135 degree or more

8. The System should be DICOM ready

9. Accessories:

a)Wrap around light weight vinyl Lead Aprons with 0.5 mm lead equivalence certified by AERB : 2 (Two Nos.)

10. Only US FDA (510 K) & AERB Type approval Approved model should be offered.

Operative ultrasound

1. Light weight portable mounted on cart system.

2. Capable of using broad band/multi frequency transducer trans-abdominal (convex & rector) transducer technology with connectivity of two transducers simultaneously.

3. Should be micro processor controlled with high resolution image matrix. High resolution integrated color monitor 9”/12” with tilt and swivel facility 256 level of grey scale

4. Alpha numeric key board with illuminated function key and status display with panel switched and foot control.

5 Should have real time zooming facility dynamic range enlargement and freeze facility.

6. Should be portable/have handle for transporting machine/should have integrated trolley which is light weight fitted with wheels which can be easily locked.

7. Complete software for thoracic and abdominal viscera measurements which can be activated by easy one touch access.

8. Should allow easy and user friendly and special user set up. Facility for pre and post processing the scans.

9. Orientation symbol for scan planes, ultrasound probe position with complete display of all scan parameters.

10. Multifunction electronic calipers for various measurements with track ball facility for image magnifications and guided biopsy.

11. Versatile scanner with excellent B and M mode with facility for B+ B and B + M Mode preferably with cine memory, facility for possible up gradation..

12. Maximum depth of penetration:24 cm Acessories,Spares and Consumables

13. Convex array abdominal transducers of 3.5 MHZ (preferably multifrequency probe of 2.7 /3.5/5 MHZ), immersible.

14. Micro convex probe, thoracic and abdominal transducer of 3.5 MHZ (preferably multifrequency probe of 2.7 /3.5/5 MHZ), immersible.

15. Puncture attachment for the above, diameter 1.2 – 3.6 mm

16. Black and white video thermal printer with 10 rolls of of high density recording paper (may be quoted separately

17. Only US FDA Approved model should be offered.

HARMONIC SCALPEL

1. System should have a universal connector to connect Ultrasonic energy and Advanced RF energy instruments.

2. Ultrasonic and bipolar energy in the system must work separately and at no point in combination.

3. System should have automatic instrument recognition.

5. System should have a touch screen display for fast and setup, operation and on-screen diagnostics.

6. System should have a high-resolution display with wide viewing angles.

7. System should have the ability for software updates via USB memory stick.

8. System should be a single generator that provides Ultrasonic energy and Advanced RF energy technology for soft tissue dissection and vessel sealing

9. System should have a potential equalization terminal for compatibility with other medical systems requiring such connections

10. System should conform to the following international standards EN (IEC) 60601-1, EN (IEC) 60601- 1-2, EN (IEC) 60601-2-2, EN (IEC) 60601-1-8

11. System should provide Class 1 protection against electric shock

12. System should have a single footswitch for operating ultrasonic energy or advanced RF energy instruments

13. System should have the ability to select hand switch or footswitch activation or both for Ultrasonic and advanced RF energy instruments and the ability to change selection during use

14. System should have English language as default

15. System should not have minimal lateral thermal spread more than 1 mm.

16. System should not have an auto switch off mechanism.

17. System should have standby mode to ensure safety.

18. System should come equipped with system diagnostics and troubleshooting guide to pin point any problems in the systems.

19. System should have onscreen warning display system for generator overheating, generator software upgrade, handpiece errors and instrument errors

20. System should be able to power ultrasonic energy instruments with 55.5 KHz frequency and can power ultrasonic energy instruments in the frequency range of 30-80 KHz in future

21. The hand piece for the system should come with an inbuilt transducer.

22. ·System should be compatible for open surgery and for laparoscopic surgery.

23. System should be compatible with both 5mm and 10mm instruments.

24. System should have atleast 5 power settings levels with power level display for ultrasonic energy instruments.

25. System should be able to power energy instruments with microprocessor controlled bipolar electrosurgical radiofrequency technology with a quasi-sinusoidal forced impedance output.

26. System should be equipped with smart advanced RF energy technology to measure the tissue impedance and control the power delivery.

27. System should be equipped with advanced RF energy technology that can simultaneously seal and transect vessels up to and including 7mm, large tissue pedicles and vascular bundles.

28. System should be equipped with advanced RF energy technology that provides temperature-controlled energy delivery which should maintain tissue temperature approximately at 100 degree Celsius.

29. System should have Advanced RF Energy hand instruments with a unique electrode configuration to minimize the lateral thermal spread.

30. System should have Advanced RF Energy hand instruments with technology to deliver high compression uniformly across seal area.

31. System should have Advanced RF Energy hand instruments that provide tissue / vessel seal strength to withstand bursting pressure of 7 times the systolic pressure.

32. All hand probes for open and lap procedures should be able to simultaneously cut and coagulate tissues.

33. System should be able to power advanced RF energy hand instruments of 5mm shaft diameter for both open & laparoscopic procedures with round trip (5mm tip width) in the following shaft lengths (14cm, 25cm , 35cm & 45cm) and should be both hand & foot activated.

34. Systems should be able to power ultrasonic energy hand instruments of 5mm shaft diameter for both open & laparoscopic procedures with the following specifications

· System should comprise of the following Hardware:

1 Generator

2 Footswitch & Cable Accessories:

1 Handpiece (Transducer)

2 Handpiece (Blue)

3 Generator Cart

4 Adaptors for ultrasonic

5 advanced RF energy instruments

Open Surgery Instruments (Ultrasonic cutting and coagulation device):

1. 9cm shaft, curved, tapered tip for precise dissection, seals 5 mm vessels, as well as lymphatic with16 mm active blade & 240-degree activation, triggers support multiple hand positions.

2. 17cm shaft, curved, tapered tip for precise dissection, seals 5 mm vessels, as well as lymphatic with16 mm active blade & 240-degree activation, triggers support multiple hand positions.

3. 5mm Hand Activated Curved Coagulating Shears capable of sealing blood vessels upto 5mm in diameter, 23 cm shaft length, ergonomic handle

4. Curved Blade having telescoping shaft (10cm-14cm) with integrated hand activation control buttons.

5. Dissecting Hook having telescoping shaft (10cm-14cm) with integrated hand activation control buttons.

Open Surgery Instruments (Bipolar vessel sealing device):

1. Hand probes with 5mm shaft diameter, 14cm long with 5mm tip width.

2. Hand probes with 5mm shaft diameter, 25cm long with 5mm tip width.

3. Hand probe with, 22cm long shaft and 40mm jaw length

Laparoscopic Surgery Instruments (Ultrasonic cutting and coagulation device):

1. 5mm Lap Hand Activated Curved Coagulating Shears capable of sealing blood vessels upto 5mm in diameter, 36 cm shaft length, ergonomic handle.

2. 5mm Lap Hand Activated Curved Coagulating Shears capable of sealing blood vessels upto 5mm in diameter 45 cm shaft length, ergonomic handle.

3. 5mm Lap Dissecting Hook, 32 cm long

Laparoscopic surgery instrument (Bipolar vessel sealing device):

1. Laparoscopic probe probes with 5mm shaft diameter, 35cm long with 5mm tip width.

2. Laparoscopic probes with 5mm shaft diameter, 45cm long with 5mm tip width.

3. Articulating Laparoscopic probe probes with 5mm shaft diameter, 35cm long with 5mm tip width, Probe should have ability to articulate 45- 50* both sides.

Only USFDA (510 K) approved model should be offered.

Rates for all consumables items should be quoted separately in price price-bid.

MICROBIOLOGY DEPARTMENT

Autoclave

Horizontal rectangular high-pressure steam sterilizer
Chamber cpacity: 75 litre
Electrical Power : 18/36 KW or Sufficient wattage of Industrial immersion type water heater to generate steam with in a reasonable period of time on 3 phase 440 v 50 HZ ac supply
Working pressure and Temperature : 1.06 Kgf / sq.cm -1.2 Kgf /sq.cm at 121 Deg C

Material of construction

- Inner chamber, Jacket, Door : SS 316.(5mm-10mm)
- Outer Chamber : SS 304 (insulated properly)
- Steam generator : Non corrosive SS /Chromium plated Brass
- Heater Plate : Brass/Stainless steel
- Pipe Line : Complete with SS
- Stand : Stainless Steel/High quality non corrosive Steel Instrumentation

Temperature, Pressure and vacuum gauges, steam traps , vacuum driers, water level indicator on steam generator Safety devices.
Pressure switch and safety valve, self-locking of door when chamber is under pressure: vacuum breaker for jacket.
Steam generator with gauge glass valves and Low water protection with audiovisual indicator.
Entire cycles of sterilization should be controlled by a microprocessor unit and it should also have manual operation facility.

Accessories

- Additional Accessories required: 1. heating element 2 set extra with each machine.
- Requirements at installation: 1. Necessary Pipeline works for water inlet and steam outlet should be done.
- Cable for connecting to wall socket should also be provided

US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Balance Electronic Digital

1. Display : Digital
2. Max. Cap. : 200 gm
3. Least Count [accuracy] : 4 digits. [0.01 gms.]
4. US FDA (510K) / European CE (Issued from notified Body) Approved model should be offered.

Biosafety Cabinet Type - 2A

1. Protection for operator, environment and the product, from aerosols and microorganisms
2. Microprocessor/Microcontroller/Microcomputer controlled system.
3. External Antimicrobial powder coated
4. ULPA Filter with efficiency 99.999%
5. Automatic speed compensation system against clogged main HEPA filter Pre-filtration unit with retention of 10 to 15 micro meter
6. Air Circulation to vertical with 30% exhaust and 70% recirculation
7. Single stainless steel perforated working platform
8. Alarms for power failure and door opening
9. Should be fitted with UV light > 800 lux
10. High-speed centrifugal blower with lifetime lubricated
11. Noise level <58dBA, Elapsed hour counter
12. DOP test outlet
13. Fluorescent lamp to obtain powerful glare-free lighting
14. On site installation and appropriate certificate to be provided
15. On/Off switch with key lock.
16. Gas connection should be provided in the cabinet
17. Quote for BOP tested HEPA filters separately
18. Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.
19. Accessories, consumables and miscellaneous:
20. One filter set replacement should be included in CMC once in a year
21. All consumables required for installation and standardization of system to be given free of cost
22. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered.

BOD Incubator

1. Double walled modular structure with 3” thick PUF insulation
2. Interior illumination
3. Inside full length observation glass door with secure gasket
4. A key lock function is provided so that settings may not be changed unintentionally
5. Racks & trays – Stainless Steel with adjustable height- 3 ADJUSTABLE SHELVES
6. Compressor with CFC Free R 134 A / R 404 (Eco Friendly) refrigerant having state of art by- pass system for continuous run of compressor- CFC FREE REFRIGERANT
7. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered.

CENTRIFUGE MACHINE

1. Should have a maximum speed of 5000 RPM with steeples regulator
2. Should be supplied with safety lid and lock. (Brushless Motor)
3. Should have digital speedometer and timer.
4. Should have imbalance detector and automatic cut off.
5. Standard mark on quality and safety is Compulsory.
6. Should work on a220VAC +/- 10 %, 50Hz AC Supply.
7. US FDA (510K) / European CE(Issued from notified Body /BIS Approved model should be offered

CO2 Incubator/Candle Jar

1. Capacity: 165 L
2. Interior chamber: Stainless steel for easy cleaning and decontamination
3. Unique Six-Sided Direct Heating to ensure stable temperature control, excellent uniformity, and rapid recovery with no overshoot. Fanless convection circulation to provide chamber homogeneity, eliminate vibration & reduces sample evaporation.
4. Hepa Filters (99.98% efficient) at the inlet to minimize contamination should be provided at the inlet.
5. Timer: 1 min. to 100 hours and hold position-Dual heat sterilisation utilises the incubator's two heaters during the 180°C sterilisation process, which takes 11 hours.
6. Temperature range: AT +5 to +50, ±0.1
7. Temp Accuracy ±0.1 of required temp, with inbuilt
8. Temp.Sensor-Dual IR
9. Audiovisual Alarm to Indicate when temperature deviates more than 1°C from set point, and when program or time has finished. Alarm may be muted.-(power failure, Temperature Deviation, High temperature , CO2 deviation, Door open)
10. There should be a Membrane Keypad with LCD/LED to set and display operating parameters, current status, running time and alarm conditions for time and temperature.- Colour LCD touchscreen
11. Internal glass door for the observation
12. Dual decontamination cycle at 95 deg C (wet decontamination) and at 145 deg C (-Dry heat sterilisation, 180°C, 11 hours) should be available
13. CO2 Range- 0 to 20, CO2 Accuracy: ±0.15; CO2 Inlet pressure 1.5 bars(app)
14. Compensation: Temperature compensation @ 0.5 deg C / min and CO2 Compensation up to AT +5 to +50, ±0.1. Temperature uniformity,±0.25
15. High Humidity – Chamber to achieve Humidity 95 % , ±5, minimizing sample evaporation. Independent door heater to eliminate condensation on inner glass surfaces should be available.
16. A colour LCD touchscreen panel allows full control,even with gloved hands. Transfer of data is easy via a
USB port. The easy-to-clean incubator interior features fully rounded corners and integrated shelf supports
17. USB port available to transfer the data
18. 4 x Stainless steel copper-enriched alloy
19. Interior lighting facility, insulated door fitted with heavy hinges handles locking, mechanical door lock/Electric door lock with password..
20. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered.

Deep Freeze -20° C & Deep Freezer

1. Minimum Capacity should be 300 litres
2. Digital display of set and actual temperature, with audiovisual alarm
3. No condensation on storing material with automatic electric defrost
4. Construction - Solid rust free cabinet to prevent corrosion and lockable castor wheels.
5. Refrigeration System - Heavy Duty refrigeration system, maintenance free, below -20o C (+ 10oC) cascaded connection with hermetically sealed refrigeration compressors and reliable refrigeration to minimize noise and vibration, air cooled with security lock to prevent unintentional switch off should be supplied. It should have cooling time within hours at maximum ambient temperature of 33oC. The equipment should be of continuous duty and frost free.
6. Alarm- It should also have audio visual Electronic Alarm System for a) door open b)Power failure c) other mal functions
7. Insulation - High density polyurethane or equivalent Gaskets - Double seal silicon.
8. Should have automatic high and low voltage compensator
9. Temperature homogeneity between top and bottom shelves should be maintained + 1 to 2 oC of set temperature
10. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Distilled water Plant

1. Distillate output Production rate- 4 litres/hr
2. Conductivity, 0.2µs/cm
3. Minimum water supply pressure, 20.3kg/cm
4. Water consumption, 60litres/hr
5. Electrical supply 230/240V, 50/60Hz 13 amp
6. Spare heating elements - 1set
7. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Elisa Reader

1. Should have 96 wells and should reading capability of 1 to 96 wells individually.
2. 0 – 3 Abs, ± 2%, 96-well plate, fast mode 0 – 4 Abs, ± 2%, 96-well plate, normal mode 0 – 2.5 Abs, ± 2%, 384-well plate, fast mode
3. 0 – 3 Abs, ± 2%, 384-well plate, normal mode"
4. Wavelength range 340 – 850 nm
5. Photometric accuracy (405 nm) ± 1% (0.3 – 3 Abs), ± 2% (3 – 4 Abs)
6. Resolution 0.001 Abs
7. Linear shaking with three modes: slow, medium and fast
8. 8-position filter wheel, the instrument is delivered with the following standard filters installed:
9. 405 nm; 450 nm; and 620 nm. Additional filters can be ordered separately."
10. It has provision to add 4 additional filters.
11. Should have automatic filter selection.
12. Should have automatic calibration before each reading.

13. It can storage calibration curves datas which can be exported with USB memory stick.
14. Capable of doing multi standard tests and controls.
15. Should have different types of blanking facility like air wise and well wise.
16. Should have capable of reading U,V and flat type wells.
17. Light source Quartz-halogen lamp 6 V / 10 W
18. USB for external printer
19. Laser printer with computer will be provided
20. "During start up all major functions of the instrument, such as plate position,
21. measurement stability, lamp functionality, filters, optical system, incubation and electronic operation, are checked to ensure reliable operation."
22. Adjustable 8 channel micropipette (40-300 µl) 1 no. will be supplied
23. System work with input 200 to 240Vac 50 Hz supply.
24. High contrast color display (480 x 272 dots) and storage of plates readings.
25. Should have graphical display of plate layout for specifying controls, standards blanks etc.
26. Only US FDA (510K) Approved model should be offered.
27. UPS of suitable rating with voltage regulation and spike protection for 30 minutes back up will be provided

Elisa Washer

It should have the capability to wash flat, U or V bottomed micro plates or 8 strip plates.
It has 8 way manifold.
Should have 25 wash program software memory or more.
Should have programmable washing time, volume and soaking time.
Should have minimum 6 wash cycle.
Should have residual volume less than 2 ul with proper demo during technical demonstration.
It has peristaltic pump to ensure accurate and quiet washing.
Should have waste bottle with full bottle alarm or sufficient mechanism to avoid spillage and damage to equipment.
Should have suction based washed buffer intake.
Should work with input 220 to 240 Vac 50 Hz supply.
Only US FDA (510K) Approved model should be offered.

UPS of suitable rating with voltage regulation and spike protection for 30 minutes back up will be provided
Capability for adjustable dispensing & aspirating pressure rate settings. (Optional)
Calibrated at every 6 months from the date of installation will be done at free of cost.

Hot Air Oven

1. Double Walled, inner wall made of aluminum and outer wall Mild Steel sheet.
2. Shelves: 3 to 5 stainless steel, perforated shelves, could be adjusted at any levels.
3. Heating Elements: placed at the bottom and sides.
4. Temperature control: Thermostatic control from 40 to 250 o C with Regulator and digital temperature-indicator.
5. Automatic timer 0 - 60 minutes.
6. Air circulating fan.
7. Volume : 200 L
8. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered.

Incubator

1. Capacity: 120 L
2. Interior chamber: SS 316 for easy cleaning and decontamination
3. Timer: 1 min. to 100 hours and hold position
4. Minimum turbulence and no cross contamination
5. Adjustable safety thermostat for temp setting at 1 deg C increment
6. Temp Accuracy : +/-1%
7. Internal glass door for the observation
8. With minimum two adjustable shelfs
9. Audiovisual Alarm to Indicate when temperature deviates more than 1°C from setpoint, and when program or time has finished. Equipment should have provision to mute the alarm.
10. Peltier heating with continuous air circulation and Heating by natural/forced convection for homogenous temperature distribution
11. Temperature range: +5° C to 60°C
12. There should be a Membrane Keypad with LCD/LED Display to set and display operating parameters, current status, running time and alarm conditions for time and temperature.
13. The Equipment should have Interior lighting facility, and insulated door fitted with heavy hinges
14. Power Supply:230V,50 Hz

System Configuration Accessories, spares and consumables

1. Incubator as per specification
2. All consumables required for installation and standardization of system should be provided free of cost
3. Should be supplied with all the accessories required for the functioning of the equipment.
4. Power Cord

Standard, Safety

US FDA(510K) / European CE(Issued from notified Body)Approved model should be offered.

Laminar flow

1. Type of Flow: Vertical – Re-circulatory
2. HEPA FILTER : Face dimensions: 4ft (L) X 2ft (W) X 6 ft The HEPA filter should have rated efficiency of 99.97% (or better) at 0.3 microns to provide product protection of Class 100 or exceeding Class 100 requirements of Federal Standards 209E or
3. Equivalent ISO within the work. Area
4. PRE Filter with Synthetic, non-woven polyester fibers having casing of namel painted CRCA frame with Retention of 10 - 15 Micron and 90 % Efficiency.Washable with an arrestance of 90% or better
5. Material of construction:Main body and rear panel: Electro-galvanized steelor Mild Steel, oven baked epoxy powder coated finish.Side window (panels): UV stabilized transparen't Perspex or polycarbonate.Worktable (surface): SS304 or SS316
6. Working area should be 24 cuft.
7. Blower Assembly: DIDW type blower system with high RPM motor, enclosed in an powder coated MS casing suitably suspended in a pair springs & connected to the filter chamber through flexible canvas duct.
8. Front Windows Acrylic, fixed by clamps
9. Illumination with Fluorescent tubes with diffusers. Light Intensity at Work Surface :800- 1000 lux/75-90 foot candles
10. Laminar Airflow Velocity: Approx. 90 feet per minute (fpm)+/-10% average velocity measured 50 mm from the filter face. Uniformity +/-20% of average or better.
11. Additional Requirement: Vibration free Gas burner facility on working bench .Air pressure indicator with manometer(Differential Pressure Gauge with Scale display in cms of water).Drain valve with smooth drainage arrangement .Exhaust ducting as per site requirement
12. Noise level
13. UV Germicidal lamp intensity >40 microwatt/sq. cm. over the entire work surface
14. Switched and indicators: Individual switches and indicator lamps for blower motor, florescent lamp and UV lamp.
15. System Configuration Accessories, spares and consumables
16. System as specified-
17. Spare HEPA Filters and PRE Filters- 2 SETS EACH
18. Other fitting required for attaching auxiliary services are
19. Electrical outlet socket (5 ampere rating) qty: 2 nos. 2.Valves for gas service-one each for gas and vacuum.
20. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered.

Microscope Binocular (Students)

1. Binocular microscope with universal infinity corrected optical system
2. Halogen light source illumination
3. Rigid frame with ergonomics design
4. Binocular observation tube with inclination of 45/30 degrees
5. Built in torque adjustable focusing knob
6. Square mechanical stage with rigid hand coaxial control
7. Abbe condenser, Iris diaphragm

8. Revolving Quintuple nose piece (for objectives)
9. Plan achromat objectives 4X, 10X, 40X, 100X (Oil)
10. 40X, 100X objective should be spring loaded
11. Eye piece 10X (FOV 20)
12. Antifungal treatment should be applied to the observation tube, eyepiece and objective
13. Accessories, dust cover and power cord
14. Power requirement 220 V/50 Hz
15. US FDA (510K)/ European CE(Issued from notified Body) /BIS Approved model should be offered.

Binocular Microscope (Student)

1. Binocular microscope with universal infinity corrected optical system
2. Halogen light source illumination
3. Rigid frame with ergonomics design
4. Binocular observation tube with inclination of 45/30 degrees
5. Built in torque adjustable focusing knob
6. Square mechanical stage with rigid hand coaxial control
7. Abbe condenser, Iris diaphragm
8. Revolving Quintuple nose piece (for objectives)
9. Plan achromat objectives 4X, 10X, 40X, 100X (Oil)
10. 40X, 100X objective should be spring loaded
11. Eye piece 10X (FOV 20)
12. Antifungal treatment should be applied to the observation tube, eyepiece and objective
13. Accessories, dust cover and power cord
14. Power requirement 220 V/50 Hz
15. US FDA (510K)/ European CE(Issued from notified Body) /BIS Approved model should be offered

Microscope with universal condenser containing oil immersion, Bright field, Phase Contrast & Dark ground

1. Binocular microscope with universal infinity corrected optical system
2. Halogen light source illumination
3. Rigid frame with ergonomics design
4. Binocular observation tube with inclination of 45/30 degrees
5. Built in torque adjustable focusing knob
6. Square mechanical stage with rigid hand coaxial control
7. Abbe condenser, Iris diaphragm
8. Revolving Quintuple nose piece (for objectives)
9. Plan achromat objectives 100X (Oil)
10. 100X objective should be spring loaded
11. Eye piece 10X (FOV 20)
12. Fluorescence attachment
13. Antifungal treatment should be applied to the observation tube, eyepiece and objective
14. Accessories, dust cover and power cord
15. Power requirement 220 V/50 Hz

16. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered.

Water bath with variable temperature

1. Should have a double walled construction.
2. The inner chamber and top lid should be made of stainless steel.
3. The space between the two walls should be packed with thick glass wool.
4. Should provide with a thermostat control.
5. Working temperature should be from ambient+5 ºC to 80ºC having an accuracy of +/- 1ºC
6. Should have an approximate inner chamber dimension of 350mm x 250mm x 125mm.
7. Should be operated on 230V, 50 Hz single phase AC supply
8. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered.

Oil-immersion lens for student microscope

1. Binocular microscope with universal infinity corrected optical system
2. Halogen light source illumination
3. Rigid frame with ergonomics design
4. Binocular observation tube with inclination of 45/30 degrees
5. Built in torque adjustable focusing knob
6. Square mechanical stage with rigid hand coaxial control
7. Abbe condenser, Iris diaphragm
8. Revolving Quintuple nose piece (for objectives)
9. Plan achromat objectives 4X, 10X, 40X, 100X (Oil)
10. 40X, 100X objective should be spring loaded
11. Eye piece 10X (FOV 20)
12. Antifungal treatment should be applied to the observation tube, eyepiece and objective
13. Accessories, dust cover and power cord
14. Power requirement 220 V/50 Hz
15. US FDA (510 K) / European CE(Issued from notified Body) /BIS Approved model should be offered.

Automated Blood Culture System

1. Fully automated, technology with ability to take patient I.D. by barcode.
2. Should process blood samples, other sterile body fluids both aerobic and anaerobic systems.
3. Sample capacity more than 200 samples
4. Besides pyogenic, system should have facility of detection for yeasts and fastidious organisms.
5. Capacity to include pediatric and adult samples.
6. Media in bottles should have agents for neutralization of antibiotics.
7. Continuous agitation system to allow better organism growth
8. Should analyze each sample separately as per ID, time of entry, incubation period, growth etc.
9. Should have built in calibration check and alarms/ reminders for the same.
10. Decontamination facility should be available for the system as well as individual rack
11. System should have high sensitivity & specificity with continuous monitoring of all samples.
12. Only US FDA (510K) Approved model should be offered.

RT PCR

Specifications:

1. It Should be Table top model.
2. Complete system including basic system, essential accessories, the state-of-art computer workstation, acquisition and analysis software, startup kit inclusive of calibration standards etc.
3. Open system to accommodate Taqman, SYBR green and all other fluorescent dye based chemistries.
4. Peltier based 96 well block
5. Standard optical 96 well plates, 0.2 ml strips, 0.2ml tubes compatibility
6. Minimum sample volume requirement -5µl
7. CCD camera with halogen/LED and at least five excitation and five emission filters
8. Multiplex ingability up-to five dyes in a single run,
9. Calibrated dyes at installation: FAM/SYBR Green, VIC/JOE, NED/TAMRA/Cy3, ROX/Texas Red®, and Cy5, Should offer flexibility in dye selection.
10. Facility to calibrate new dye within the wavelength range without addition of new filters
11. Passive reference dye ROX or any other calibrated dye and should be optional
12. Option for melt curve analysis
13. Temperature range 40C to 1000C
14. Sensitivity: Detection of 1 copy of template
15. Software applications: Comparative Ct, Standard Curve, Relative Standard Curve, Allelic Discrimination / SNP Genotyping, Plus/Minus, dissociation / melt curve
16. 1Voltage: 220 V /50Hz. All accessories should be provided with latest version of software and upgraded yearly with free of cost
17. The IQ, OQ and PQ of the instrument should be performed at the time of installation.
18. CE-IVD compliant along with the tools like security access, auditing and e-signatures.
19. Each unit supply with suitable Online UPS with 30 minutes back up.
20. USFDA (510K)/European CE (Issued by a Notified body) approved Model should be offered.

-80-degree deep freezer with UPS

1. Should have galvanized steel body with epoxy paint/ HDGI Sheet -Powder coated and vacuumed polyurethane foam panels, outer double/single door with locking facility.

2. Should have alarm for audible and visual fault acknowledgement, high and low temperature audio visual alarms, open door alarm and power failure alarm.

3. Castor wheels and leveling adjustors should be provided for adjustment and installation.

4. **Capacity:**

Total storage capacity of 320 bags of 250ml plasma bags

5. **Refrigerant**:

a. CFC free or HCFC free refrigerants with Biodegradable oil Compressor

6. Cooling System:

a. Cascade Cooling system

b. It should have 2 stage compressors with standard refrigerants.

c. Should have two compressors sealed with high grade seal.

7. **Doors:**

single outer door foaming insulated with patient technology, left hinged, main door with CAM lock

8. **Inner Compartment** :

a. Minimum 3 compartments with independent doors **(304 SS)**

9. **Temperature**:

a. LED Display, temperature sensor probe (PT100)

b. Programmable temperature range at least minimum -80 degree Celsius in increment of 1 degree Celsius

c. Range -55 to -80 degree Celsius, uniformity ±3ºCelcius

10. Additional accessories:

a. SS Racks and Boxes (Plastic, cryo with racks)

b. System monitoring and reporting technology systems built-in for diagnosis or set point variants

c. System should have provision for software to control and monitor up to 30 freezers simultaneously.

d. **Noise level** <50DB

e. Stabilizer with enough capacity should be provided

f. Continuous temperature monitoring facility and temperature chart that can be replaced weekly.

g. Temperature chart paper with pen should be provided.

11. **Power Supply**: Should operate from AC 220 VAC ± 10 %, 50 Hz & with Suitable capacity Servo Stabilizer.

12.US FDA (510 K)/European CE (Issued by a Notified body) approved model should be offered

Refrigerated Microcentrifuge

1. The Centrifuge should be a Microprocessor controlled Bench Top Model.
2. Should have Speed of 15,000 -16,000 rpm and RCF 20,000xg or more.
3. Temperature Range: -10degreeC to +40degree C.
4. Should have preselection of time 10 sec to 99 hours and continuous run.
5. Should have a LCD display for set & current run parameters.
6. Should have a Maintenance-free/brushless induction drive.
7. The lead lock should be motorized.
8. The instrument should have an automatic Rotor and Imbalance Identification system.
9. Should be equipped with an over speed protection.
10. Should have a program memory.
11. At least 9 acceleration & 9 deceleration rates.
12. Should have a key for short spin
13. Pre-cooling function should be there.
14. Noise level should be ≤ 60dB
15. Selection of speed in both RPM & RCF should be there.
16. Suitable voltage stabilizer should be provided for the equipment.
17. Equipment should be supplied with following rotors and adaptors:
    a. Fix Angle /**swinging-bucket** Rotor for 24x1.5/2.0 ml with speed of 15,000-16,000 rpm and RCF 20,000xg or more.
18. USFDA (510K)/European CE (Issued by a Notified body) approved Model should be offered.

Lab Refrigerator

1. REFRIGERATOR Unit should be upright / vertical specifically designed/meant for Laboratory/Research centers/Hospitals/Clinics and for scientist use.
2. Gross /Net volume of 300 ltrs. or more, with 1570x595x634 mm (HxWxD) dimensions (Tolerance +/- 5 %) and not more than 150 kg in weight.
3. Temperature range from +2°C to +8°C with auto defrost system or frost-free feature.
4. Energy consumption or Input power should not be more than 250 Watt.
5. Refrigerator have inbuilt Temperature display, Audiovisual alarm for Low or high temperature & Power Failure for easy visualization.
6. Refrigerator should have static refrigeration system and condenser type, with natural/forced type of airflow.

7. Refrigerator should have a single solid door (not glass), with option for lock & key facility.
8. Refrigerator should have rear rollers and leveling feet.
9. Should have adjustable shelves, specifically meant for laboratory use.
10. Should maintain uniform temperature in the cabinet.
11. Each unit supply with suitable Servo voltage stabilizer.
12. USFDA (510K)/European CE (Issued by a Notified body) approved Model should be offered.

Colony Counter

1. Accepts 6 cm, 9-15 cm petry dish
2. Maximum counts 999 large display
3. Display showing the present and 3 previous count values at the same time
4. With Pressure sensor system, illumination LED device
5. US FDA (510K) / European CE(Issued from notified Body)/ISO Approved model should be offered**.**

OBSTETRICS & GYNAECOLOGY-DEPARTMENT

Colposcope

1. Colposcope with Camera
2. Illumination 12 V/100 W cold light, fiber optic illumination, adjustable
3. Working distance 250 mm to 300 mm Magnification 3.5x - 21.5x (at working distance 250 mm, 12.5x eyepieces)
4. Fine focusing 12 mm via focusing objective lens
5. Viewing tube Straight, inclined, 180° tiltable tube
6. Red-free filter Swing-in Suspension system Rollable floor stand
7. Lifting range +/- 300 mm
8. Video camera integrated, SINGLE CHIP CCD, Y/C (S-Video),VBS (Composite), PAL or NTSC
9. Attachable to suspension mount / examination chair or floor stand with straight, inclined or tiltable tube for maximum convenience and comfort with optionally integrated
10. Perfect video documentation
11. Digital photography (option with digital camera with 7 megapixel camera.)
12. Image documentation on CD/DVD
13. Facility to display for multiple views (Students)
14. Facility to digitally record & transmit the images (best resolution)
15. Work station
16. Chair attachment
17. Mounts for attaching connecting tubes to examination chairs.
18. Provision for micro manipulator attachment to provide r CO2 laser therapy
19. Only US FDA (510K) Approved model should be offered**.**

Cryo/electro cautery apparatus

a)1 Should have interchangeable gun probes of six different sizes.
a) Dia 25mm – 8 mm
b) 2 mm – 15 mm
c) 22 mm – 25 mm
d) 19 mm – 13 mm
e) 19 mm – 10 mm
f) 8 mm – 10 mm
2. With a carrying case for keeping the gun.
3. Should be hand operated , light weight & have easy maneuverability
4. Should also be equipped with N20 / CO2 gas cylinder, with connecter with a filter, pressure regulator & trolley for cylinder and cylinder key.
5. Mains Power : 230 V,50 Hz.
6. US FDA (510 K)/ European CE) /ISO Approved model should be offered.

NST machine

1. Color LCD Fetal Monitor
2. 7" TFT Color LCD Display
3. Saving patient data of more than 1500
4. 1 MHZ Sensitivity
5. Battery Backup should be present
6. Twin Monitoring should be made available
7. Built in thermal printer for fetal heart trace
8. Tocodynamometer for recording uterine contractions
9. Light Weighted – to be carried with hand.
10. Thermal paper- 30 rolls to be provided along with the machine.
11. Should be provided with 2 USB probes & 1 Toco probe.
12. Power cord of atleast 3meters in length to be provided
13. Central Network monitoring facility
14. Alarms – Fetal Heart rate – Maximum and Minimum , Unit function, No paper
15. Should be able to record the data in digital form in computer
16. Should work continuously for CTG for 10 hours.
17. One central station with monitor and Laser jet printer facility to archive 15,000 patient data.Wiring of individual foeatal monitor to central station to be included in the scope of supply.
18. Cart to keep the foetal monitor
19. Only US FDA(510K) Approved model should be offered.

Ultrasound Machine

1. Ultrasound scanner with integrated trolley with probe, soft touch alphanumeric key board with track ball. With panel switches & control's easily operable.
2.Integrated high-resolution Monitor 15" or more.
3. Probes & Gel holder-conveniently place (2each).
4. Following transducers are to be supplied:
-2.0-5.0 MHz Multi frequency Convex Transducer-One.
-5.0-12.0 MHz Multi frequency Linear Transducer-One.
-5.0-8.0 MHz or more Endo Cavitary Probe-One.
(+/- 1 MHz to be allowed for each):
5. All probes should be electronic transducers and multi-frequency preferably three frequencies and should give aperture & depths of scanning.
6. Controls for Depth, gain compensation, body markers with transducers position.
7. Real-time continuous dynamic focus.
8. Auto annotation facility anywhere on image.

9. Image display in B, B/M & M Model (2B & 2D).
10.Zoom facility minimum five times or more.
11. Shades of grey 256 h. inbuilt cine memory.
12.Unite should be capable of measuring BPD, CRL, FL & AC and other GA parameters.
13. Facility for image magnification, inversion, changing, scan, direction, freeze facility.
14. 8 steps STC/GTC should be available.
15.Frame Rate should be 1000 frames / sec or more .
16. Caliper with trackball for the measurement of distances circumferences, area volume etc. should be possible to make different measurement of single image.
17. Alphanumeric key board, p.Panel Switches & Foot Controls.
18. Patient reports for Obs/Gynae including fetal growth trend for Tissue texture & Trend graph for IUGR cases, Urology and orthopaedics.
19. Give the gain adjustable/rang & its steps.
20. Calculations needed, Velocity, Heart rate, Volume addl. modes.
21. Dicom 3.0 compatible.
22. Review of stored images is desirable.
23. Channels: 100000 or more.
24. Depth: 25 to 30 cm.
25. Dynamic range: 140 dB or more.
26. Cine loop preview for minimum 60 secs. or more.
27. Minimum 2 or more active ports should be there.
28. Should work on 220VAC +/-10%, 50 Hz.
29. US FDA (510K) approve model should be offered.
30. Should be supply with suitable capacity online UPS.

Suction machine

1.Vaccum /LPM : - 700 MM Hg , 50 Litres/Min
2.Pump Type- Double rotary vane type
3.Flutter free vacuum control knob,
4.Wide mouthed 2 x 2 LITRE (light weight, unbreakable and clear) with self-sealing bungs and mechanical over flow safety device.
5.Noise (in dBA)- 50 dB
6.Collection container & its cap, suctions tube tips, a vacuum gauge, two sets of moisture & microbial filters and control knob
7.SiliconeTubing:8 mm ID x 2 mtr (PVC), 2x2 lt jar (one set
8.It should be Mobility, portability.
9.Equipment shall operate on 220V-240V, 50 Hz, single phase electric supply.
10.ISO/ BIS approve model should be offered.

Diagnostic laparoscopy set and "Operating laparoscopy " With Electronic Carbondioxide insuffator/ Insuffator basic unit set including hand instruments & all accessories

High Definition Laparoscopy System
1-High Definition Three Chip Camera System
Camera console 220 v with universal coupler & Autoclavable camera head
Pure Digital signal with high definition video(1280*1024 native resolution)
Resolution-2000 horizontal lines
Integrated Flexible Scope filter
Signal to Noise ratio-70 db
Progressive scan technology both on camera head & console

Aperture Control on console
Inbuilt step digital Image Enhancer
Digital zoom & white balance on camera head
Integrated Gain/shutter/Enhancement with brightness control
Two peripheral control on camera head
a) 2 DVI output
3-Automatic Light source
a) 220 V,300 W. Xenon Bulb(with one spare bulb)
b) Elliptical Bulb technology
c) Bulb Working life 5800hrs
d) Digital Bulb life counter on light source
e) Automatic /Manual Light Adjustment
f) Stand By Mode
g) Universal Jaw Assembly to adapt any make of fiber optic cable without adapter.
4- Fibre Optic Cable a) 6.5mm*7.5 feet Snap Fit cable 4.8 mm * 250 cm cable
Monitor
a) 19'' Flat Panel Monitor Colour
5-Insufflator
a) 40Liter of high flow
b) Microprocessor controlled unit
c) Soft Approach Pressure control for safe recovery of abdominal pressure
d) Gas heating
e) LCD based central display monitor with multilingual text & graphics
f) AV warning signal
6-Suction irrigation apparatus for Laparoscopic surgery
Laparoscopes, Fully Autoclavable with working length 300mm
a) Wide angled distortion free view
b) Universal adaptor for other light sources
d) 0 degree, 10mm- 1 No
e) 30 degree, 10 mm- 1 No
f) 0 degree , 5mm- 1No
g) Flexible video telescope
Only US FDA (510K) Approved model should be offered.

7-Specifications for hand instrument
a) Laparoscopic hand instruments (reusable) with 310mm working length, take apart locking / unlocking mechanism, rotable with interchangeable handle with monoploar diathermy attachment (Except trocars and veress needle)
b) veress needle 12 cm length 4
c) Veress needle 15 cm length 4
d) Carbon-di-oxide gas tubing 4
e) Trocars sleeves 11 mm 4
f) Reducer 11/5 mm 2
g) Trocars sleeves 5.5 mm 4
h) Trocars (pyramidal tip) 10 mm 4
i) Trocars (pyramidal tip) 5 mm 4
j) Trocars washer 5 mm 100
k) Trocars washer mm 50
l) Laproscopic biopsy forceps 5 mm, 2
m) Maryland dissector 5mm with unipolar diathermy 2
n) Maryland dissector 5mm, high performance with bipolar o) Cutting 2
p) Atraumatic graspers, 5mm 2

q) Metzenbaum scissors (5cm) with unipolar diathermy 2
r) Metzenbaum scissors (5cm) high performance with bipolar 2) cutting
t) Fan retractors 5 mm 2
u) Laproscopic cautery lead 4
v) Suction irrigation device with two way valve 2
w) L shaped hook electrode 5mm
x) L shaped hook 5mm , high performance with bipolar cutting2
y) Laproscopic bowel grasper 5mm, length 33-36 cm 2
z) Laproscopic spoon forceps 10mm length 33- 36 cm2
aa) Needle holder 5mm, 33 cm long 4
bb) Laproscopic suction cannuala, 10 mm 2
cc) Laparoscopic suction cannula 5 mm 2
dd) Clip applicator 10 mm Large, Medium, Small Clips
ee) Gall bladder extraction 5mm Large, Medium, Small Clips
ff) Hassan cannula
gg) Lap
hh) Eondotrainer
ii) Port closure needle
jj) Sterilization tray with cover 3 x 1
US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Electronic Carbondioxide insuffator/ Insuffator basic unit

1. Fully automatic, electronically controlled gas fill.
2. Flow rate of 30-40 liters per minute.
3. Optical and acoustic warning signals in case of malfunction or excessive pressure.
4. Connectible to medical gas pipeline.
5. Control by keys on front panel.
6. Clear and adjacent display of actual and preset flow rate, actual and preset pressure, gas consumed.
7. Facility for preheating of gas to body temperature.
8. Facility for easy evacuation of smoke and mist.
9. Memory for retention of previous pressure settings.
10. Should include pin-index connection to small / big gas cylinder with regulator, high pressure hose, mains cord, silicone tubing set, universal wrench and gas filter
11. Should be compatible to the Communicating Computer System, to function as an integral part of the digitally controlled Operating Room under the command of the operating Surgeon.

Cystoscope & Resectoscope

Cystoscope with Light source, camera & Monitor

1. Sheath with obturator outer Diameter- 20 Fr

2. Working channel- 04-05Fr

3. Working length- 22cms

4. Self-dilating tip for ease of entry

5. Compatible 30degree an 0-degree HD telescope – 01 each

6. Telescope bridge – 01

7. Stone crushing forceps compatible with above sheath and telescope – 01 in no.

8. Resectscope sheath compatible with above mentioned telescope – 01 in no., with

a. Moveable thumb ring (working element) – 01 in no.

b. Spring loaded action with electrodes inside the sheath in rest position

c. Telescope Bridge – 01 in no.

d. Cutting loop – 10 in nos.

e. Coagulating hook electrode – 10 in nos.

f. Monopolar high frequency cord – 05 in no.

g. Protection tube for electrodes – 05 in no

9. Fiber optic cold light source: 1no. 300 watt Xenon bulb /LED (Bulb life 500 hrs minimum for xenon & LED Life 10000 hrs.

10. Should have 3 cheap camera

11. Should have 21" Medical grade HD Monitor.

12. Power supply 220VAC +/- 10 %, 50Hz.

13. On-line UPS with 60 minutes back up Entire system.

15. Only USFDA (510 K) Approved model should be Offred.

Operative microscope

1. Apochromatic 5 step Magnification with integrated green and Orange Filters
2. Objective lens 200mm, 300mm(with fine focussing), and f=400mm Objective lens
3. Straight Binocular tube f=170mm with IPD 55mm-75mm
4. 10x pushin widefeild with sleeves and magnetic locks . Diopter settings -8D to o+5D With objective lens f=200 mm and eyepieces 10x:
5. Magnifications 3.4x-5.1x-8.5x-13.6x-21.3x
6. Visual Field Diameter 61.8-41.2-24.7-15.5-10.0 mm
7. 120 degree inclined coupling
8. Front side handgrips
9. Coaxial Halogen Illumination/ Alternatively Long last Co axial LED illumination
10. Dual lamp system with quick change over / (not Applicable in LED type)
11. Continuously lamp intensity adjustment by control knob near to the surgeon

12. Automatic on/off switch for the lamp
13. Stable and sturdy floor stand on four lockable castors, column (height: minimum 1.7 m), spring-balance articulated arm, carrier arm, power supply unit, light guide 2 m, power cable 6 m
14. Sterilizable rubber caps for all knobs, dust cover, spare halogen lamp 12V 100W (12 Nos.)
15. Only US FDA (510K) Approved model should be offered.

Electro Cautery machines

60. This electrosurgical diathermy unit should be for both adult and fetal use.
61. Unit should have advanced microcontroller based technology.
62. Unit should have self test during power ON.
63. Unit should have bipolar, monopolar cut and coagulation with digital wattage indicator.
64. The machine should have intuitive control touch screen panel with simple information displays and easy to understand error alerts.
65. Machine should have two conventional three pin monopolar receptacles which can be used interchangeably and one bipolar receptacle.
66. Unit should have at least 3 cut modes all of which be controlled by instant response technology. Cut modes should be:
67. Low cut for delicate tissue or endoscopic cases.
68. Pure cut for clean, precise cases
69. Blend for cutting with homeostasis.
70. Power efficiency rating of more than 95% for cut performance is desirable.
71. Unit should have facility to use monopolar and bipolar function without switch over.
72. There should be closed loop coagulation for all monopolar and bipolar modes.
73. Unit should have at least following coagulation modes:
74. Monopolar coagulation system should have different setting for endoscopic and delicate tissue work i.e voltage contact coagulation, non contact coagulation, low voltage coagulation and coagulation of large tissue areas with superficial necrosis.
75. System should have monopolar shared coagulation facility.
76. Unit should be compatiable with three button switch monopolar pencil to adjust the power output from sterile field. The function of 3 buttons are:
77. For monopolar coagulation
78. For monopolar cut
79. For dissection with coagulation
80. Bipolar coagulation system should have different settings like auto, precise standard and macro settings.
81. System should be compatible with others devices including-
82. Argon coagulation system.
83. Ultrasonic surgical aspirators.
84. Smoke evacuator
85. Bipolar current monitor
86. System should be compatible with and used as the electrosurgical energy source for:
87. Control RF ablation system.
88. Electroblade rotary resection system
89. Pacemaker lead extraction system.
90. Unit should have HF leakage monitoring system.
91. Unit should have Split Type Patient Plate contact monitoring System for Maximum Patient Safety (Unit should not be deliver power until and unless Maximum area of the patient plate is not covered to completely minimize the risk' of post operative H. F. burns).
92. Unit should have Audio Visual Patient plate Error Monitoring System.
93. Unit should have simultaneous coagulation facility in monopolar coagulation.
94. Unit should have HF leakage monitoring system.

95. Unit should have Time-out Facility to prevent accidental activation.
96. There should be soft coagulation mode to do precise surgeries in soft organs like Liver.
97. Power range of monoploar and bipolar modalities:
98. Monopolar Cut:The maximum power output should be 300W for pure and low modes and 200W for blend mode.
99. Bipolar:The maximum power output should be atleast 95W.
100. RADIO FREQUENCY GENERATOR FOR UNIPOLAR ,BIPOLAR and THERMO FUSION
101. Microprocessor based 400 watt energy device with monopolar; bipolar thermo- fusion & divider.
102. Real time tissue impedance monitoring technology to deliver the selected power perfectly into a wide range of tissue types reducing thermal spread, RF interference and Neuro muscular stimulation and sparks.
103. Total device with operating hand-instruments should be European CE & USFDA approved.
104. Return Electrode Contact Quality Monitoring (REM) System.
105. System should have following features:
106. Output mode: Monopolar, Bipolar ,vessel sealing with independent cutting and Saline Bipolar
107. Monopolar cutting: Auto,Dry/Blend
108. Monopolar Coagulation: Spray, Forced/fulgrate & SOFT
109. Bipolar Cutting: Under water Saline
110. Bipolar Coagulation: Low, Medium & MACRO
111. Thermofusion with independent cutting (sealing capacity upto 7mm diameter vessels)
112. GENERATOR should include the following:
113. Electrosurgical Unit----- 1EACH
114. Footswitch (UNIPOLAR , BIPOLAR, VESSEL SEALER) 1EACH
115. Bipolar Active (LAP/OPEN)
116. Monopolar Active (LAP /OPEN)
117. Saline Bipolar Active (MIS UNDER WATER)
118. Only US FDA (510K) approve model should be offered.

CTG Machine

1. Fetal Monitor for recording and analyzing the Fetal Heart Rate (FHR) on beat- to beat basis.
2. Toco and maternally sensed fetal movements, both manually and automatically detected.

3. Should have facility of twin monitoring.
4. Graph on thermal printer with the machine, only thermal paper is required.
5. Display of FHR up to Twins FHR1 & FHR2 & TOCO on 10" or more TFT/LCD display.
6. Uterine contractions alarm. Alarm delay facility, so that alarm is available only if the alarming condition is persistent for preset time. TFT/ LCD panel with ON-LINE user friendly alarm and patient data.
7. Actual FHR in BPM.
8. Blinking corresponding to each Beat.
9. UA in % Alarm massage display High/ Low FHR limits.
10. Patient ID no. Memory Backup/ Graphical or Tabular trend for minimum 24 hours with fast printing facility. Feather touch key operated volume control.
11. In-built /separate acoustic stimulator with a separate marker on the graph for acoustic stimulators.
12. Ultrasound transducer should be multi crystal wide beam pulsed Doppler with frequency of 1MHz.
13. Fetal Heart Rate: measurement Range: 50-220 BPM.
14. Signal processing: Auto Correlation.
15. External Toco transducer which should be a sealed waterproof unit. Guard ring designed to reduce maternal respiration artifact. Measurement Range: 0-100 Units.
16. Event Marker-Hand held, patient operated as well as front panel operated. Voltage- 230 V AC ± 10%, 50 Hz.
17. Unit should be designed as per IEC -601-1 (certificate to be submitted)
18. Unit should be USFDA 510(k) /CE (Issued by Notified Body) certified
19. Firm should mention all the pre-installation requirements in technical bid.
20. The company should mention the make & model name/number of the quoted equipment and submit the technical brochure of the quoted model in the technical bid along with compliance sheet as per technical specifications.
21. User manual with trouble shooting guidelines should be provided by supplier.
22. Should be supplied with the following accessories at the time of installation- Transducer belt, Belt buckles, Main cables, interconnecting cables, ultrasound gel bottles (10 no.).
23. Rates of consumables like Battery: thermal paper, gel bottle should be provided by bidder in price bid.

Portable Ultra sound

The Portable DICOM compatible Ultrasound machine is useful to observe structures within the body for diagnostic purposes. It is used for vascular, abdominal, obstetric and gynaecological studies.

1. Should be able to operate both on AC and battery.
2. It should have in built full alphanumeric keyboard and track ball.
3. Latest technology all-digital portable Ultrasound System suitable for adult & paediatric ultrasound
4. Should have broad band frequency Transducer Technology.
5. Should have B mode, M-mode,
6. Should have inbuilt rechargeable Battery and the system should operate for at least 120 minutes on battery
7. Should have integrated display screen size at least 10".
8. Should have standard calculation package.
9. Should have image storage facility for at least 1000 images.
10. Sorting of data base with patient name and date should be possible.

11. USB port connectivity to printer or computer.
12. Facility for storage on CDR/DVD should be available. Data should be transferable through the network to any other workstation.
13. Should have cineol memory. Power Doppler
14. Should be light weight system weighing less than 10kg.
15. Transducers: (1) Convex probe (2) Linear probe (3) Echocardiography probe.
16. System should also have the capability to be upgraded advance software.
17. Imaging modes of Real time 2D, Colour Doppler, Pulsed wave Doppler, Power (energy) Doppler should be available.
18. Should work on 200Vac +/- 10% 50Hz power supply.
19. Should supply online UPS of suitable capacity with 30 minutes' backup.
20. US FDA 510 (k) Approved model should be offered.

High End suction machine

1. The Suction pump should be oil immersed fitted on Motor shaft
2. Suction pump should have line grinding internally.
3. To facilitate maintenance the cover of machine should be easily to open from the top & sides
4. The suction machine should be capable of producing minimum vacuum of 500 approx mm Hg. Which should be adjustable and monitored by vacuum gauge of suitable range. The suction capacity should be 15 litres per minute and can be regulated.
5. It should have two bottles of 1 or 2 liters (As per requirement) with synthetic rubber lids. The bottle shall be fitted with the arrangement to prevent overflow of fluid.
6. ON/OFF Switch and Power indicator should be available
7. Body material: Base, top & panel made of rust proof and corrosion resistant moulded ABS/Stainless Steel. Jar/Bottle material: Autoclavable polycarbonate.
8. Inbuilt maintenance free battery. Battery backup up to 60 minutes on full charge. Should be with buit in charger.
9. Should operate on 230V,50 Hz supply.
10. Acessories,Spares and Consumables
11. System as specifies
12. Powercord 2 metre long with 15A three pin plug top
13. One litre bottle with over flow protection- 02 nos (one spare set)
14. Lid set -02
15. Seal for bottle -02 nos
16. Suction tubing set - 04 set
17. US FDA (510K) / European CE(Issued from notified Body)/BIS Approved model should be offered.

Oxytocin Infusion Pump

1. Digital self–regulating volume controlled portable pump.
2. Unit should have drop sensor or equivalent mechanism for feedback and detection.
3. It can be mounted on standard bed/ wall rail or mobile pole/stand (supplied with fixation).
4. It should be capable of infusing through intravenous route.
5. It should have an open system, suitable for different brands of IV sets available in local Indian market. Also if any IV set is required to be calibrated then user should easily calibrate.

6. It should be programmable; Infusion volume and time/ flow rate can be entered.
7. The flow rate should be adjustable: 0.1-1100 ml/h, steps of 0.1 ml/h.
8. The accuracy ±1% of the total volume delivered.
9. It should have facility for occlusion detection and alarm.
10. The system should have LED / LCD display.
11. It should have an audio-visual alarm with a silencing feature for audio alarms.
12. Should have internal rechargeable battery. The battery backup should be of minimum 4- 6 hrs .
13. US FDA / European CE (Notified body) approved model should be offered.
14. Power Supply 220VAC +/- 10 %, 50Hz fitted with Indian plug.
15. UPS of suitable rating with voltage regulation, spike protection and maintenance free batteries for 60 minutes back up

Multichannel Monitor

13. Should be able to monitor 5 lead ECG, SPO2, NIBP, Respiration rate and Temperature.
14. Should be portable with carrying handle.
15. Should have touch screen TFT display with at least 10 inches or higher with at least 6 waveforms and numeric display simultaneously.
16. Should have Lithium ion battery with 4 hours battery backup.
17. Should have keys for quick access to main functions.
18. Should have adult, pediatric and neonatal modes.
19. Should provide prominent prioritised audio, visual alarms for high, low heart rate, Spo2, RR, low battery, lethal arrhythmia recognition and ST Analysis.
20. Should have separate volume control for beep sound for QRS and alarm sound.
21. Should provide following accessories:
    - Reusable adult 3 lead ECG cable set – 2 nos.
    - Reusable adult and pediatric SPO2 finger probes – 1 each.
    - Adult and pediatric NIBP cuff of different size
22. Should work on 200-240V AC/50Hz with inbuilt rechargeable battery.
23. Model Should by US FDA / CE / BIS approve product.
24. Electrical safety conforms to standards for electrical safety IEC-60601/IS-13450.

Ultrasound machine with Doppler/Vaginal probe/facilities for Interventional procedure

1. system should have dedicated presets for application- Abdominal, Obstetrics & Gynaecology, vascular, paediatric, small parts, MSK, fetal Echo, urology, TDC, interventional radiology

2. System must be offered with a minimum 19 inch High resolution flat panel Medical grade display monitor with nearly infinite position adjustments.

3. System must be offered with 4D imaging with quantification software for general imaging and obstetrics & gynaecology applications.

4. System should have tomographic ultrasound imaging quantification to analyze multiple parallel slice of a volume data set, Review of 3D/4D, color 3D data set

5. System should have at-least Four univerasl active probe ports with electronic switching facility.

6. System should have minimum 1000 frames per second or more. Please specify through data Sheet.

7. The system should have 2 Lac or more digital processing channels.

8. System should support multi-frequency/broad band probes spanning a frequency of 2-16 MHz of even better

9. B mode & color mode should be available simultaneously side by side real time display. Digital zoom facility for region of interest in real time and frozen.

10. Image storage facility on inbuild hard disc or CD/DVD-Rw facility should be available. In built
11. hard disc with capacity of 500 GB. System should have extensive image management capability including thumb nail review, cineloop editing etc.
12. Auto trace & automayic Doppler calculations should be available in Live & frozen images.
13. Should have the state of the art Transmit Real time Compound Imaging Technology with multiple transmitted lines of sight, wherin Multiple Coplanar images from different viewing angles are obtained and combined into single compound Image at real-time frame rates for improves visualization.
14. System must be offered with speckle Reduction imaging technology to remove speckles and clutter artifacts
15. System should be capable of scanning depth of 30 cm.
16. System must be offered with a 2D frame rate of least 1000 frames/second.
17. System must be offered with user friendly high resolution user interface 9 " touch panel and backlit keyboard. User friendliness will be given priority.
18. Fully optimized CEUS mode should be available with simultaneous acquisition of B-mode and Contrast images in real-time in full screen or Side-by-side display. Micro-vascular Imaging, and persistence imaging should preferably be available to assess slow micro-vessel perfusion
19. System should have THI & should be able to work in combined mode of harmonic imaging and real time compound imaging to get excellent image quality
20. System should be capable of FUSION / navigation to allow Fusing real time ultrasound images with images acquired from other imaging modalities such as eg. CT,MRI,PET.
21. The system shall be capable of providing a " GPS" alike functionality. This allows the operator to mark a specific point of interest within the image (e.g. Liver lesion). While moving the transducer, the system indicates position and distance relative to the marked target.
22. The system should be quoted along Elastography imaging for Breast & Thyroid on appropriate probe and convex probe for liver.
23. The system should be DICOM ready.
24. System should have inbuilt Gel Warmer
25. Following probes to be quoted as standard
26. 1-5 MHz Convex Transducer with +/- 1 MHz variation acceptaed for General Imaging, Renal. OB/GYN, abdominal imaging with capabilities of CEUS. Must have Tissue Harmonic Imaging. Probes must have compatibilities of Elastrography Imaging of Liver.
27. 4-10 MHz Linear Array Transducer with +/- 1 MHz variation for entirely covering frequency range accepted for Vascular, breast, Musculoskeletal, small parts, elastography imaging.
28. Broad band Endocavitary Probe for TV/TR Application with frequency range between 5 to 9 MHz +/- 1 MHz variation with reusable biopsy guide
29. 2-6 MHz Broadband 4D volume transducer, with +/- 1 MHz variation for entirely covering frequency
30. 5-16 MHz Matrix Linear probe, +/- 1 MHz variation for entirely covering frequency
31. Only US FDA Approved model should be offered.

Multichannel Monitor with ECG, BP, HR, Pulse oximeter

1. Should be able to monitor 5 lead ECG, SPO2, NIBP, Respiration rate and Temperature.
2. Should be portable with carrying handle.
3. Should have touch screen TFT display with at least 10 inches or higher with at least 6 waveforms and numeric display simultaneously.
4. Should have Lithium ion battery with 4 hours battery backup.
5. Should have keys for quick access to main functions.
6. Should have adult, pediatric and neonatal modes.

7. Should provide prominent prioritised audio, visual alarms for high, low heart rate, Spo2, RR, low battery, lethal arrhythmia recognition and ST Analysis.
8. Should have separate volume control for beep sound for QRS and alarm sound.
9. Should provide following accessories:
    - Reusable adult 3 lead ECG cable set – 2 nos.
    - Reusable adult and pediatric SPO2 finger probes – 1 each.
    - Adult and pediatric NIBP cuff of different size
10. Should work on 200-240V AC/50Hz with inbuilt rechargeable battery.
11. Model Should by US FDA / CE (Issued by Notified Body) approve product.
12. Electrical safety conforms to standards for electrical safety IEC-60601/IS-13450.

Operation Theatre table

1. Electro Hydraulic Operation Table should have adjustments controlled via corded hand control.
2. Should be capable of working on main power supply as well as battery back up.
3. The table should be provided with an over-ride control panel totally independent of the electronic system, for adjustments of Height up/down, Trendelenburg / Reverse Trendelenburg, lateral Tilts, back rest up/down, leg plates up/down, during emergencies.
4. It should be provided with two splash-protected socket connections for the simultaneous connection of the corded hand control device and foot switch.
5. The table should necessarily be provided with Special Foam Core (SFC) mattress, which evenly distributes the patients' weight and prevents pressure points developing during long duration surgeries The core part of the sandwich structure cushion should be covered by lying protection with visco-elastic and a two-way stretch, covering for excellent pressure distribution and reduction in shearing forces.
6. The mattress should be covered by electrically sealed joints so as to prevent ingress of liquids.
7. The table top should be C-Arm compatible and X-Ray translucent from head end to coccyx region, without having to move the patient Inter-operative, and be provided with guide rails under the table top for insertion of X-Ray cassette trays.
8. The table should be provided with a strong, solid base with least obstruction to the feet of the surgeons operating as well as during use of the C-Arm, microscopes etc. It should be provided with four double swivel castors for easy nonwavering of the operation table.
9. The base column head should be made up of Reinforced material which is resistant to impact, breakage and
10. disinfectants.
11. The maximum permissible patient weight should be around 450Kgs.
12. The table top should be divided into 5 sections consisting of Head Rest, Back Extension Plate, Back Plate, Seat Plate and Leg plate.
13. It should necessarily be possible to shorten the table top in stages by back extension to 1300 mm, and a further 265 mm when the leg plate is lowered, for operating on infants to adolescents.
14. Patient Orientation should be possible on both sides of the Table Top, which can be locked into memory, memory positions, in order to prevent any mishaps during surgery.
15. The following adjustments must be Electro-Hydraulically operated via corded hand control :
    - Height up/down (without padding) : 600 – 1050 mm
    - Trendelenburg / Reverse Trendelenburg: 20-25/35 Deg
    - Lateral Tilt (Left/Right): 15- 20 Deg

- Back Section (Up/Down): 60-70/30-40 deg
- Leg Section (Up/Down): 80/90 Deg

16. 'O' position (cancellation of Trendelenburg)/Reverse Trendelenburg/Lateral Tilts/Back Section/Leg Section)
17. Base locking of the table via retractable castors
18. Patient Orientation on both sides of the table top
19. The following adjustments are manually operated:
20. Adjustment and removal of Head rest
21. Removal of leg plate and back rest extensions.
22. The following accessories should be supplied along with the table:
23. System Configuration Accessories, Spares and Consumables.
24. **Accessories should include**.

a) Padded arm rest with straps - pair with damps.
b) Anesthesia screen with clamps.
c) Side supports: pair with clamps.
d) Shoulder supports: pair with clamps.
e) Knee crutches : pair with damps.
f) X-ray cassette tray.
g) Kidney bridge position should be achieved by Flex movement of the table
h) SS bowl with clamps.
i) Infusion rod with clamp.

25. **Gyne Attachments** :

a) Leg Holders with Loops and Radial Universal Clamp : 1 Pair.
b) Lithotomy Pole : 1 Pair.
c) Drainage Bowl : 1 No.
d) US FDA (510 K) / European CE(Issued from notified Body) Approved model should be offered.

Vacuum Extractor and suction machine

1. Table Top Powerful Surgical suction Unit for Fetal delivery
2. Suction pressure can be adjustable from 0 to 750 mm Hg by finely adjustable knob (not merely pressure release screw) for slow build of vacuum for delivery of fetus
3. Mains Power: 230 Volts
4. Suction jar with valves for overflow cut off
5. 40 mm metal suction cup (good quality) – 2 No
6. 50 mm metal suction cup (good quality) – 2 No to be provided (Occipito anterior and Occipito Posterior Cup)
7. 60 mm metal suction cup (good quality) – 2 No
8. Bacterial Filter – 20 Pcs
9. 40 mm silicone suction cup (good quality) – 1 No.
10. 50 mm silicone suction cup (good quality) – 1 No
11. 60 mm silicone suction cup (good quality) – 1 No
12. Suction Hose of 2 meters in length
13. Suction Hose can be easily detachable from the cups
14. Should also be provided with foot switch for on & off and control of pressure.
15. With portable trolley (Inbuilt)
16. Overflow protection device to prevent liquid & solid particles from entering the intermediate tubing.
17. Light weight machine

18. Automatic control (Microprocessor based)
19. Single button control for building vacuum gradually.
20. US FDA(510K) / European CE(Issued from notified Body)/ BIS /ISO Approved model should be offered.

Infusion Pump

16. Digital self–regulating volume controlled portable pump.
17. Unit should have drop sensor or equivalent mechanism for feedback and detection.
18. It can be mounted on standard bed/ wall rail or mobile pole/stand (supplied with fixation).
19. It should be capable of infusing through intravenous route.
20. It should have an open system, suitable for different brands of IV sets available in local Indian market. Also if any IV set is required to be calibrated then user should easily calibrate.
21. It should be programmable; Infusion volume and time/ flow rate can be entered.
22. The flow rate should be adjustable: 0.1-1100 ml/h, steps of 0.1 ml/h.
23. The accuracy ±1% of the total volume delivered.
24. It should have facility for occlusion detection and alarm.
25. The system should have LED / LCD display.
26. It should have an audio-visual alarm with a silencing feature for audio alarms.
27. Should have internal rechargeable battery. The battery backup should be of minimum 4- 6 hrs .
28. US FDA / European CE (Notified body) approved model should be offered.
29. Power Supply 220VAC +/- 10 %, 50Hz fitted with Indian plug.
30. UPS of suitable rating with voltage regulation, spike protection and maintenance free batteries for 60 minutes back up

Suction machine

1.Vaccum /LPM : - 700 MM Hg , 50 Litres/Min
2.Pump Type- Double rotary vane type
3.Flutter free vacuum control knob,
4.Wide mouthed 2 x 2 LITRE (light weight, unbreakable and clear) with self-sealing bungs and mechanical over flow safety device.
5.Noise (in dBA)- 50 dB
6.Collection container & its cap, suctions tube tips, a vacuum gauge, two sets of moisture & microbial filters and control knob
7.SiliconeTubing:8 mm ID x 2 mtr (PVC), 2x2 lt jar (one set
8.It should be Mobility, portability.
9.Equipment shall operate on 220V-240V, 50 Hz, single phase electric supply.
10.ISO/ BIS approve model should be offered.

FORENSIC MEDICINE & TOXICOLOGY

Microscope Student Type

1. Binocular microscope with universal infinity corrected optical system

2. Halogen light source illumination
3. Rigid frame with ergonomics design
4. Binocular observation tube with inclination of 45/30 degrees
5. Built in torque adjustable focusing knob
6. Square mechanical stage with rigid hand coaxial control
7. Abbe condenser, Iris diaphragm
8. Revolving Quintuple nose piece (for objectives)
9. Plan achromat objectives 4X, 10X, 40X, 100X (Oil)
10. 40X, 100X objective should be spring loaded
11. Eye piece 10X (FOV 20)
12. Antifungal treatment should be applied to the observation tube, eyepiece and objective
13. Accessories, dust cover and power cord
14. Power requirement 220 V/50 Hz
15. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Digital Spectrophotometer

1. Basic mode: Absorbance, %T, concentration
2. Quantitative mode: Concentration calibration curves
3. Wavelength scanning mode
4. Kinetics mode – including time/drive
5. DNA/Protein analysés mode
6. Multi – wavelength
7. Performance validation mode
8. Display: LCD
9. Light source: Tungsten – Halogen and deuterium
10. Monochromator: Littrow type with 1200lines/mm grating
11. Detector: Two silicon photodiodes (and 2 spares)
12. Wavelength range (approximately): 190 – 1100nm
13. Wavelength accuracy: ± 0.3nm
14. Wavelength resolution: 0.1nm
15. Wavelength repeatability: ±0.05nm
16. Bandpass: 1.8nm
17. Photometric range: - 0.3 to 3.0 A, 0 – 200%T and 0 – 9999conc
18. Photometric accuracy: Better than ±0.005A @1A
19. Scan speed: up to 2500nm /min (return 3000nm/min)
20. Noise drift: Less than 0.001A/hr after warm up
21. Noise: Less than 0.0001A @500nm OA
22. Baseline flatness: ± 0.002A
23. Stray light: Less than 0.05%T @220nm and 340nm
24. Cuvette volume: Maximum 1ml
25. No of cuvettes minimum 5 quartz Cuvette
26. Accessories
    - PC and laser printer should be provided User manual and service manual to be provided
27. US FDA (510K)/ European CE(Issued from notified Body)Approved model should be offered.

Chemical Balance

1. Microprocessor based single pan Analytical Balance with High accuracy & precision is required. Reading of the weight by digital display.
2. Weigh accurately up to 3rd decimal place
3. Auto self-calibration facility
4. Auto zero Setting, TARE setting
5. One touch calibration
6. Weighing capacity up to 120g
7. Readability and repeatability 0.001g
8. Stabilization time < 5 second
9. Liquid Crystal Display (LCD) for display
10. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Distillation Plant

1. Distillate output Production rate- 4 litres/hr
2. Conductivity, 0.2µs/cm
3. Minimum water supply pressure, 20.3kg/cm
4. Water consumption, 60litres/hr
5. Electrical supply 230/240V, 50/60Hz 13 amp
6. Spare heating elements - 1set
7. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered.

Centrifuge

1. Should have a maximum speed of 3000 RPM with steeples regulator
2. Should be supplied with safety lid and lock. (Brushless Motor)
3. Should have digital speedometer and timer.
4. Should have imbalance detector and automatic cut off.
5. Standard mark on quality and safety is Compulsory
6. Should work on a220VAC +/- 10 %, 50Hz AC Supply.
7. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

Spectroscopic Lens With Adjustable Slit

1. Resolution 4nm (40 Angstroms)
2. Fraunhofer Line Range 390.0nm to 760.0nm (visible spectrum), should have graduation scale
3. Dispersion Angle 24° (approximately
4. US FDA (510K) / European CE(Issued from notified Body)/ISO Approved model should be offered.

Binocular Research Type With Attachment For Camera

1. Binocular microscope with High end Plan apochromatic Optics.
2. Halogen light source illumination
3. Rigid frame with ergonomics design
4. Binocular observation tube with inclination of 45/30 degrees
5. Built in torque adjustable focusing knob
6. Square mechanical stage with rigid hand coaxial control

7. Abbe condenser, Iris diaphragm
8. Revolving Quintuple nose piece (for objectives)
9. Plan achromat objectives 4X, 10X, 40X, 100X (Oil)
10. 40X, 100X objective should be spring loaded
11. Eye piece 10X (FOV 20)
12. Antifungal treatment should be applied to the observation tube, eyepiece and objective
13. Accessories, dust cover and power cord
14. Power requirement 220 V/50 Hz
15. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered..

Deep Freezer For Keeping Tissue

1. Minimum Capacity should be 300 litres
2. Digital display of set and actual temperature, with audiovisual alarm
3. No condensation on storing material with automatic electric defrost
4. Construction - Solid rust free cabinet to prevent corrosion and lockable castor wheels.
5. Refrigeration System - Heavy Duty refrigeration system, maintenance free, below - 20o C (+ 10oC) cascaded connection with hermetically sealed refrigeration compressors and reliable refrigeration to minimize noise and vibration, air cooled with security lock to prevent unintentional switch off should be supplied. It should have cooling time within 1 hours at maximum ambient temperature of 50 oC. The equipment should be of continuous duty and frost free.
6. Alarm- It should also have audio visual Electronic Alarm System for a) door open b)Power failure c) other mal functions
7. Insulation - High density polyurethane or equivalent Gaskets - Double seal silicon.
8. Should have automatic high and low voltage compensator
9. It is Less than 4 Deg C from the Set Temperature
10. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered.

Automatic Tissue Processing Machine

1. Microprocessor controlled tissue processor with changeable duration in each station, delay start of at least 3 days, vacuum application and agitation at station.
2. It should have capacity to hold 150 to 200 tissues cassettes
3. Reagent Jars and wax impregrenation bath should be of material resistant to chemicals like chloroform, xylene, alcohol etc. Metal jar preferable.
4. The wax bath temperature should be such that fumes from reagent will not be emitted out of the system and there will be minimal wastage due to evaporation. Extra two wax impregnated bath to be supplied with the instrument
5. Capsule basket holder - 2 hanging types.
6. Duration time of 60 second in each section to reduce carry over contamination.
7. Maximum safety concept with a liter beaker in case of power failure.
8. Audible alarms, error messages and warning message for maximum safety.
9. Electronic locking facility to avoid inadvertent operation.
10. ONLY US FDA (510K) / European CE (issued by notified Body) Approved model should be offered.

Rotary Microtome With Knife (Semi automated)

1. High precision machine suitable for both delicate as well as hard tissue sectioning
2. Section thickness settings 1-60 µm with settings in 1,2,5 increment at different levels
3. Specimen advance 28 mm or more
4. Vertical stroke 60 mm or more
5. Provision of step trimming
6. Adjustable specimen clamp at atleast 50 x 45 mm with orientation in X,Y axis
7. Single disposable blade holder for accommodating both high and low profile blades
8. Lateral coarse feed
9. Integrate removable section waste tray
10. Spare low and high profile blades in dispenser pack of 50 blades: 6 packets each
11. ONLY US FDA (510K) / European CE (issued by notified Body) Approved model should be offered..

Paraffin Bath Embedding

1. Embedding station should have 2 separate components cold plate heated paraffin dispensing module.
2. Module should allow flexibility to arrange embedding work flow in the either direction.
3. Capacity of Paraffin reservoir should be 3 lit. capacity with vacuum lid, easy to clean, scratch resistant, heated wailing surface with paraffin drain system.
4. Adjustable paraffin flow rate.
5. Two heated removable paraffin waste tray.
6. Paraffin outlet:manual or foot pedal operated paraffin outlet.
7. Removable and interchangeable cassette and mould warmer.
8. Large peltier cooling spot, even for super mega cassettes.
9. Adjustable temperature for all modules between 55 to 70 Deg C
10. Heated forceps holder which is easily removed for cleaning.
11. Capacity of approximate ranging 100 to 150 cassettes.
12. Programmable timing and temperature.
13. Magnifier (essential)
14. Illuminator (essential)
15. Main:230V,50 Hz
16. Height - 400 mm
17. Width - 500 mm
18. Depth - 700 mm
19. Weight - 30 Kg
20. Size of working surface - 2 x 175 mm
21. Size of cold spot - 70 mm
22. Acessories
23. Removable holder.
24. Paraffin scrapper
25. Freezer
26. Replacement bulb
27. Set of fuse
28. Set of power cords

29. Cassette - 50,000 labels
30. Stainless steel capsules for matis mould.
31. ONLY US FDA (510K) / European CE (issued by notified Body) Approved model should be offered

Water Bath For Tissue Floatation

1. Required to thoroughly straighten sectioned paraffin embedded tissue specimens without creating
2. wrinkles, folds or distortions.
3. Chamber completely encircled by sheathed heater for uniform, broad surface heating with insulated body to present heat loss and temperature fluctuation is required.
4. Rectangular / Circular with a capacity with in the range of 3-5 litres.
5. Temperature range with in 30-60º C.
6. Temperature controller with increments of increments of 1º C or less. LED display of temperature.
7. Stainless steel/ aluminium body. Inner surface should permit easy identification of tissue sections.
8. Outer surface should be powder coated.
9. Safety system to prevent over heating should be present.
10. Indicators for POWER ON and HEATER ON.
11. Indicate if timers/alarms are present.
12. Reset table over current breaker shall be fitted for protection.
13. US FDA (510K)/ European CE(Issued from notified Body)Approved model should be offered.

Thin layer chromatography

1. Planar Chromatography System Manager-Software to control, interlink, documentation of HPTLC analysis by linking all electronic instruments. Single keyboard control. Windows based, built in tutorials, full method documentation. Latest version.
2. HPTLC-01.02. Automatic Sample Application Device - Automatic sample applicator suitable for routine analysis. Application of sample as spots, bands or rectangles. All consumable/spares of Automatic TLC sampler for smooth running of the system.
3. Semiautomatic Sample Applicator-Spray on, 4 pattern applicator. Stand alone or System Manager Control.
4. Chromatogram Development Device -TwinTrough Chamber for 20 x 20 cm plates, 20 x 10 cm. plates and 10 x 10 cm. plates.
5. Post Chromatography Visualization/Derivatization- UV Cabinet with two illumination modes: 254nm and 366nm with operator safety.
6. Dip Tank with lid-Dipping chamber for post chromatography derivatization and uniform derivatization for quantitation.
7. TLC Scanner with data Evaluation -Software controlled densitometric evaluation of Thin Layer Chromatograms. All consumable/spares for smooth running of the system. Auto calculation of data, computer generated random no. for each report.
8. Image Documentation System- High resolution, ultrasensitive true colour capture CCD camera and system for photo documentation of TLC/HPTLC plates Automatic software controlled operation.

Auto image optimization, digital image evaluation, Proper storage of the image and analysis of the image with printable format in colour laser jet printer, Image comparison image enhancer.

9. US FDA (510K)/ European CE (Issued from notified Body) Approved model should be offered.

Gas Chromatograph

1. Automated computer controlled three channels GC
2. Six heated zones excluding column oven
3. Capability for installation of 2 detectors and 2 injectors
4. Capability to store methods
5. Graphical display with keypad
6. Column Oven with built-in overheat protection:
7. Operating temperature range: Ambient to 450°C
8. Temperature stability: ± 2°C
9. Temperature Programmer:
10. Isothermal temperature range: Ambient to 400°C or better
11. Possible to program 7 temp ramps / 8 plateaus or better
12. Rapid cooling of the Oven temperature
13. INLETS:
14. Electronic Pneumatic Contol
15. Programmable Temperature Vaporizer
16. Split /Splitless capillary (S/SL):
17. Electronic Pressure / flow control
18. Pressure setting range:0-100 psi
19. Total flow setting range: 0 to 200ml/min. for N2 0 to 100 ml & for H2 or He 0 to 100 ml.
20. Split ratio: 7500:1
21. Maximum operating temperature:400°C
22. Software Multitasking software for full control of GC ,data acquisition and data handling , designed to operate with Windows Operating system on industry standard PC
23. Autosampler
24. Injection speed: Normal, fast, slow
25. Program modes: Two methods may be programmed
26. Sample positions: 90 vials tray priority
27. Vial size: 1, 2, ml (500 each)
28. Electronic Pneumatics Control
29. Up to 16 EPC channels for inlets, detectors, or auxiliary gases. Pressure should be adjusted by increments of 0.001 psi. The system should have an inbuilt atmospheric pressure sensor to compensate for altitude and ambient temperature variation. The user should be able to ramp flow or pressure (up to three ramps). Flow sensor for control and storage of split ratio should be provided.
30. Should be upgradable with head space sampler &/or purge & trap system in future
31. Only US FDA (510K) Approved model should be offered.

Ultra Violet Spectroscope

1. Double beam optics
2. High resolution 1.5nm spectral band pass
3. Pharmacopoeia standards
4. Light Source Tungsten-Halogen and Deuterium Lamps, Light Source Switching Automatic switching selectable from 325nm to 370nm
5. LCD Display 190mm x 138mm,
6. CD screen with adjustable Brightness control displays a large array of data also in graphical format.
7. Chemical resistant keypad.
8. Stand alone or PC operated
9. Validation: Self-Diagnosis incorporating a number of parameters and wavelength calibration are automatically initiated upon start-up.
10. GLP/GMP feature for analyses requiring validation and auditing. Parameters such as Wavelength accuracy, Wavelength reproducibility, bandpass, baseline flatness , baseline stability, and Noise level
11. Up to 20 operating programs and up to 10 set of measurement data can be stored in the flash memory.
12. Programs easily recalled, edited and deleted
13. USB port for direct download in to memory stick.
14. Optics Concave diffraction grating / Double Beam Principle
15. Wavelength Range 190nm -1,100 nm
16. Spectral Bandwidth 1.5 nm
17. Stray Light ≤0.05% (220nm NaI, 340nm $NaNO_2$)
18. Wavelength Accuracy ±0.3nm
19. Photometric Range Absorbance: -3 to + 3%T: 0% to 300%T, Concentration: 0,000 to 9,999
20. Wavelength Scan Speed 10, 100, 200, 400, 800, 1,200, 2,400, 3,600 nm/minute
21. Baseline Stability 0.0003 Abs/hr (500nm, after 2 hours)
22. Noise Level 0.0003 Abs (500nm)
23. Detector Silicon Photodiode
24. Power requirements: 220-240 V, 50 Hz
25. Cuvette chambers to hold to hold 4 cuvettes, 1 for blank, 3 samples for samples with matching cuvettes
26. Free supply:
27. Cuvettes of 1 ml capacity 2 numbers, microcuvettes 2 numbers
28. A suitable online UPS with tubular batteries (maintenance free) and one hour backup time should be supplied.
29. US FDA (510K)/ European CE(Issued from notified Body) Approved model should be offered.

Infra Red Spectroscope

1-Wavelength Range: 7800 to 350 cm-1
2-Signal-to-Noise Ratio: 25,000:1
3-Resolution: 0.7 cm-1
4-Optical System: Single Beam
5-US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

MASS SPECTROPHOTOMETER

1. An ultra-low dispersion liquid chromatography should contain the following specifications for its day to day operation
2. Must to Have features:
2. All the detectors and modules quoted should be UPLC detectors only. (No HPLC compatible modules to be quoted)
3. The detector used inside the MS should be PMT detector with performance guaranteed for 10 years, irrespective for the Warranty of the complete system. In case of alternate detectors like EMT, additional 2 detectors should be quoted as spare to ensure smooth functioning for the next 10 years.
4. Accessories to electronically record the life of the columns used should be given with all the columns used on the system.
5. LC should be flexible to permit the use of variable length nano-LC columns from 10 cm to 50 cm.

UPLC Specifications:

Solvent-

The pump should have features such as automated variable stroke, user settable back pressure limit, means to match the system dwell volumes.

- Leak sensors and pressure limit sensors and 96 hours or more diagnostic data recording to be standard.
- Atleast 7 or more gradient formation options to be available as standard to handle complex samples
- Flow ramping: Should take <30 seconds to ramp flow between 0.01ml/min to 2ml/min
- Pump should be able to form pH Gradients in addition to general solvent gradient. The desired pH as set by the user should be automatically achieved by the system to reduce errors due to manual preparation
- pH Range: 1 to 12.5
- Gradient Delay Volume: <300ul
- Total System Band Spread: ≤12ul

Sample Manager

- Injection Volume Range**:** 0.1 to 10ul
- Samples to be maintained between 4 to 40 ºC. or higher
- The sample manager **carryover should be <0.002%** for Caffeine and Sulphadimethoxine
- Temperature Accuracy: ±0.5-degree celcius
- Sample manager heating time: ≤30min from ambient to 40-degree celicus

- Sample manager cooling time: ≤60 min from Ambient to 4-degree celcius
- Minimum 96 samples of standard 2mL vials to be accommodated or higher. Vial tray to be university tray design to accommodate any third-party microtiter plates for accommodating more samples

Column Management

- Column Active Pre-Heater (for solvent Pre-heating) should be standard. Solvent heated before entry into column
- Single Column accommodation of length upto 150mm with guard column as standard.
- Column temperature settable from 5ºC above ambient upto 90ºC or higher
- Electronic monitoring of the column's health upto 50 sample sets, recording the parameters such as minimum & maximum pressure, sample injection totals should be provided as standard for all the columns
- 1 number of C18 and C8 UPLC Columns with guard columns and its holder (Particle size of <2µM each). Branded system manufacturer columns for reproducible results to be provided as standard.

Software for LCMS

- Software should be compatible with Windows 10 64 bit Professional OS or higher
- Flexible documentation/file export (eg. Clipboard, DIF, CSV, ASCII, WMF, DDE, ODBC, etc.) system to be provided as standard.
- Software should control other vendor instruments, if necessary.
- The software should be GLM, GMP Compliant
- The software quoted for UPLC should also control the MS system.
- Software should be capable of method fully automated method set-up, Quantification, Targetted QC qualification features (like error reporting and self-diagnosis) available as standard.

<u>Optional</u>: PDA Detector

- The wavelength range - 190 to 800nm
- Light source: Deuterium Lamp only
- Wavelenth Accuracy: ±1nm
- Linearity: Deviation at 2.0AU should be ≤5%
- Light source should be warrantied for 2000 hours or 1 year whichever is earlier as standard
- The detector provided should be an UPLC detector with the electronic pathlength measurement as standard

MS Specifications:

ION Source:

- The atmospheric pressure Ionization (API) LC Interface should include source and Spraying units.
- The standard Ionization source provided should be a dual source with both ESI and APCI runs in a single analysis without changing the ionization source. Optional upgrade to APPI, ASAP, APGC, etc should be available
- Sample introduction should be either through direct infusion in solution or through HPLC/UPLC. Built-in syringe pump for easier sample introduction.
- At least two ports to be available for the introduction of mass calibration standards and samples separately.
- **The Ion Source should be dual orthogonal design or better** for least maintenance of the internal components of the MS.
- MS should support flow rates up to 2ml/min
- Source must include facility to de-cluster the ions formed at atmospheric pressure. The source should be capable of achieving **at least 600-degree celcius or more for efficient de-clustering**

Mass Analyzer:

- Single high-resolution quadrupole analyzer should be fitted with pre-filters to maximize resolution & transmission
- All the lenses and voltages should be software controlled.
- **Solid state RF generators** should be incorporated for supplying RF voltages
- **Mass Range: 2 to 3000m/z or higher**

Detector:

 The instrument must incorporate an off-axis dynolite photomultiplier detector, positioned after the second mass analyzer. The detector should be guaranteed for 10 years for its performance. If PMT is not supplied, then at least 3 nos. of alternate detectors should be quoted as standard
 The detector must have dynamic range at least to the magnitude of 4 orders from the limit of detection

Additional Hardware and Performance Features:

 Vacuum System: Single, Split flow air-cooled vacuum turbomolecular pump evacuating the source and analyzer with one rotary backing pump
 Scan Speed: **15,000 amu/sec or higher**
 Mass drift: **<0.1Da in 24 hours**
 Polarity Switching **20ms or lower**
 ESI to APCI switching time: 20ms or lower
 Minimum dwell time of **3ms per SIR channel or lower** and inter-channel delay of 3ms

At least 15,000 SIR channels to be monitored in single acquisition

 ESI Sensitivity (Positive Ion): 1pg of reserpine on column should give **150:1 s/n ratio or higher**
 APCI Sensitivity (Positive Ion): 1pg of Reserpine on column should give **120:1 s/n ratio or higher**.
 Acquisition modes: Full Scan MS & Selected ION Recording (SIR)
 Automated System start function with the following features to be standard

- Automated System parameter check
- Auto Mass Calibration
- Auto Sample tuning
- Auto SIR method development
- LC-MS system checks and automated on-column performance test

 The system should be capable of collecting specific quantitative data for targeted compounds and visualize all other components in a single run

- US FDA (510 K)/ European CE Approved model should be offered.

Cold Storage For Dead Bodies

1. Corrosion free interior and exterior.
2. Audio visual alarm for high and low temperature.
3. Designed for long storage of cadaverous.
4. PUF insulation on all sides.
5. Special design ensuring best hygiene with washing & draining facility.
6. Reliable
7. Special loading trolley.
8. Energy efficient and sturdy construction.
9. Light weight.
10. Digital temperature indication.
11. Low maintenance.
12. Microprocessor based / PLC temperature control.
13. Double walled cooling units.
14. Outer body of the mortuary chamber is constructed out of thick S.S sheets. The inner chamber made of heavy gauge stainless steel sheet of SS-304 grade. The 100mm gap between the walls filled high grade poly urethane insulation, which ensures maximum thermal efficiency.
15. The doors connected by very sturdy chrome plate hinges and fitted with hard chrome plated lubricated latches for opening of the door.

16. The doors made of galvanized steel sheets, lined with stainless steel for extra protection and long life.
17. All the doors fitted with high quality neoprene rubber gaskets for airtight fittings with very sturdy casters.
18. CFC free compressors, conforming to latest international standards and guidelines. Twin compressors of which one is standby.
19. Vapor proof lamp inside.
20. Temperature range -2 to 4 deg C with temp failure alarms.
21. Suitable Voltage automatic stabilizer O/P 230 +/-10% I/P 150 – 280Volts.
22. US FDA / European CE(Issued from notified Body) /ISO/BIS Approved model should be offered.

Weighing Machine For Dead Bodies

1 Capacity should have 200 kg with Should have digital display of weight
2 Should have extra channel structure to provide equal Load distribution
3 Should have standard Mild Steel checkered Top cover and Back grill for support
4 Should have Over Load stoppers and Transport Protection
5 Rocker pin foot assembly to provide stability and durability
6 Four Load Cell system - Single point beam Load Cell
7.Optional Weighing Indicators
8.Should have easy access junction box
9..US FDA / European CE(Issued from notified Body) /ISO/BIS Approved model should be offered.

Autopsy Tables

1. Approximate Dimension:-1820 mm X 600 mm X 900 mm (LxWxH)
2. It should be made of stainless steel (steel grade 304) with a frame made of rugged torsion-resistant stainless steel profiles.
3. It should have 4 stainless steel swivel locking castors.
4. Tabletop depth should be of approx. 15mm sloping towards the drain.
5. Large radii on all inside corners should be provided for easy cleaning.
6. 10 litre removable container with bayonet lock, mounted beneath the downspout, should be attached to a rack in the base frame.
7. Airtight compartment should be mounted beneath the table top to serve as an odour-free storage of drapes.
8. It should have stainless steel full extension drawer and a removable stainless steel tray provided with a perforated plate and a removable lid
9. System Configuration Accessories, spares and consumables
Stainless Steel Bucket 50 Ltrs
Headrest
Body support shim
10.US FDA / European CE(Issued from notified Body) /ISO/BIS Approved model should be offered.

Autopsy Saw With Accessories

- 1 Large Section Blade
- Allen wrench
- foot cord with hospital grade plug

- Weight with power cord 3.7 lbs
- BIS/ISO Approved model should be offered.

Weighing Machine For Organs

1. Platform size 350 mm x 350 mm approx.
2. SS 304 grade construction
3. Complete ss Platform for easy cleaning and anti-staining
4. Maximum of 15 kg
5. Accuracy up to 2 gms
6. Rechargeable battery back-up pack provided for usage in power failure
7. US FDA / European CE(Issued from notified Body) /ISO/BIS Approved model should be offered.

Weighing Machine For Fetus

1-Platform size 350 mm x 350 mm approx.
2-SS 304 grade construction
2-Complete ss Platform for easy cleaning and anti-staining
3-Maximum of 15 kg
4-Accuracy up to 2 gms
5-Rechargeable battery back-up pack provided for usage in power failure
6-US FDA / European CE(Issued from notified Body) /ISO/BIS Approved model should be offered.

Portable X-ray Machine (can be shared with Radiology Department)

General-purpose mobile diagnostic x-ray system used in a variety of routine x-ray imaging applications.

1) High Frequency generator of 50KHz or more compatible with conventional and computerized radiography.
2) Must have a digital display of mAs and kV.
3) Ergonomically designed unit with total soft touch switches for various operations.
4) Self Diagnostic Program with indicators for earthing fault error, KV error or filament error.
5) kV range at least 40kV to 100kV, digitally displayed mAs range at least 0.5 to 250 mAs or more.
6) Exposure time range at least 10 ms to 5s.
8) Tube power rating at least 4 kW.
9) Adjustable multileaf collimator, rotatable 90ºwith patient centring light.
10) Must be supplied with protective dust cover at least for control panel.
11) Should be compatible with various basinet size in NICU & PICU.
12) The generator should have microprocessor/micro-controller based electric overload system.

Settings

1) KV increase & decrease switches.
2) mAs increase & decrease switches.
3) Machine On/Off Switch.
4) Collimator lamp On/Off switch.
5) X-rays ON indicator should available.
6) Foot switch should available for trigger X-rays. Dimensions (metric)

1. Unit should have max. 7 foot in height, 2 foot in width and 5 foot in length.

2. Weight -Maximum 160 Kg.

Configuration

1) The unit must have an effective braking system for parking, transport and emergency braking.
2) The tube stand must be fully counterbalanced for rotation in all directions.
3) It must have an articulated arm for imaging with any patient position.
4) All cables should be concealed in the arm system.
5) Unit base wheels must be easily accessible for cleaning. Safety / Certificate & Electrical configuration

1. Valid AERB type approval (national standards) certificate to be submitted.
2) Should work on 220VAC +/-10%, 50 Hz.
3) US FDA (510K) / European CE (issued by notified body only) & AERB Approved model should be offered.

OT light Shadowless adjustable

1. Intensity of light 80,000 Lux
2. Head Rise required
3. Bulb Life - 1500 above working hrs
4. No. of reflectors - 04 glass
5. Only US FDA (510K) Approved model should be offered

Colposcope

1. Colposcope with Camera
2. Illumination 12 V/100 W cold light, fiber optic illumination, adjustable
3. Working distance 250 mm or 300 mm Magnification 3.5x - 21.5x (at working distance 250 mm, 12.5x eyepieces)
4. Fine focusing 12 mm
5. Inclined Binocular Viewing tube
6. Red-free filter Swing-in Suspension system Rollable floor stand
7. Lifting range +/- 300 mm
8. Video camera ntegrated, SINGLE CHIP CCD
9. Attachable to suspension mount / examination chair or floor stand with straight, inclined or tiltable tube for maximum convenience and comfort with optionally integrated
10. Perfect video documentation
11. Digital photography(option with digital camera with 7 megapixel camera.)
12. Image documentation on CD/DVD
13. Facility to display for multiple views (Students)
14. Facility to digitally record & transmit the images (best resolution)
15. Work station
16. Chair attachment
17. Mounts for attaching connecting tubes to examination chairs.
18. Provision for micro manipulator attachment to provide r CO2 laser therapy .
20. US FDA / European CE(Issued from notified Body) Approved model should be offered.

Proctoscope With Light source

1. Working Attachment, for use with Proctoscope and Telescope Proctoscope with obturator O.D.: 24 mm, working length: 8 cm.
2. Straight Forward Telescope 30°, Eyepiece 45° angled, diameter 4 mm, length 9.5 cm, autoclavable, Fiber optic light transmission incorporated
3. Sponge Holder, working length 20 cm Dressing Forceps, total length 19 cm
4. Fistula Hook, total length 19 cm
5. Proctoscopy Punch, Through-cutting, cutting width 3.4 mm, straight jaws, sheath diameter 3.5 mm, working length 20 cm
6. Injection Needle, straight, LUER-Lock, tip diameter 1.0 mm, working length 14 cm Hemorrhoid Grasping Forceps, for use with ligature instrument
7. Ligature Instrument, for treatment of hemorrhoids, working length 17 cm
8. Only US FDA (510K) European CE (Issued by notified body) Approved model should be offered

COMMUNITY MEDICINE

Digital Weighing machine for Baby

1.Tabletop, light and portable.
2.Built in rechargeable battery.
3.Easy to clean baby tray (acrylic).
4.Zero weight adjustment facility.
5.Quick, clear digital read outs.
6.Measurement does not change with position of baby on the pan.
7.Provision to measure the height of the baby in its laying position.
8.Accuracy: 5g, resolution: 1g, limit: 10gm to 15kg.
9.Auto setting to 0.00 once a the machine is switched on or when no external weight has been put on.
104XAA battery(rechargeable) or equivalent; one hour backup.
11.US FDA / European CE (Issued from notified Body) Approved model should be offered
12.Should have model approval from Legal Metrology Dept., Govt. of India.

Incubator, Electric

1. Capacity: 120 L
2. Interior chamber: SS 316 for easy cleaning and decontamination
3. Timer: 1 min. to 100 hours and hold position
4. Minimum turbulence and no cross contamination
5. Adjustable safety thermostat for temp setting at 1 deg C increment
6. Temp Accuracy : +/-1%
7. Internal glass door for the observation
8. With minimum two adjustable shelfs

9. Audiovisual Alarm to Indicate when temperature deviates more than 1°C from setpoint, and when program or time has finished. Equipment should have provision to mute the alarm.
10. Peltier heating with continuous air circulation and Heating by natural/forced convection for homogenous temperature distribution
11. Temperature range: +5° C to 60°C
12. There should be a Membrane Keypad with LCD/LED Display to set and display operating parameters, current status, running time and alarm conditions for time and temperature.
13. The Equipment should have Interior lighting facility, and insulated door fitted with heavy hinges
14. Power Supply:230V,50 Hz
15. System Configuration Accessories, spares and consumables
16. Incubator as per specification
17. All consumables required for installation and standardization of system should be provided free of cost
18. Should be supplied with all the accessories required for the functioning of the equipment.
19. Standard, Safety
20. US FDA (510K) / European CE(Issued from notified Body)Approved model should be offered.

Centrifuge Machine (16 tube)

1. Should have a maximum speed of 5000 RPM with steeples regulator
2. Should be supplied with safety lid and lock. (Brushless Motor)
3. Should have digital speedometer and timer.
4. Should have imbalance detector and automatic cut off.
5. Standard mark on quality and safety is Compulsory.
6. Should work on a220VAC +/- 10 %, 50Hz AC Supply.
7. US FDA (510K) / European CE(Issued from notified Body)/BIS Approved model should be offered

Ice Lined Refrigerator (I.L.R.)

1. **Description of Function:**
   - Ice-lined refrigerators maintain temperatures of +2°C to +8°C. Not more than 8 hrs continuous or intermittent power should be sufficient per 24 hrs. to maintain vaccine temperature below 8 deg. C.
   - Ice-lined refrigerators are required at district and regional levels, since electricity supplies are rarely perfect and standby electricity supplies may not be available.

2 **Operational Requirements:**
   - Vaccine storage is required for RI, Campaign and new vaccine introduction.
   - Designed for tropical climates.
   - Target holdover time should be 20 hrs or more in a continuous external temperature of 43 deg C.
   - Hot and cold compressor starting at 172 volts (22% below rated voltage)
   - Manufacturing process of the product should not use or produce hazardous chemicals-gases.
   - Provision for drainage for the waste water.
   - Should have legs in the base with rotating screw type height adjustments to balance the weight on uneven floor.
   - The unit should have ground clearance of minimum 100 mm.

3 **Technical Specifications:**
   - Net Vaccine Storage Capacity: 135 to 160 liters within basket in place.
   - Construction:

- Internal: Aluminium chamber Interior corroision proof case
- An additional special ice lining consisting of icepacks covered by strong plastic shell.
- External: Corrosion Resistance (CR at least 1 mm thickness)
- Chest type with CFC – free insulation
- Should have horizontal water cool pack covering the top of the basket.
- Solid door with lock and handle
- Type: Compression Cycled, CFC-Free (both for refrigeration and insulation) All system tubing (suction tube, freezer tube and condensing tube) should be of minimum 99.97% of pure copper coil.
- Temperature of a full vaccines to remain +2 deg C to +8 deg C during continuous availability of energy at ambient temperature +5 to +45 deg. C with intermittent/
- continuous electricity supply 8 hrs in a 24 hrs cycle. The temperature difference between any two points in the cabinet should not be more than +2 deg. C once stabilized.
- Inlet of Capillary should be outside the PUF body.
- ON/OFF Switch and power indicator should be available
- A Micro processor based control unit should be provided for setting of temperature and display following features:
- 3 digit digital display (to one decimal point) of cabinet temperature. The sensor should be placed 25 to 50 mm above base of storage chamber.
- Power on LED/LCD indicator
- Audio (minimum 65 dBA) and visual alarm against the violation of temperature range (less than +2 and more than +8 degree C)
- Min. & Max. cabinet temperature digital display of last 24 hrs. and breaches during last 24 hrs.
- The unit should be sealed/protected from dust, moisture or condensed water falling over it.
- Accuracy for digital controller +- 0.5 degree centigrade.

4 **System Configuration**

- Programmable Micro-processor control unit with child lock facility.
- Should have provision to set minimum and maximum temperature at 0.1 degree Centigrade to programme the unit for continuous operation.
- Should have provision for Auto defrosting

5 Accessories, spares and warrantee:

- The equipment should have minimum warrantee of sixty months after installation or sixty six months after the supply whichever is less.
- Vaccine Storage Basket allowing free circulation of air, having the size to be able to accommodate 4 to 6 of them in the unit and suitable to match the net volume requirement. It should be minimum 5 wire basket.
- Stem Alcohol thermometer (specifications and standard as per MOHFW approved
- Annexure-1) - one piece per unit range of -30 to +50 degree centigrade.
- The supplier is required to maintain all the spare parts throughout the warrantee period and not less than ten years.
- The supplier should provide the following spare parts for every 10 units. All spare parts will be supplied at respective state head quarter. The actual list of the consignee will be provided at the time of NOA.
- Starting device for compressor- 10

- Capacitor for compressor -10
- Thermostat for refrigerator use -10
- Compressor-01

6 **Environmental factors:**

- The unit shall be capable of being stored continuously in ambient temperature of 0 to 50deg C and relative humidity of 95%
- The unit shall be capable of operating continuously in ambient temperature of 5 to 45 deg C and relative humidity of 90%
- The plug should be flexible and unbreakable sealed rubber type.

7 Power Supply:

- Power input to be 220-240VAC, 50Hz as appropriate fitted with Indian plug
- Voltage stabilizer as per the MOHFW approved specifications and standard.

8 Standards and Safety

- USFDA (510K)/ European CE (Issued by Notified Body) approved model should be Offred.
- Should meet WHO/UNICEF Standard WHO/PQS/E03/RF03.1.for Ice Lined Refrigerators
- Test and inspection as per WHO procedure reference WHO/PQS/E03/RF03-VP.1 Testing should be carried out from WHO certified lab/NABL/STQC Labs. Certificate of testing should be currently valid till the supply and same must be verified by inspecting authority.
- Colour code : WHITE

9 **Documentation:**

- A paper copy of user/operator manuals to be supplied in English.
- A paper copy of technical/wiring diagram/maintenance manuals to be supplied in English.
- Certificate of inspection for technical compliance from an independent laboratory approved /recognized by WHO certified /National Accreditation Board for laboratories/STQC Labs is essential.

10- List of important spare parts and accessories with their part number and costing.

- Packing of the equipment during shipment:
- The supplier should provide strong and sufficient packing to ensure safe arrival of goods at the destination free from loss or damage.
- A vertical arrow should be marked at the all sides of packages to ensure transportation of equipment in vertical position. TOP and BOTTOM should also be written.
- To put label and signage's for HANDLE WITH CARE ON ALL SIDES OF THE CRATES as per packing & shipment norms.

11-**Following messages should be written at the Top of the ILR**

- Place refrigerator at least 10 cms away from the wall and 20 cms away from other equipment for free air circulation.
- Use voltage stabilizer provided for the ILR
- Safe temperature range +2 to +8oC
- Store all UIP vaccines in ILR at CHC/PHC (OPV should be stored in deep freezer at State/Regional and district vaccine store)
- Open the lid, only when needed
- Store only UIP vaccines (at PHCs store vaccines and diluents).
- Keep all vaccine in wire baskets provided.
- Leave space between the vaccine boxes for air circulation.

- Place a thermometer in the basket in between the vaccines.
- Keep freeze sensitive and closer expiry vaccines at TOP of the basket
- Keep heat sensitive and further expiry date vaccines in the bottom of basket.
- Avoid removing thermometer from the unit while reading temperature.
- Net vaccine storage capacity in Litres
- Hold over time in hrs

Ophthalmoscope (Direct)

11. Disposable Otoscope Tips - 10 nos.
12. Reusable Otoscope Tips - 4 nos
13. AA batteries required.
14. Original Hard Case
15. US FDA (510k) / European CE(Issued from notified Body) /BIS Approved model should be offered.

Otoscope

6. 2.5 V(White Led Light) Pocket Scope
7. Auriscope With Aa Battery Handle
8. Wide-Angle Viewing Lens Allows For Instrumentation Under Magnification.
9. Suitable capacity LED Light source, Monitor, Light source cable etc. with required accessory
10. ONLY US FDA (510K) / European CE (issued by notified Body) Approved model should be offered.

DERMATOLOGY DEPARTMENT

Hyfrecator/ Electrosurgical instrument

1-Remote Control Handpiece:change power settings to maintain the sterile field while at the same time decreasing procedure time, power up/down handswitching pencil with 10 foot cord
2-Easily switch back and forth between settings depending on the procedure being performed Store up to 3 power settings (one per mode)
3-Continuously monitors the system for reliability and patient safety Self Diagnostic
4-Only US FDA (510K)Approved model should be offered.

Cryotherapy with liquid Nitrogen

1. Liquid Nitroge cryo system
2. High Quality Dewar Flask.
3. Elegant and stable Base
4. Light weigh easy to use with special ACNE spray
5. US FDA (510K) / European CE (issued by notified body only)/ISO Approved model should be offered.

Iontophoresis machine

1. Safe medical procedure that involves sending mild electrical currents through water and into the skin
2. To treat sports injuries by delivering anti-inflammatory medications directly into the skin
3. Adjustable current strength
4. No electric shocks (electric fence effect has been eliminated
5. Compact and lightweight (only 2.5 kg) ->Smart carrying case

6. 1 Indetouch Iontophoresis Device (Digital Model) 1 230v 50hz walls plug 1 carrying case 2 aluminum electrode plates (used for hand and feet treatment) 1 pair of thick connection cables with a 4 mm Standard banana Plug 2 Plastic Water Tray.
7. US FDA (510K) / European CE (issued by notified body only) Approved model should be offered.

Light microscope

1. Binocular microscope with universal infinity corrected optical system
2. Halogen light source illumination
3. Rigid frame with ergonomics design
4. Binocular observation tube with inclination of 45/30 degrees
5. Built in torque adjustable focusing knob
6. Square mechanical stage with rigid hand coaxial control
7. Abbe condenser, Iris diaphragm
8. Revolving Quintuple nose piece (for objectives)
9. Plan achromat objectives 4X, 10X, 40X, 100X (Oil)
10. 40X, 100X objective should be spring loaded
11. Eye piece 10X (FOV 20)
12. Antifungal treatment should be applied to the observation tube, eyepiece and objective
13. Accessories, dust cover and power cord
14. Power requirement 220 V/50 Hz
15. US FDA (510K) / European CE (issued by notified body only) Approved model should be offered.

ORTHOPAEDICS - DEPARTMENT

Set for Hip Replacement

1. BASIC INSTR. SET, HIP-1
2. FORCEPS, GROSS-MAIER, CVD., 26.5 CM-2
3. TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM-6
4. TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM-6
5. SCALPEL HANDLE, NO. 4, 13.5 CM-1
6. SCALPEL HANDLE, NO. 4L, LONG, 20.5 CM-1
7. TC-DISS. SCISSORS, FINE, CVD., 20.5 CM-1
8. TC-DISSECTING SCISSORS, CVD., 23 CM-1
9. TC-DISS. SCISSORS, CVD., SERR., 18 CM-1
10. TC-SCISSORS, MAYO-LEXER, CVD., 16 CM-1
11. OPERATING SCISSORS, SH/BL, STR., 14.5 CM-1
12. TISSUE FORCEPS, 1X2 T., 16 CM-2
13. TISSUE FORCEPS, 1X2 T., 20.5 CM-2
14. TISSUE FORCEPS, 1X2 T., SLIM, 20.5 CM-1
15. ATR. FORCEPS, DE BAKEY, 2.7 MM, 20 CM-2
16. ATR. FORCEPS, DE BAKEY, 2.7 MM, 25 CM-1
17. HAEM. FORCEPS, MOSQUITO, CVD., 12 CM-4
18. HAEMOSTATIC FORCEPS, PEAN, STR., 16.5 CM-2
19. FORCEPS, KOCHER, 1X2 T., STR., 16.5 CM-4
20. HAEM. FORCEPS, MOSQUITO, CVD., 18 CM-2
21. FORCEPS, KOCHER, 1X2 T., STR., 22.5 CM-2
22. FORCEPS, GROSS-MAIER, STR., 26.5 CM-2
23. DISS. FORCEPS, OVERHOLT, NO. 4, 22 CM-1
24. TC-NEEDLEHOLDER, MAYO-HEGAR, 20 CM-2

25. TC-NEEDLEHOLDER, HEGAR, 20 CM-1
26. RETRACTOR, DOUBLE, ROUX, NO. 3, 17 CM-2
27. RETRACTOR, KOCHER, 61X20 MM, 23 CM-2
28. RETRACTOR, MIKULICZ, 90X35 MM, 25 CM-2
29. RETRACTOR, KOCHER, SEMISH., 6-PR., 22 CM-2
30. RETRACTOR, KOERTE, SHARP, 8-PR., 24.5 CM-2
31. RETRACT., ISRAEL, BL., 50X60 MM, 24.5 CM-2
32. RETRACTOR, VOLKMANN, SH., 1-PR., 21.5 CM-1
33. BONE LEVER, HOHMANN, 18 MM, 23.5 CM-2
34. BONE LEVER, HOHMANN, 22 MM, 25.5 CM-2
35. BONE LEVER, HOHMANN, 43 MM, 23.5 CM-2
36. BONE LEVER, HOHMANN, 70 MM, 25 CM-1
37. SCHUMACHER BONE RETRACTOR, 35X18MM, 29CM-1
38. BONE LEVER, HOHMANN, 43 MM, 23.5 CM-1
39. UTERINE SCOOP, SIMON, NO. 2, 23.5 CM-1
40. UTERINE SCOOP, SIMON, NO. 4, 24 CM-1
41. BONE CURETTE, 37x30MM, 32,5CM-1
42. BONE HOLDING FORCEPS, LANGENBECK, 21 CM-1
43. BONE RONGEUR, RUSKIN, CVD., 24 CM-1
44. ELEVATOR, LANGENBECK, 10 MM, 19.5 CM-1
45. RASPATORY, LANGENBECK, CVD., 19 CM-1
46. RASPATORY, SEMB, NO. 5, 15 MM, 23 CM-1
47. BONE LEVER 24CM, 17 MM-1
48. REAMER, PERTHES, 21.5 CM-1
49. OSTEOTOME, LEXER, 20 MM, 22 CM-1
50. OSTEOTOME, LEXER, 30 MM, 22 CM-1
51. OSTEOTOME, LAMBOTTE, 30 MM, 24 CM-1
52. LEXER OSTEOTOME 10 MM ANGULAR, 27,5 CM-1
53. LEXER OSTEOTOME 15 MM ANGULAR, 27,5 CM-1
54. SWAN-NECK GOUGE, 16MM-1
55. SWAN-NECK GOUGE, 25MM-1
56. CASPAR TAMPERS 7 MM 20 CM-1
57. TAPPET 12MM DIAMETER, 20 CM-1
58. MALLET, RELPASE FREE, 620 GR., 26.5 CM-1
59. STILLE OSTEOTOME CURVED 20 CM 20 MM-1
60. LUXATIONSHEBEL Z. ABHEB. D.FEMURKOPF-1
61. CARTILAGE SCISSORS, RESANO, ANGLED, 25CM-1
62. CART. FORCEPS, BIRCH.-GA., CVD., 20.5 CM-1
63. IMPACTION INSTR. F. HIP PROSTHESES/HEADS-1
64. NEEDLE CASE, ROUND, PERF., F. 55-309-65-1
65. BOWL, METAL, H = 55, Ø 128 MM, 0.35 L-1
66. KIDNEY DISH, 250X140X40 MM-1
67. GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH-1
68. GUIDE NEEDLE, CVD., KNIFE SHAPE, 14 CH-1
69. GUIDE NEEDLE, CVD., KNIFE SHAPE, 16 CH-1
70. CONTAINER MS, 60X30X16 CM, HANDLE GREY-1
71. Tray DIN, 480x255x33 mm-1
72. Tray DIN, 480x255x73 mm-1
73. COLOR-TAG, RED-2
74. CODING LABEL, WITH TEXT, WITHOUT HOLE-2
75. Only US FDA (510 K) Approved model should be offered.

Set for knee replacement

1. BASIC INSTRUMENT SET, KNEE REPLACEMENT
2. FORCEPS, GROSS-MAIER, CVD., 26.5 CM-2
3. TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM-4
4. TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM-4
5. SCALPEL HANDLE, NO. 4, 13.5 CM-2
6. SCALPEL HANDLE, NO. 3, 12 CM-2
7. TC-DISS. SCISSORS, FINE, CVD., 18 CM-1
8. TC-DISS. SCISSORS, FINE, CVD., 20.5 CM-1
9. TC-DISS. SCISSORS, CVD., SERR., 18 CM-1
10. TC-SCISSORS, MAYO-LEXER, CVD., 16 CM-1
11. OPERATING SCISSORS, SH/BL, STR., 14.5 CM-1
12. TISSUE FORCEPS, 1X2 T., 14.5 CM-2
13. TISSUE FORCEPS, 1X2 T., 20.5 CM-2
14. ATR. FORCEPS, DE BAKEY, 2 MM, 16 CM-2
15. HAEM. FORCEPS, MOSQUITO, CVD., 12 CM-6
16. FORCEPS, KOCHER, 1X2 T., STR., 16.5 CM-6
17. DISS. FORCEPS, OVERHOLT, NO. 3, 21.5 CM-1
18. TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM-1
19. TC-NEEDLEHOLDER, MAYO-HEGAR, 18.5 CM-1
20. TC-NEEDLEHOLDER, HEGAR, 20 CM-1
21. RETRACTOR, DOUBLE, ROUX, NO. 1, 14.5 CM-2
22. RETRACTOR, LANGENBECK, 50X11 MM, 22 CM-2
23. RETRACTOR, KOCHER, 61X25 MM, 23 CM-2
24. RETRACTOR, VOLKMANN, SH., 1-PR., 21.5 CM-1
25. RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM-2
26. WOUNDSPREADER, SHARP, 3X4 T., 16 CM-1
27. ELEVATOR, LANGENBECK, 7 MM, 19.5 CM-1
28. WAGNER BONE ELEVATOR, BLUNT, 17CM-2
29. LANGE-HOHMANN LEVER MOD, 280MM-2
30. BONE CURETTE, VOLKM., OVAL, NO. 1, 17CM-1
31. WELLER MENISCUS FORCEPS, CVD., 20CM-1
32. BONE HOLDING FORCEPS, LANGENBECK, 21 CM-1
33. BONE RONGEUR, RUSKIN, CVD., 19 CM-1
34. BONE RONGEUR, RUSKIN, CVD., 24 CM-1
35. BONE CUT. FORCEPS, RUSKIN, CVD., 18.5 CM-1
36. RASPATORY, LAMBOTTE, 15 MM, 21.5 CM-1
37. OSTEOTOME, LEXER, 10 MM, 22 CM-1
38. OSTEOTOME, LEXER, 15 MM, 22 CM-1
39. OSTEOTOME, LEXER, 25 MM, 22 CM-1
40. MALLET, RELPASE FREE, 620 GR., 26.5 CM-1
41. CASPAR TAMPERS 5 MM, 20 CM-1
42. CASPAR TAMPERS 7 MM 20 CM-1
43. FLAT NOSE PLIERS, TRANSM., WIDE, 18 CM-1
44. X-RAY RULER, PLASTIC, FLEXIBLE, 50 CM-1
45. PROBE, BUTTON END, Ø 2.0/2.0 MM, 18 CM-1
46. NEEDLE CASE, ROUND, PERF., F. 55-309-65-1
47. BOWL, METAL, H = 40, Ø 80 MM, 0.14 L-1
48. BOWL, METAL, H = 55, Ø 128 MM, 0.35 L-1
49. KIDNEY DISH, 250X140X40 MM-1
50. GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH-1

51. GUIDE NEEDLE, CVD., KNIFE SHAPE, 14 CH-1
52. CONTAINER MS, 60X30X16 CM, HANDLE GREY-1
53. Tray DIN, 480x255x33 mm-1
54. Tray DIN, 480x255x73 mm-1
55. COLOR-TAG, RED-2
56. CODING LABEL, WITH TEXT, WITHOUT HOLE-2
57. Only US FDA (510 K) Approved model should be offered.

Interlock nailing sets

1. Material Should be titanium (Instruments)
2. US FDA (510 K)/ European CE Approved model should be offered.
3. Drill Bit, 3.2mm dia., L 225/200mm for quick coupling - 2Nos
4. Holding Sleeve, large, L 120mm -1 Nos
5. Screwdriver, hexagonal, large, L 280m- 1Nos
6. Pin Wrench, 4.5mm, L 120mm - 1 nos
7. 5Combination Wrench, 11/14mm, L 150mm -1 no's
8. Awl, small, L 210mm 17Tissue Protector, L 140mm -1nos
9. T-Handle with quick coupling, L 85mm -1nos
10. Removing Tool for Syn Ream -1 nos
11. Hand Reamer, 8.0mm dia., for predrilling in pseudarthroses--1 nos
12. Reaming Rod, 2.5mm dia., L 950mm, 3.5mm olive--1 nos
13. Flexible Shaft, 7.0mm dia., reaming depth to 470mm -1 nos
14. Cleaning Brush for 3.6mm Flexible Shaft, L 600mm -1 nos
15. Reduction Head, straight -1 nos
16. Reduction Head, displacement 2.5mm - 1 nos
17. Reamer Head, 8.5mm dia. -1 nos
18. Reamer Head, 9.0mm dia. -1 nos
19. Reamer Head, 9.5mm dia. -1 nos
20. Reamer Head, 10.0mm dia. -1 nos
21. 20Reamer Head, 10.5mm dia. -1 nos
22. Reamer Head, 11.0mm dia. -1 nos
23. Reamer Head, 11.5mm dia. -1 nos
24. Reamer Head, 12.0mm dia. -1 nos
25. Reamer Head, 12.5mm dia. - 1 nos
26. Reamer Head, 13.0mm dia. -1 nos
27. Reamer Head, 13.5mm dia. -1 nos
28. Guide Rod, 3.0mm dia., with flat tip -1 nos
29. Socket Wrench 11mm, cannulated, L 180mm - 1 nos
30. Driving Piece, curved, L 120mm -1 nos
31. Driving Head -1nos
32. Guide Rod, cannulated, L 455mm -1nos
33. Ram -1nos
34. Grip, flexible, L 170mm -1nos
35. Insertion Handle, for Tibial Nails 9.0 to 14.0mm dia.-1nos
36. Threaded Bolt, conical, for Tibial Nails 9.0 to 14.0mm dia.-1nos
37. Knurled Nut for Tibial Nails 9.0 to 14.0mm dia.-1Nos
38. Insertion Handle, for Femoral Nails 9.0 to 12.0mm dia.-1Nos
39. Threaded Bolt, conical, for Femoral Nails 9.0 to 12.0mm dia.-1Nos
40. Knurled Nut for Femoral Nails, 9.0 to 12.0mm dia -1nos

41. Protection Sleeve 11.0/8.0, L 96mm -1nos
42. Drill Sleeve 8.0/4.5 -1nos
43. Insert Drill Sleeve 3.2 -1nos
44. Trocar 8.0mm dia., L 110mm -1Nos
45. Depth Gauge for Locking Bolts -1nos
46. Drill Bit, 4.0/4.5mm dia., L 225/200mm, for quick coupling-2nos
47. Holding Forceps for Reaming Rod 2.5mm-1 nos

Fracture Reduction OT Table

1. Operating tables provide an elevated surface that supports the patient's body during surgical procedures, stabilizing the patient's position and providing optimal exposure of the surgical field. C-arm compatibility with electro-hydraulic operation table.

Essential technical specifications:

2-Minimum six section table-top, which should be X-Ray translucent for fluoroscopy with 'c' arm and with radiolucent mattress.

3. The table should have a provision to be operated in the following modes:

a. Electrically by remote control and should have a removable standby handset with rollable cord located on the table column as well as an additional manual auxiliary mode facility.

b. It should have integrated batteries with a capacity for approx. 80 operations and an integrated battery charger.

4. It should have at least the following electrical functions:

(a) High / low approx. 600/1020-1050mm
(b) Side tilt / lateral left and right approx. 15-30°
(c) rendelenburg and Reverse Trendelenburg approx. 20-25/30-35°
(d) Back section approx. +70° / -40°
(e) Leg section approx. +70° / -90°

5. The leg section must be removable and the leg section interface must allow the alternative attachment of electrically adjustable leg holders or an optional electrically adjustable Back section for shoulder arthroscopy

6. Manual adjustments (hydraulic/gas spring supported). It should have at least the following functions:

(a) Head section up and down approx. +25° / -45°
(b) Divided leg section up & down approx. +20° / -90°
(c) Swivelling of leg sectionsapprox. 70°
(d) Back section up & down approx. +70° / -40°
(e) High / low approx. 600-1050mm
(f) Side tilt / lateral left and right approx. 15-30°
(g) Trendelenburg and Reverse Trendelenburg approx. 25/35°. The table can be operated manually, electrically on AC mains power or on batteries.

7. The remote control should have a clearly labelled control panel for main adjustments such as height, lateral, Trendelenburg / Reverse Trendelenburg, back section, leg section.

8. It must have an indication of the load control of the batteries.

9. The control unit should have a backlit display and control panel ensuring a safe and easy handling in the darkened operating room when doing minimally invasive surgery.

10. Optional provision of Bluetooth/Infrared remote control unit .

11. should preferably have Integrated software information system to simplify maintenance and service of the table
12. Radiolucent six section table top in head section, short back section, back section extension, seat section with perineal cut, divided leg section. With quick release facility to remove or interchange head and leg sections (Reverse Mode).
13 should preferably have antistatic and liquid-tight mattresses with shock absorbing foam for Decubitus Prophylaxis and for reducing the cooling of the patient during surgery. The mattresses must be free from Latex material. Mattress must preferably have a thickness 50-80mm.
14. All metal components of the table should be made of corrosion resistant and disinfectant-proof stainless steel.
15.Mobile table-base on antistatic heavy-duty swivel castors with central brake ensuring a stable base.
16. Should also be suitable for obese patients. Maximum tolerable weight should be 450 kgs.
17. Should have stainless steel accessory rails on both sides of the table-top to hold various accessories.
18. Should be supplied with the accessories for orthopaedic traumatology, spinal surgery and shoulder and knee arthroscopy. Orthopaedic accessories:
a.Extension Device with following Pair of Adapters Countertraction Post for femur Telescopic bar long Telescopic bar short Screw tension device Foot Plate support Side rail Ext Supporting bars Radial Setting clamp Transport Cart
b.Foot Plate (Pair)3.Counter traction post for femur c.Rotation & tilting clamp
d.Traction Stirrup clamp
e.Countertraction Post tibia f.Condyle Fixation
g.Universal support for positioning lower Leg h.Pad for disc operations
i.Fixture for body support j.Lateral Support k.Shoulder support
l.Back buttocks support
m.Pubis-sacrum-sternum support
n. Allen Arm/Hand table (Radiolucent)
19. US FDA (510 K) / European CE(Issued from notified Body) Approved model should be offered.

Simple OT tables

1. Motor driven with remote as well as auxiliary drive with manual overdrive/ Electrohydralic table
2. 3-part carbon top with the following functions
3. Height: 600-1050 mm
4. Side tilt: +15 - 20 degrees
5. Back section adjustment: - 15 degrees to 70 degrees
6. Foot section adjustment: - 90 to 0 degree, detachable
7. Trendelenburg: 20 - 25degree
8. Anti-Trendelenburg: 30-35degree
9. Head section adjustment: -40 to -30 degree, detachable
10. Maximum width: 540 mm without side rails
11. Length: 1950 mm
12. Standard accessories:
13. Padded arm rest with straps - pair with damps
14. Anesthesia screen with clamps
15. Side supports: pair with clamps
16. Shoulder supports: pair with clamps
17. Knee crutches: pair with damps
18. X-ray cassette tray
19. Kidney bridge position to be achieved by Flex movement of the table

20. Infusion rod with clamp
21. Adapter for orthopaedic lower limb attachments
22. Telescopic extension bars
23. Turn over screw tensioner
24. Adjustable foot support with rotation
25. Traction: foot apparatus Adult ; Paediatric
26. Pelvic support with central , right and left post positions
27. Carbon top hand operating table: 80- 90cm x 35-40cm with support rod and side rail
28. Stirrup clamp
29. Knee support: radiolucent and padded; height adjustable with telescopic support post attachableto both sides of the table
30. Knee support: radiolucent and padded; height adjustable with telescopic support post attachable to extension bar
32. Femoral counter traction post including pads should be radiolucent
33. Calf support with clamp and pad
34. Accessories stand : mobile with frames and baskets of stainless steel 3 level for storing small parts and accessories
35. Cushions and soft frame for spinal frames
36. US FDA(510K) / European CE(Issued from notified Body) Approved model should be offered.

Pneumatic Drill set reamer Set

1. Cannulated Pneumatic Drill handpiece -Compatible with existing attachments
2. Cannulation with 3.2 mm diameter Operating pressure : 6 -7 bars (maximum 10 bars)Weight of handpiece600-800grams without any attachments Power 120 w Variable Speed from 0-900 rpm
3.Noise Level of max 75 db Separate forward and reverse triggers Safety Device to cut off air supply to drill on handpiece is compatible with radiolucent drive Instant change between clockwise and counterclockwise rotation Offers reliable protection of soft tissues with oscillating drill attachment Fully Autoclavable Fully machine washable
4. All Attachments can be fitted on single handpiece
5. The reverse trigger automatically locks when the oscillating saw and the reduction drive attachments are attached to handpiece Adapter for Lubrication For oiling of hand piece
6. Supply, Installation and Commissioning of Equipment required in Orthopedics
7.AutoclavableShould be made of Stainless Steel3Double Air Hose Length 5 meters.
8.AutoclavableShould have concentric inlet and outlet pipes
9. Radiolucent Drive Precise aiming and drilling under image intensifier control for locking intramedullary nails
10.Drill Bit diameter 2.0 to 4.5 mm, Length 100 to 150 mm, Usable length 80 to 120 mm
11.Reduced exposure to x-rays5Jacob's Chuck attachment huck capacity up to 0 to 6.5 mm Cannulation of 3.2 mm diameter
12.Maximum Speed of 900rpmTorque of 4-5 Nm6Quick Coupling attachment Cannulation 3.2 mm
13.Maximum Speed: 900 rpm Torque of 4-5 Nm7Reduction Drive for Intramedullary / Acetabular
14.Reaming with reverse option Reaming Speed of 300-350 rpm Reaming
15. Torque of 12-14 Nm Option of attachment with reverse rotation
16. Quick Coupling for K-wire Continuous adjustment facility for wire diameter from 0.6 to 3.2 mm
17.Speed up to 900 rpm9Oscillating Saw attachment with key
18.It can operate on an oscillating frequency of 0 to 14,000 osc/min.
19.Attachment can be locked in 8 different positions10Quick Coupling for drill bits
20. Speed: 0–900 rpm Torque: 0–4.7 Nm Cannulation: 1.3 mm11Quick coupling for DHS / DCS triple reamers
21. Oscillating Saw Blades (All Sizes)For Trauma For Joint replacement 613 Aluminum case for Pneumatic Drill system, Perforated, Autoclavable 114Aluminium Box for accessory attachment, Perforated, Autoclavable1Technical Specifications for Pneumatic Drill Set–1.

22. Company should have relevant experience in successful execution of similar work at least in five Institutes of national importance and central government Institutes
23. Company should be at least in its 5 years of operations at the date of Submission of tender.
24.Physical demo may preferably be arranged at the time of requirement.
25. Instruments quality should meet the international standard.
26. Only US FDA(510K) Approved model should be offered.
26.Company should provide material certificates.
27. Principle Company may preferably have certificate for passivation process of instrument.

Electric Drill & Reamer Set

1 Description of Function
1.1 Drilling machines are used in several orthopedic surgical procedures, for example, in making holes in bones for bone screws and in drilling out the medulla or marrow areas of bones.
2 Operational Requirements
2.1 Electric driven, autoclavable, versatile, forward & reverse mode with oscillating saw handpieces
3 Technical Specifications
3.1 1. Heavy duty electrically operated console/controller
Input voltage: 220-240V/domestic power supply.
Frequency: 40-70Hz
Fuses: 3.5-4.5mA/commonly used for such device.
With min 12 ft autoclavable quick coupled light weight cord.
Specification for Oscillating Saw Handpiece
Pistol type
Autoclavable
Speed: min. 0-10,000cpm
Wrench free blade placement
Variable speed control with trigger
Plane of Blade movement: 360 degree
• Specification of Oscillating blade:
Thickness : 0.6mm-12mm
Cutting Depth : 60mm-95mm
Width : 10mm-25mm
ACL Blades : 5mm-9mm
4. Specifications for Handpiece for Drill & Reamer
Autoclavable
Pistol Grip & Toolless Assemble of attachment
Cannulated Quick Coupling Connection
Drill Speed Range: 0-750rpm
Torque: 30-35 in IB
Speed Control: Through trigger
Forward Reverse Mode: Yes
Oscillating mode for drilling/reaming: 270 deg forward &Reverse.
Screw Mode
Tap Mode
Reaming Attachment: 0-250 rpm 100 in lb torque, Cannulated
5. Drill Reamer handpiece attachments
Jacob chuck for drill 5/32”
Jacob chuck for drill 1/4 “
Wire driver attachment
AO attachment for drilling
AO attachment for reaming
Zimmer/Hudson Attachment for reaming

Reciprocating Saw attachment
Radiolucent Drive adapter
System Configuration Accessories, spares and consumables As specified
5 Environmental factors
5.1 1. The unit shall be capable of being stored continuously in ambient temperature of 0-50 deg C and relative humidity of 15-90%.
2. The unit shall be capable of operating continuously in ambient temperature of 10-40 deg C and relative humidity of 15-90%
6 Power Supply
6.1 Power input to be 220-240 VAC, 50Hz fitted with Indian plug
7 Standards, Safety and Training
7.1 1. Only US FDA(510K) Approved model should be offered.
2. Manufacturer should have ISO certification for quality standards.
3. Comprehensive training for lab staff and support services till familiarity with the system on site.
4. Certified to be meeting Electrical safety standards for medical equipment
7.2 Should have local service facility. The service provider should have the necessary equipment recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.
8 Documentation
8.1 1. User/Technical/Maintenance manuals to be supplied in English.
2. Certificate of calibration and inspection.
3. List of Equipment available for providing calibration and routine Preventive Maintenance Support. as per manufacturer service/ maintenance manual.
4. List of important spare parts and accessories with their part number and costing.
5. Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of hospital technician and company technician clearly spelt out.
6. Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number with authenticated catalogue/manual, without which it will not be considered.

Fluoroscopy machine (C-ARM)

1. Mobile surgical image intensifier system with counter balanced C-.arm for fluoroscopic and General work.
2. X-ray Generator and X-ray tube (Specify the name of manufacturer)
3. X-ray generator should be of high frequency technology. (Specify the name OF manufacturer)
4. Fluoroscopy Mode 40-110 KV or more
5. With last image hold 0.2 mA to 7mA for high contrast mode
6. Cassette exposures up to 60mA should also be possible.
7. System should have provision for Automatic Dose Rate Control.
8. X-ray tube should be Dual focal spot type. Specify the make, model and name of manufacturer
9. Charm
10.Orbital movement 125° (– 35° to + 90°)
11.Angulation ± 180° or more
12. Horizontal movement 20 cm or more
13. C-arm depth 60 cm or more
14. Swivel range ± 12° or more
15. Motorized Vertical movement 40 cm or more
16. Tube to II distance 85 cm or more
17. Radiation indicators
18. X-ray image intensifier Specify the make, model and name of manufacturer
19. Size 9 inch (Specify the name of manufacturer)
20. Company should be able to demonstrate complete IITV Chain image resolution of minimum 12 lp/Cm with appropriate tools.

21. image rotation facility
22. Unit should be provided with Cassette holder.
23. It should be possible to storage minimum 4 images thru control console. A separate image management system with PC/Laptop should be provided by the company to store images in 200GB or more HDD with post processing, with storage/retrieve facility on a CD/Pen drive.
24. It should have a CMOS sensor based camera of latest technology with 1k x 1k matrix. Specify the make, model and name of manufacturer.
25. Image Viewing-
15" or more TFT monitors of medical grade mounted in a trolley. Specify the make, model and name of manufacturer
26. Please specify the make and relevant details like brightness, resolution ,etc.
27. Accessories
Sterile cover
Lead aprons 6 Nos
28.ONLY US FDA (510k) Approved model should be offered. & Type Approval AERB model should be offered.

Mobile X-ray Machine 100 mA

General-purpose mobile diagnostic x-ray system used in a variety of routine x-ray imaging applications.
1) High Frequency generator of 50KHz or more compatible with conventional and computerized radiography.
2) Must have a digital display of mAs and kV.
3) Ergonomically designed unit with total soft touch switches for various operations.
4) Self Diagnostic Program with indicators for earthing fault error, KV error or filament error.
5) kV range at least 40kV to 100kV, digitally displayed mAs range at least 0.5 to 250 mAs or more.
6) Exposure time range at least 10 ms to 5s.
8) Tube power rating at least 4 kW.
9) Adjustable multileaf collimator, rotatable 90ºwith patient centring light.
10) Must be supplied with protective dust cover at least for control panel.
11) Should be compatible with various basinet size in NICU & PICU.
12) The generator should have microprocessor/micro-controller based electric overload system.
Settings
1) KV increase & decrease switches.
2) mAs increase & decrease switches.
3) Machine On/Off Switch.
4) Collimator lamp On/Off switch.
5) X-rays ON indicator should available.
6) Foot switch should available for trigger X-rays. Dimensions (metric)
1. Unit should have max. 7 foot in height, 2 foot in width and 5 foot in length.
2. Weight -Maximum 160 Kg.
Configuration
1) The unit must have an effective braking system for parking, transport and emergency braking.
2) The tube stand must be fully counterbalanced for rotation in all directions.
3) It must have an articulated arm for imaging with any patient position.
4) All cables should be concealed in the arm system.
5) Unit base wheels must be easily accessible for cleaning. Safety / Certificate & Electrical configuration
1. Valid AERB type approval (national standards) certificate to be submitted.
2) Should work on 220VAC +/-10%, 50 Hz.
3) US FDA (510K) / European CE (issued by notified body only) & AERB Approved model should be offered.

Arthroscope

1. 4mm 30D autoclavable scopes
2. sheath
3. 4.All Attachments can be fitted on single handpiece
4. 4mm 70 D scope
5. Light Source LED
6. Camera Controller
7. CAMERA HEAD
8. HD LED Monitor
9. 10.Drill Bit diameter 2.0 to 4.5 mm, Length 100 to 150 mm, Usable length 80 to 120 mm
10. Autoclavable Light Guide
11. Irrigatiob Control
12. 15.Torque of 12-14 Nm Option of attachment with reverse rotation
13. SHAVER CONSOLE
14. SHAVER HANPIECE
15. FOOTHSWITH
16. RF GENERATOR
17. MOBILE TROLLEY
18. Hand instruments
19. ACL/PCL Set
20. Only US FDA (510K) Approved model should be offered.

GENERAL MEDICINE

Ophthalmoscope

1. Disposable Otoscope Tips - 10 nos.
2. Reusable Otoscope Tips - 4 nos
3. AA batteries required.
4. Original Hard Case
5. ONLY US FDA (510K) / European CE (issued by notified Body) Approved model should be offered.

Flexible Video End viewing Oesophago-Gastroduodenoscope

1. Direction of view should be zero degree. Minimum of 100 degree (app) of field of view. Range of observation from 5 mm to 90 mm.(app)
2. Angulations of tip not less than 200 deg(Up) and 90 deg(down)with right to left movement of minimum 100 deg.(app)
3. Insertion tube outer diameter of more than 8 mm with a working length of not less than 1000 mm. Distal end of less than 8 mm.
4. Instrument channel of more than 2.3 mm Compatible with the video system specified. Video processor with light source & Monitor Power supply 200-240 V A/C
5. PAL type video signal. The camera should be 3 chips CCD with high definition (HD) Output with provision of recording.
6. Controls for color adjustment, to enhancement and balance settings.
7. Controls to freeze images and Zoom Image

8. Operates on Xenon/LED lamp (for Xenon-150 W) Should have an Emergency changeover lamp. 19” LCD color monitor with XGA resolution
9. Only US FDA (510K) Approved model should be offered.

Flexible Video Colonoscope

1-Video colonoscope – insertion tube dia 13.2 mm, instrument channel 3.8 mm,angle of view 140
2-deg., focal range -4 to 100 mm, Angulation Up/Down 180/180 deg. R/L 160/160 deg. with 1700 mm workding length, total length 2023 mm
3- Only US FDA (510K) Approved model should be offered.

Flexible Video Side viewing Gastroduodenoscopy for ERCP

1 Field of view 140 degree
2 Direction of view Forward viewing
3 Depth of field 4 to 50 mm
4 Total length - 1340 to 1365mm
5 Working length more than 1000mm
6 Insertion tube outer diameter 11 to 12mm
7 Distal end diameter 11 to 12mm
8 Bending section tip deflection
a Up – 210 degrees
b. Down – 90 to 120 degrees
c. Left - 100 to 120 degrees
c. Right – 100 to 120degrees
d. Instrument channel - Diameter – more than 3.5mm VIDEO COLONOSCOPE
9 Field of view 140 degree
10 2.Direction of view Forward viewing
11 Depth of field 3 to 100mm
12 4.Total length - 1600mm to 2100mm
13 5.Working length more than 1300 mm to 1750mm
14 Insertion tube outer diameter 13mm or more
15 7.Distal end diameter 13 to 14mm
16 8.Bending section tip deflection
i. Up – 180 degrees
ii. Down –180 degrees
iii. Left - 160 degrees
iv. Right – 160 degrees

v) Instrument channels - Diameter – First channel more than 3.6mm/ second channel more than 2.6mm.

17- VIDEO PROCESSOR WITH LIGHT SOURCE COMPATIBLE WITH THE ABOVE MENTIONED VIDEOSCOPE.

a) Colour system- video HD processor
b) Xenon lamp 150W
c) Out put for high video image transfer using external software and computer
d) Convenient digital to digital recording of both still and moving images using external software and computer
e) Picture and picture display for any combination of endoscopic images.
f) Convenient index display for documentation.
g) Scope ID function for endoscopy suite management.
j) Power supply : 220 – 240V AC
k) Should include Air feeding & water feeding system with detachable water container.

HIGH DEFINITION LCD COLOUR MONITOR (FLAT PANEL)

a) Full digital High Definition TV compatible high resolution LCD monitor
b) LCD Screen 19 or more inches in size
c) Power supply 220 – 240 V AC

Hardware for recording, archiving and printing

State of the art hardware for recording, storing and printing reports compatible with the system

Furniture

Mobile cart with suitable compartments to house all the above equipment with built in plugs switches

18-System Configuration Accessories, spares and consumables System as specified

- Biopsy forceps :3 each
- Foreign body grasper (basket type) 2
- Polypectomy snare:2
- Standard tip canula:2 types – 10 each
- Polypectomy cautery system :1 No
- Endoscopic washer -1 no

19-Only US FDA (510K) Approved model should be offered.

20-On site Comprehensive training for lab staff and support services till customer satisfaction with the system

Proctoscope

1. Working Attachment, for use with Proctoscope and Telescope Proctoscope with obturator O.D.: 24 mm, working length: 8 cm.
2. Straight Forward Telescope 30°, Eyepiece 45° angled, diameter 4 mm, length 9.5 cm, autoclavable, Fiber optic light transmission incorporated
3. Sponge Holder, working length 20 cm Dressing Forceps, total length 19 cm
4. Fistula Hook, total length 19 cm
5. Proctoscopy Punch, Through-cutting, cutting width 3.4 mm, straight jaws, sheath diameter 3.5 mm, working length 20 cm

6. Injection Needle, straight, LUER-Lock, tip diameter 1.0 mm, working length 14 cm Hemorrhoid Grasping Forceps, for use with ligature instrument
7. Ligature Instrument, for treatment of hemorrhoids, working length 17 cm including: Loading Cone,
8. Only US FDA (510K) Approved model should be offered

Fiber optic bronchoscope (May be shared with TB&CD)

1. Flexible Fibre Optic bronchoscope
2. Cold Light Source
3. Camera
4. Monitor
5. Video recording digital, preferably USB based video recording device
6. Trolley
7. The working length of the fibre scope should be 60 cms to allow mounting of Endotracheal tube on the scope before performing Bronchoscopy.
8. The outer diameter should be less than 3.7 mm and allow mounting of tube size less than 4.5 mm to the scope, lesser diameter preferable. Suction channel is a must.
9. Range of bending at the tip should be minimum 180 degree up and 130 degree down approx.
10. Compatible light source. Automatic light adjustments to maintain optimum brightness. High efficiency halogen source should be suplied with compatible fiberoptic cable
11. Camera processor should give at least two output
12. a) S-video
13. b) Composite video
14. Compatible single chip camera system to give clear and big view of structures.
15. At least 14" colour monitor display.
16. Digital recording directly from camera processor without computer in between.
17. Four section trolley for organizing fiberscope and facility to hang the fiberscope without bending.
18. Leak tester to be provided.
19. Standard accessories including brush for cleaning the bronchoscope lumen.
20. Standard USB video recorder
21. Should work on 220VAC +/-10%, 50 Hz.
22. US FDA (510K) approve model should be offered.

Infusion Pump

1. Flow rate range 1 to 1000 ml/h in normal mode (1 ml/h increments).
a. to 100 ml/h in micro-infusion mode (0.1 ml/h increments).
2. Flow rate accuracy + 5% with recommended sets.
3. Volume range § 1 to 9999 ml in normal mode (1 ml increments).
a. to 999.9 ml in micro-infusion mode (0.1 ml increments).
4. Infusion time adjustable from 1 minute to 96 hours (1 min. increments).
5. Setting modes flow rate only, flow rate + volume, volume / time, rate + time, ramp up/ramp down, primary/secondary,
6. sequential, bolus, induction/loading dose, micro-infusion.

7. OCS (Occlusivity Check system)set thus preventing all risk of free flow.KVO rate 3 ml/h, adjustable.
8. Pressure limit 750 mmHg, adjustable from 100 to 900 mmHg (50 mmHg increments).
9. Pause function adjustable from 1 minute to 24 hours.
10. History module up to 750 last dated events.
11. Configuration infusion modes (micro or macro-infusion), ramp up/ramp down, sequential, induction, bolus, primary
12. /secondary, keyboard lock, KVO, pressure limit, display of drug name, time and hour setting,
13. language, LCD contrast, alarm sound level, ward name, maximum authorised flow rate, air bubble
14. size, recall of last parameters at power ON, display mode, volume cumulating, end of infusion prealarm setting.
15. RS 232 connection bi-directional connection Nurse call outlet for alarm report.
16. Safety features and Alarms § air detection: set at 250 µl over the last 15 minutes, adjustable.
17. protections against free flow: check of pump + set occlusivity (OCS test), automatic clamping of the set at door openning.
18. check of line: OCS test, door open, set positioning, set installation, downstream occlusion,upstream occlusion, line disconnection.
19. check of infusion: End of infusion warning, end of infusion, empty container, flow error,unconfirmed setting, end of pause.
20. check of device: OCS test, door open, mains power disconnection, low battery, discharged battery, technical fault, auto-test, motor rotation.
21. detection of occlusions: downstream and upstream.
22. DPS (Dynamic Pressure System): detection of pressure variations in the line (increase, drop)
23. allowing both a faster occlusion detection or a line disconnection.
24. anti-bolus system: automatic bolus reduction at occlusion release.
25. keyboard lock: protection against change of settings, function available in configuration.
26. Technical specifications
27. Pumping system second generation linear wave peristaltic pumping system controlled by an inteligent software for a constant and precise flow rate.
28. Pump fixation the Optima VS can be placed onto a table, or secured to a pole or to a rail with the incorporated clamp.
29. US FDA (510K) Approved model should be offered.
30. complies with EN 60601-1 and EN 60601-2-24 requirements.
31. waterproofness: protection against splashing liquid IP31.
32. protection against leakage current: type CF equipment .
33. protection against electrical shocks: class I equipment.
34. Mains supply 100-240 V ~ / 50-60 Hz.
35. Battery characteristics: NiMH – 6 V 2.7/3 Ah.
36. battery life: 5 h 30 in average at 125 ml/h.
37. Battery charging time device off: 5 hours / Device on: 16 hours.

Multipara Monitor

1. Should be able to monitor 5 lead ECG, SPO2, NIBP, Respiration rate and Temperature.

2. Should be portable with carrying handle.
3. Should have touch screen TFT display with at least 10 inches or higher with at least 6 waveforms and numeric display simultaneously.
4. Should have Lithium ion battery with 4 hours battery backup.
5. Should have keys for quick access to main functions.
6. Should have adult, pediatric and neonatal modes.
7. Should provide prominent prioritised audio, visual alarms for high, low heart rate, Spo2, RR, low battery, lethal arrhythmia recognition and ST Analysis.
8. Should have separate volume control for beep sound for QRS and alarm sound.
9. Should provide following accessories:
· Reusable adult 3 lead ECG cable set – 2 nos.
· Reusable adult and pediatric SPO2 finger probes – 1 each.
· Adult and pediatric NIBP cuff of different size
10. Should work on 200-240V AC/50Hz with inbuilt rechargeable battery.
11. Model Should by US FDA / CE (Issued by Notified Body) approve product.
12. Electrical safety conforms to standards for electrical safety IEC-60601/IS-13450.

Pulse Oximeter

1. Should have plethysmograph wave form with numeric display for SPO2 and Heart rate on LCD/TFT display screen.
2. Should have a SPO2 range of 0 to 100%.
3. Should have SPO2 accuracy of ±2%.
4. Should provide bar graph for pulse strength.
5. Audio and visual alarm for both upper and lower SPO2, Heart rate.
6. Beep sound and alarm sound should have separate volume control.
7. Should have a minimum of 2 hours' back-up time.
8. Should be a portable, light weight and desktop model.
9. Should work with input 200 to 240Vac 50 Hz supply.
10. Should have trend data of at least 24 hrs.
11. Model Should by US FDA / European CE (Issued by Notified Body) approve product.
12. Electrical safety conforms to standards for electrical safety IEC-60601/IS-13450

ECG MACHINE (12 Channel)

1. Simultaneous 12 Channel ECG recording with 12 lead simultaneous acquisition
2. Should have visual alarm for open lead
3. Should have a digital display of 12 channel ECG
4. QWERTY Alphanumeric keyboard.
5. Built-in ECG Parameters measurements and Interpretation
6. Minimum 40 ECG Storage inbuilt memory.
7. 3 Operating modes: Automatic, Manual and Rhythm
8. Should have a maintenance free digital thermal array printer
9. Printer should work with standard thermal paper (should be available in Local Market)
10. Should have 12 lead ECG preview display before taking printouts and should have printer on/off selection.

11. Should have ECG lead annotation facility
12. Machine should have sufficient battery backup for taking at least 25 nos ECG on a fully charged battery
13. Should supplied with 2 patient cable sets, 8 clip on electrodes, 12 chest electrode with silicon rubber bulb, 12 packets of recording paper,1 bottle of jelly and 12 nos. reusable button type electrode
14. Should operate on mains(220V-50Hz) and rechargeable battery
15. Recording speed should be 25 mm/ sec and 50 mm/ sec.
16. Should have defibrillation protection.
17. CMRR should be>90dB or ECG machine should have digital processing with atleast 7000 samples per second from each lead wire.
18. Frequency response 0.05 Hz to 150 Hz.
19. Should have a digital filter for AC and EMG.
20. Should be supplied with suitable stabilizer.
21. Should supplied with a suitable Trolley with following specifications
a) Trolley should made of Stainless Steel / Powder coated frame with SS 304 grade Top
b) Should be a 3-shelf (including the top) cart, one with a drawer for storing the accessories and consumables.
c) Should have four superior castors (two with brakes)
d) Trolley should have at least 30" height and the shelves should have sufficient space for storing the accessories
e) Top shelves shall be surrounded by railing.
f) Trolley should have a suitable cable arm firmly affixed having holder for ECG cables while not in use
22. Should work on a220VAC +/- 10 %, 50Hz AC Supply
23. US FDA (510K) / European CE(Issued from notified Body Approved model should be offered

Spirometer

Electronic with computer attachment and print out with software for complete analysis:
1. Should be electronic with computer attachment and print out with software for complete analysis
2. The System should be an economically oriented lung function measuring system for the determination of the static and dynamic lung volumes using the classical FRC- Helium rebreathing and the Diffusion Capacity by using the single Breath technique.
3. It should also be possible to measure Diffusion Capacity (DLCO) by Single-Breath intrabreath technique (non breath hold method)
4. Indian predictive values should be available for all measurements and both methods of estimation of lung diffusion.
5. The proper medical reference from where these values have been incorporated should be clearly mentioned.
6. The system should measure the following : .
a) Slow and forced spirometry (Inspiratory and Expiratiory Flow Volume Curve)
b) Lung subvolumes - Functional residual Capacity (FRC), Residual Volume (RV) . Total Lung Capacity (TLC) by FRC-Helium multiple breath technique
c) Diffusion capacity of the lung Single Breath Real Time & Single Breath Intrabreath (Non - Breath hold technique)

d) Diffusion capacity of the lung by the multiple breath technique.
7. The system should measure the following parameters : b) Lung Subvolumes : FRC, RV, TLC, RV% TLC etc. c)Diffusion capacity of the Lungs : Diffusion Capacity of the Lung: DLCOSB, DLCOSBc, VA, KCO, KCOc)
8. The system should have an easy to exchange, bidirectional heated pneumotach with the following specifications.
Range - Should be 0 to 20 lit/sec. Accuracy - Should be +/-2% Resistance - Should be less than 0.05 KPa/ lit/sec.
9. The system should have Multi gas analyser, He analyser and O2 Analyser with the following specifications:
a) Carbon monoxide analyser : Range - Should be from 0 to 0.4% Resolution/Accuracy should be 0.0002%/0.0003% Reproducibility should be 0.0006%
b) He Analyser :Range - Should be 0 to 9.5% Resolution/Accuracy should 0.005% /0.05 % Reproducibility should be 0.02%
c) O2 analyser Range - Should be 0 to 100%. Resolution / Accuracy should be 0.05% / 1.0% Reproducibility should be 0.1%. . .
10. The system should have a demand valve unit for direct breathing (no inspiratory bag) from pre-mix gas container, to minimize wastage of gas.
11. Branded PC with Core i3 2.8GHz or more, Min. 4GB RAM, Min. 250GB HDD, DVD R/W, 20" Display with Licenced Operating System Windows 7 Professional or Higher, Keyboard, Mouse, HP color Printer)
12. System software should have facility for entry of patient data and saving of this information in a data base system. Software should be compatible and the latest . It should be possible to configure different report out put formats
13. It should be possible to upgrade the system to the following:
a) Airway resistance by shutter method.
b) Respiratory impedance by Impulse Oscillometry system.
c) Respiratory muscle strength, Respiratory drive.
d) Compliance - Static / Dynamic system
e) Body Plethysmography. f) Aerosol Provocation system.
g) Ergospirometry & Stress test ECG.
14. The system should have fully computerised calibration procedure for flow sensor and gas analysers. The system should also have a check procedure during start-up.
15. It should be possible to integrate/connect the system in a local Area Network (LAN). The data base must be accessed in a novel authorised operating system.
16. The software for diffusion must have program for patient training of DLCO Test without gas.
17. The software must be able to set values for discard volume, Alveolar time & other parameters according to user requirement.
18. Power Supply Power input to be 220-240VAC, 50Hz Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
19. Only US FDA (510K) / European CE (Issued by a Notified Body) Approved model should be offered.

Equipment for Cardiac pacing

1. AED with voice prompt, compact and light weight.
2. Energy selection 5J to 200J in steps.
3. Momentary energy selection access on front panel.
4. Should have adult and paediatric paddles integrated on same handle.
5. Monitor should display selected and delivered energy.
6. Charging time maximum 7 secs for 200J.
7. Should have battery backup for 50 discharges of 200J.
8. Should have ECG inputs through paddles or 5 lead cables.
9. Should have display for selected ECG input source
10. Should supply three pairs of AED pads and the prices of AED Pads should be quoted separately in financial bid.
11. Only US FDA (510K) Approved model should be offered.

Echocardiography machine

1. system should have dedicated presets for application- Abdominal, Obstetrics & Gynaecology, vascular, paediatric, small parts, MSK, fetal Echo, urology, TDC, interventional radiology
2. System must be offered with a minimum 19 inch High resolution flat panel Medical grade display monitor with nearly infinite position adjustments.
3. System must be offered with 4D imaging with quantification software for general imaging and obstetrics & gynaecology applications.
4. System should have tomographic ultrasound imaging quantification to analyze multiple parallel slice of a volume data set, Review of 3D/4D, color 3D data set
5. System should have at-least Four univerasl active probe ports with electronic switching facility.
6. System should have minimum 1000 frames per second or more. Please specify through data Sheet.
7. The system should have 2 Lac or more digital processing channels.
8. System should support multi-frequency/broad band probes spanning a frequency of 2-16 MHz of even better
9. B mode & color mode should be available simultaneously side by side real time display. Digital zoom facility for region of interest in real time and frozen.
10. Image storage facility on inbuild hard disc or CD/DVD-Rw facility should be available. In built
11. hard disc with capacity of 500 GB. System should have extensive image management capability including thumb nail review, cineloop editing etc.
12. Auto trace & automayic Doppler calculations should be available in Live & frozen images.
13. Should have the state of the art Transmit Real time Compound Imaging Technology with multiple transmitted lines of sight, wherin Multiple Coplanar images from different viewing angles are obtained and combined into single compound Image at real-time frame rates for improves visualization.
14. System must be offered with speckle Reduction imaging technology to remove speckles and clutter artifacts
15. System should be capable of scanning depth of 30 cm.
16. System must be offered with a 2D frame rate of least 1000 frames/second.
17. System must be offered with user friendly high resolution user interface 9 " touch panel and backlit keyboard. User friendliness will be given priority.
18. Fully optimized CEUS mode should be available with simultaneous acquisition of B-mode and Contrast images in real-time in full screen or Side-by-side display. Micro-vascular Imaging, and persistence imaging should preferably be available to assess slow micro-vessel perfusion

19. System should have THI & should be able to work in combined mode of harmonic imaging and real time compound imaging to get excellent image quality
20. System should be capable of FUSION / navigation to allow Fusing real time ultrasound images with images acquired from other imaging modalities such as eg. CT,MRI,PET.
21. The system shall be capable of providing a " GPS" alike functionality. This allows the operator to mark a specific point of interest within the image (e.g. Liver lesion). While moving the transducer, the system indicates position and distance relative to the marked target.
22. The system should be quoted along Elastography imaging for Breast & Thyroid on appropriate probe and convex probe for liver.
23. The system should be DICOM ready.
24. System should have inbuilt Gel Warmer
25. Following probes to be quoted as standard
26. 1-5 MHz Convex Transducer with +/- 1 MHz variation acceptaed for General Imaging, Renal. OB/GYN, abdominal imaging with capabilities of CEUS. Must have Tissue Harmonic Imaging. Probes must have compatibilities of Elastrography Imaging of Liver.
27. 4-10 MHz Linear Array Transducer with +/- 1 MHz variation for entirely covering frequency range accepted for Vascular, breast, Musculoskeletal, small parts, elastography imaging.
28. Broad band Endocavitary Probe for TV/TR Application with frequency range between 5 to 9 MHz +/- 1 MHz variation with reusable biopsy guide
29. 2-6 MHz Broadband 4D volume transducer, with +/- 1 MHz variation for entirely covering frequency
30. 5-16 MHz Matrix Linear probe, +/- 1 MHz variation for entirely covering frequency
31. Only US FDA Approved model should be offered.

Tread mill test machine (TMT)

1. System should be Dedicated microprocessor console based cardiac workstation simultaneously 12 lead acquisition combines resting & exercise ECG in one unit.
2. Should have digital Acquisition module to acquire diagnostic quality ECG data.
3. Each wire of patient cable set should be detachable, so that each cable can be changeable in case of one cable faulty.
4. The ECG acquisition sampling rate should be 1,000 Samples/seconds channel or more.
5. System should have 22" display for easy access. Monitor should adjusts to any angle for better visualization.
6. Should have facility to Review, edit an add ECG from full discloser storage post-exam.
7. Should have facility to hide Zoom ECG, context ECG view and Trends at any time.
8. System should have 50mm sweep speed selection for ECG display.
9. Should have full disclosure of all 12 leads for beat to beat analysis.
10. The final report should include information on blood pressure, heart rat MET,s treadmill speed/Grade, ST trends relating to stage wise & recovery phase and duke treadmill score etc.
11. Report should be user-definable and can be selectable at final step of reporting.
12. Automatic calculation & display of METs.
13. System should support Time and METs ramped protocol.
14. System should show recovery elapsed time in %.
15. System should support left to right work flow.
16. System should provide online printing of ECG prints on High Quality Thermal printer manually and automatically during stress testing.
17. Treadmill soft stop option for stopping the treadmill after 20 second in recovery mode.

18. Facility to get system generated auto statement report.
19. System should support editing of final report in review phase.
20. System should support user defined ST measurement points.
21. System should have special filters to reduce noise artefacts, motion artefacts, baseline artefacts during stress test.
22. System should be capable to store full disclosure ECG data for later review using page review mode.
23. System should support multi login password protected access.
24. System should be supplied with US-FDA approved stress automatic BP measurement device with interface cable to measure automatically the patient NIBP during stress test per the programming done at stress system.
25. The stress testing system should be US-FDA approved and Only US FDA (510K) Approved model should be offered.

Haemodialysis machine and suitable capacity RO Water Plant

1. Machine should have facility for Acetate, Bicarbonate and Sequential dialysis (Isolated UF)
2. The blood pump should run even in the absence of water or dialysate flow
3. Machine should have have a facility for bacterial Filter
4. Should have Na, Bicarbonate and UF profiling,Temperature, dialysate flow and heparin profile
5. Dialysate temperatures selectable between 35 degrees C to 39 deg. C
6. Dialysate temperatures selectable between 35 degrees C to 39 deg. C
7. Variable conductivity setting between 12.5 to 16
8. Heparin pump with sringe size of 10,20 and 30 ml
9. Treatment parameter should be displayed by graph and digitally both
10. Should have heat and chemical disinfection facility
11. Should have drain facility
12. Should have accurate UF control by flow measurement technique.
13. Minimum patient data should be stored so that machine can be used anytime without feeding data every time
14. Should have automatic self test facility OK
15. Should have auto ON/OFF Facility OK
16. Should have touch screen
17. Easy to service, troubleshoot and calibrate
18. Machine should have inbuilt diagnosis/trouble shooting screen
19. Blood pump rate from 50-600 ml with an incremental of 1 ml
20. Ability to monitor pulse rate and NIBP with graphic and tabulated trends.
21. Audio visual alarms on limit violation of conductivity, blood leak, air leak, transmembrane pressure alarms,, Dialysis temperature alarm, dialysis can empty alarm, end of disinfection alarm, bypass alarm and blood pump stop alarm
22. Suitable capacity of RO water plant for operating and functioning of minimum 20 haemodialysis machine in to two shift.

Accessories Spares & consumables

a. System as specified
b. Compatible Online sinewave UPS with one hour back up

c. Dialyzer -100 nos
d. Water filter-2 nos

23. Only US FDA (510K) approved model should be offered

Arterial blood gas analyser (ABG)

1. Compact system for measuring pH, pCO2, pO2, -HCO3 & four Electrolytes like Na, K, Ca+ and Cl - in blood.
2. All should be measured in a single injection / aspiration of Sample.
3. May have provision of modular platform for future up gradation to include glucose, lactate & haemoglobin the same machine with the inspiration of single sample.
4. Should be able to analyse all parameters using low blood volume directly from syringe or capillaries.
5. Fast and accurate result of test made available in about 60 seconds.
6. Automatic Calibration by liquid calibrators with flexible time mode. Instrument should have Stand-by mode facility and Economy mode.
7. It should not be cartridge-based system.
8. Start-up Kit, Calibrators, Consumables, Accessories and spares required performing initial 500 tests.
9. All the consumables and spares should be quoted separately unit wise.
10. Compatible online UPS with battery backup of at least one hour
11. Only US FDA (510K) Approved model should be offered.

EMG and nerve conduction velocity machine

a) Fully computerized latest EMG/NCS/EP system with 8-channel facility.
b) Computer
1 .The system should be based latest i3 PC , a minimum hard disk capacity of atleast 120GB, 512 MB RAM or better (best available at time of purchase). It should have a built in DVD / CD-Writer as standard multimedia keyboard, 10/100 network interface
2) Operating System: The operating system software should be based on industry standard, robust Microsoft Windows 10 Professional with latest service pack for easy networking and data storage and integration.
3). Display Monitor : The display should be atleast 24 inch TFT color, flat panel, having full HD resolution of 1980 X 1080 or better. The monitor should be flexible to move closer (forward / backward) to the examiner for easy viewing during acquisition. Should be able to display variable screen formats depending on recording mode. Simultaneous display of wave forms, graphs and alphanumeric data should be possible.
4) Wave form acquisition, display and Storage: The time base range should be minimum 0.1ms/divn to 2 sec/div in multiple steps depending on test and time base type of single, dual and individual, independently selectable in specific tests. The storage of waveforms should be on hard disk.
c) Amplifiers : The number of channels must be 8 :- 1) The display modes of normal, and plus/minus with artifact rejection facility and average display sensitivities 0.5µV/divn to 20mV/divn in multiple steps depending on test. Input impedance of >10,000Mohm with CMMR ratio of >110dB at 50Hz/60Hz should be available

2) Sensitivity from 2µV/Div - 20MV/Div, , High Filter: 20Hz -20KHz, Low Filter: 0.1 - 500Hz
3) noise of less than 0.7µVRMS from 2Hz to 10KHz built-in calibration, Notch filter. Built in Temperature monitoring facility.
d. Electrical Stimulator: Two Constant current stimulator with current (from 0 to 100mA) with increments of 0.1mA and pulse duration varies from 50µs - 1000µs with 50µs increments. Remote controlled probes (2 nos) with adjustable intensity,. The stimulator probe can controllable both from the probe and the control panel.
e. Auditory Stimulator: Auditory headphones with signal types click, tone and stimulus intensity of 32 -132 dB SPL depending on stimulus types and stimulus polarity of condensation, rarefraction and alternating with tone frequencies 125Hz to 8 KHz with readymade protocols should be available. White masking noise should be available.
f. Visual Stimulator: Visual stimulator with color LED monitor of 22" with flexible target size and position. It has pattern intensity control and a variety of patterns utilizing checks, bars or gratings with different color combination. It is possible to change the viewing angle and viewing distance automatically depending on each other value. The various Pattern color (foreground and background) has user selectable from combination of Red / Green and Blue and many other colors.
g. Application Software: Acquisition and review software should be based on Windows 10 latest operating system with easy to use menus, flexible protocols with standard settings and user definable settings. It has the packages for doing EMG acquisition and analysis, quantitative analysis of EMG (facility to record/Replay EMG on Hard Drive for unlimited duration depending on HDD size) and interference pattern analysis with QMUP, IPA, F-Wave, H-Wave and blink reflex studies, Repetitive stimulation studies should be available. The standard NCS studies with report generation.

ReferenceValues package must be included as standardfor online comparative data of NCS.
The Evoked potential studies for AEP, VEP and SEP should be available as standard protocols. Compatibility with external stimulus devices for recording evoked potentials should be available with trigger in/out facility. All the reports should be integrated with MS word. SFEMG, SSR, R-R interval variation, Conduction Velocity Distribution and Auditory P-300 should be provided along with the powerful software for database management capable of HIS connectivity at any future time.
The software should have packages for recording Contingent negative variation (CNV) and other event related potentials like the Bereitschaft potential (with necessary accessories).
h. Accessories: Standard accessories should be supplied, viz.

1) EMG cables (minimum of two)
2) Surface electrodes (2 sets of 24 electrodes each)
3) Needle electrodes (6 nos.)
4) Conduction paste and cleaner fluid
5) LED goggles for VEP recordings in uncooperative patients and children Stimulus device for CNV
6) Printer :High end Laser B & W printer for all the printouts of patient reports.

i. Only US FDA (510K) Approved model should be offered

Portable Suction Machine

1. Vaccum /LPM : - 700 MM Hg , 50 Litres/Min
2. Pump Type- Double rotary vane type
3. flutter free vacuum control knob,
4. Wide mouthed 2 x 2 LITRE (light weight, unbreakable and clear) with self-sealing bungs and mechanical over flow safety device.
5. Noise (in dBA)- 50 dB
6. Collection container & its cap, suctions tube tips, a vacuum gauge, two sets of moisture & microbial filters and control knob
7. SiliconeTubing:8 mm ID x 2 mtr (PVC), 2x2 lt jar (one set
8. It should be Mobility, portability.
9. Equipment shall operate on 220V-240V, 50 Hz, single phase electric supply.
10. ISO/ BIS approve model should be offered.

Patient Examination table

1. Overall Approx. size:187L x 51W x 81H.
2. Adjustable backrest by gas spring system.
3. Two section Foam padded, upholstered top.
4. Provided with three Drawers and three Cabinets.
5. Tray for B.P. Apparatus provided near head rest.
6. Finish: Pretreated & Epoxy Powder Coated.
7. Carrying capacity: Approx. 150 - 180 kg

8 US FDA (510K)/ European CE (Issued by Notified Body)/BIS Approved model should be offered**.**

Upper GI endoscope

Video Gastroscope HD with NBI

1. Field of view-140 degree
2. Direction of View-Forwarding View
3. Depth of field -2-100mm
4. Distal End Outer Diameter-9.2mm
5. Insertion Tube Outer Diameter
6. Working length 1030mm
7. Instrument channel inner diameter 2.88mm
8. Instrument minimum visible distance 3.0 MM
9. Cauterization Treatment Should be compatible
10. Angulation range Up: 210°, Down : 90°, Right: 100°,Left : 100°
11. Total length 1350mm
12. Special Light Should have NBI

13. HDTV Should be available
14. Video Bronchoscope with NBI
15. Field of view 120°
16. Direction of View Forward Viewing
17. Depth of field 3-100mm
18. Distal End Outer Diameter 5.9 mm
19. Insertion Tube Outer Diameter 6.0mm
20. Working length 600 MM
21. Instrument channel inner diameter 2.88mm
22. Instrument minimum visible distance 3.0 MM
23. Angulation range Up: 180°, Down : 130°
24. Special Light Should have NB
25. SEMI RIGID PLEURAVIDEOSCOPE
26. Distal End Outer Diameter 7.0 mm
27. Insertion Tube Outer Diameter 7.0mm
28. Field of view 120°
29. Depth of field 3-100mm
30. Angulation range
31. Working length 270 MM
32. Total length 520MM
33. Instrument channel inner diameter 2.8 mm
34. High Frequency Compatibility
35. Laser compatibility YAG, 810NM Diode
36. HD VIDEO PROCESSOR WITH NBI
37. Voltage 100-240 V AC
38. TYPE OF PROTECTION AGAINST ELECTRIC SHOCK CLASS 1
39. EXAMINATION LAMP LED/300 WATT XENON
40. OUTPUT HD-SDI.SD-SDI,DVI
41. WHITE BALANCE ADJUSTMENT FROM THE FRONT PANEL
42. COLOUR TONE ADJUSTMENT RED, BLUE, CHROM +/- 8 STEPS
43. AUTOMATIC GAIN CONTROL (AGC) SHOULD HAVE AGC
44. CONTRAST ADJUSTEMENT SHOULD HAVE ADJUSTMENT
45. NOISE REDUCTION SHOULD HAVE NOISE REDUCTION
46. IRIS SHOULD HAVE PEAK AND AVERAGE MODE
47. Only US FDA (510K) Approved model should be offered

Sigmoidoscope

1. 1-Video sigmoidoscope – insertion tube dia 13.2 mm, instrument channel 4.2 mm, field of view - 140 Deg.,Focal range - 3 to 100 mm, Angulation UP/Down 180/180 Deg. R/L 160/160 Deg. with 700 mm workding length, total length - 1010 mm
2. Only US FDA (510K) model should be offered.

Colonoscope

1. . Video colonoscope – insertion tube dia 12.8 mm, instrument channel 3.7 mm,angle of view 140
2. deg., focal range -4 to 100 mm, Angulation Up/Down 180/180 deg. R/L 160/160 deg. with 1680 mm workding length, total length 2000 mm
3. Only US FDA (510K) model should be offered.

Haemocytometer

1. Hemocytometer counting chamber should be able to determine the number of particles per volume of blood. Particles are counted under the microscope
2. It should contain improved neubauer chamber mercury coated cover slips, RBC & WBC pipette.
3. US FDA (510K) / European CE (Issued from notified Body)/ISO Approved model should be offered.

Light Microscope

1. Binocular microscope with universal infinity corrected optical system
2. Halogen light source illumination
3. Rigid frame with ergonomics design
4. Binocular observation tube with inclination of 45/30 degrees
5. Built in torque adjustable focusing knob
6. Square mechanical stage with rigid hand coaxial control
7. Abbe condenser, Iris diaphragm
8. Revolving Quintuple nose piece (for objectives)
9. Plan achromat objectives 4X, 10X, 40X, 100X (Oil)
10. 40X, 100X objective should be spring loaded
11. Eye piece 10X (FOV 20)
12. Antifungal treatment should be applied to the observation tube, eyepiece and objective
13. Accessories, dust cover and power cord
14. Power requirement 220 V/50 Hz
15. US FDA (510K) / European CE (issued by notified body only) Approved model should be offered.

EMERGENCY MEDICINE

ICU <u>Ventilator</u>

1. Should have facility for Invasive and Non-Invasive ventilation.
2. Microprocessor Control suitable for adult ventilation.
3. Electromagnetic Compatible Hinged arm holder for holding the circuit.
4. Should be able to record and analyse various parameters. Breath to breath/pulmonary functions, loops to be stored in the memory with feasibility of trend analysis on a TFT touch

screen. Screen size should be more than 10 to 15" so that be easily seen from distance. Compiled trend analysis at Minimum 48 hours for all measured parameters. Monitoring during mechanical ventilation includes measurement of peak and plateau pressures, intrinsic positive end-expiratory pressure, and work of breathing.

5. Machine should be Compressed air / oxygen driven/turbine driven.

6. Should have Nebulization assembly facility.

7. Ventilator, Compressor & Humidifier should be Same Trolley/cart mounting for easy transportation.

8. Should have Internal rechargeable battery at least 05Hrs. backup.

9. Automatic Self-test compliance and leakage compensation for circuit and ET Tube.

10. Should have the following modes:

a. Volume Controlled, CMV, PCV or IRV, SIMV (volume cycled & pressure limited), SIMV+P_S (volume cycled & pressure limited), CPAP, Bilevel, APRV. IMPRV, PRVC, AUTOMODE, Minimum minute ventilation, Mandatory rate ventilation, Proportional assist, Mandatory minute ventilation.

11. Should have the following setting.

a. Tidal Volume: minimum 200ml maximum of 2000 ml in Volume control is essential.

b. PEEP 0 to 30 cmH20 or more

c. Oxygen Concentration 21 –100 %

d. Inspiratory Pressure 1-80 cmH20).

e. Respiratory rate 1 to 80 bpm.

12. Alarm

a. Adjustable Alarm. - Low/high minute volume, low/high pressure, low/high tidal volume, low/high rate, apnea time, low/high oxygen, low/high SpO2

b. Special alarm - O2 cell Failure , flow sensor, battery, power supply, gas supply, oxygen concentration,

13. Compressor

a. Should be supplied with External Compressor.

b. The compressor has been designed to supply the ventilator with dry, filtered compressed air. c. Compressor should be oil-free.

d. Portable & fitted with ventilator cart.

e. Air filtration 5 microns.

f. Noise level dB 40–50.

g. Peak flow of 200lpm.

14. Humidifier

a. Servo controlled heated Respiratory Humidifier.

b. Display Should be of LED /LCD.

c. Temperature control settings & Temperature range: 28-40 deg.

d. Temperature should be adjustable.

e. Jar should be autoclavable

15. Standard Accessories/spare & Consumable.

a. Silicon breathing circuit (Adult reusable) - 5 complete set.

b. Nebulization assembly compatible circuit 5 complete set.

c. Humidifier - 1 No.

d. O2 Pressure Regulator with hose - 1 No.

e. Hose for O2 connection with connector - 5 mts.

f. Hose for compressed air with connector - 5 mts.

g. Test lung - 1 No.

h. Non-invasive ventilator mask reusable for adult (3sizes) -each size 5 No.

i. ET tube cuff pressure monitor and HME filter – 10 no

j. Inbuilt / integrated nebulizer-1 N0

k. All sensors and other non-consumable items (other than reusable silicon ventilator circuits) should be free of cost during warranty and CMC.

16. Ventilator, Humidifier & Compressor Power Supply input to be 200-240VAC, 50 Hz fitted with Indian conditions plug .

17. Suitable online UPS with commensurate capacity for all ventilators including compressor & Humidifier with maintenance free batteries for minimum one-hour back-up should be supplied.

18. Ventilator, Humidifier & Compressor Should be US FDA and / European CE. approved Model should be offered.

NOTE:

1) Reusable consumables (other than reusable silicon ventilator circuits) should last during the warranty period.

2) Ventilator & Humidifier any additional reusable consumables are required during the warranty period those will be supplied free of charge by the supplier.

3) The life expectancy of the reusable consumable is expected to be of at least one year from the date of installation of the same. The reusable consumables will be procured at the prices accepted as per the contract.

4) The bidders should submit all reusable consumable items price & their authorised local office/ distributor name in the financial bid.

Transport ventilator

1. Ventilation modes

a. Volume Controlled mode.

b. Pressure Controlled mode

c. Asst. Controlled mode.

d. SIMV(VC/PC)

e. Pressure Support

f. CPAP and PEEP

g. Shall have NIV in all modes

2. CPAP and PEE

1 Tidal volume - 100 – 2000 ML

2 Respiratory rate - 0 – 60 BPM.

3 Inspiratory Pressure - 4 – 50 cm H2O.

4 Oxygen Concentration - 21 –100 %

5 Audible alarms for low pressure, Apnea, high-pressure, High respiratory rate, Circuit disconnection

3. Standard Accessories (with each machine):

a. Patient circuit (Adult) - 1 complete set, Reusable.

b. O2 Pressure Regulator - 1 No.

c. Hose for O2 connection - 5 mts

d. Test lung - 1 No.

e. Shall supply with all other accessories necessary to operate the ventilator.

f. NIV Mask – 1 No (Adult, Reusable)

4. Power Source& Others

    8. 220/240 V Ac 50 Hz supply
    9. Internal battery (maintenance free) with 2.5 hours minimum operating
    10. Provision for mounting on trolley & bedrail with necessary clamps. Should have carry handle / provisions for transport easily.
    11. US FDA 510 (k) / European CE(Issued by notified Body) approved model should be offered.
    12. Patient Circuit –10 numbers (disposable) should be supplied along with the machine.
    13. Shall have weight <10kg.

ICU BED

1. Bed should have electrically operated Backrest, Height and Knee-break adjustment.
2. Should have Electrically operated Trendelenburg /Reverse Trendelenburg tilt (±12º)
3. Under bed clearance to be 130 mm or more.
4. Should have four sectional mattress with rexine cover, foam density should be 40 or more.
5. 70+_5° backrest for upright/ chest imaging.
6. a. Side rails should be split type made from ABS injection moulding with easy to lower by sideways swing (tuck-away) to save space between the ICU Beds.
7. Bed should have integral two pieces each side split safety sides with zero transfer gap.
8. Should have one button cardiac chair position.
9. Bed frame should be coated with anti-bacterial coating.
10. Bed should have Battery back-up for all electrical movements
11. Bed should have dual sided drainage bag holders.
12. Bed should have castors of size 5 inches or more.
13. Bed should be provided with telescopic IV rod one piece.
14. Bed should have Lockout switches on Attendant Control Pendent
15. Bed should have Dual sided electric CPR switches.
16. Bed should have Angle indicator for backrest.
17. Bed should have removable Head and Foot end panels.
18. Bed should have locking mechanism for head and foot panels
19. Bed should have zero transfer gap
20. Bed should have Linked braking / steering systems with four braking castors
21. Should have 125mm single wheel castors.
22. The Bed should have following Dimensions Height Range- 46 – 76 cm Overall Length- 220 cm or more Overall Width- 980 mm or more Platform size- 85x 199 cm
23. Corner bumper and IV socket should be integrated.
24. Bed should have mattress stopper for improving safety and better mattress positioning.
25. US FDA/ European CE (Issued by a notified body) Approved Model should be offered

26. Break bar should be available for breaking mechanism
27. Safe working load of 170 kg or more. SWL means bed should operate while 170 kg weight on bed and all movement should be functional.
28. Bed should have corner buffers for protection.
29. Electrical safety Standard Power in AC , 50/60 HZ, Electric Shock Protection; Class 1, At least mattress should be washable.

Airway crash cart

1. Epoxy coated emergency crash cart with facility to carry oxygen cylinder and drawers and shelves for resustitative items. Mobile Crash Cart
2. Complete with fittngs like:Oxygen cylinder Drawers,Lamp
3. Should have dual push handles on either side
4. Should have S.S. shelves, six colored removable bins & two polystyrene lockable storage units with three drawers each.
5. Facility to carry ECG Monitors, Defibrillators etc on open areas at top centre and bottom shelves.
6. Should have Stainless steel saline rod fixed with.
7. Two accessory mounting brackets to mount accessories anywhere without the need of pre-threaded holes.
8. Crash cart should be mounted on 12.5 cmsdia non-rusting swivelling castor wheels. Two having locking arrangement.
9. Oxygen cylinder stand of SS 304 grade, on one side.
10. US FDA (510K) /European CE (Issued by Notified body) /BIS/ISO Approved model should be offered.

Portable X-ray Machine

General-purpose mobile diagnostic x-ray system used in a variety of routine x-ray imaging applications.

1) High Frequency generator of 50KHz or more compatible with conventional and computerized radiography.
2) Must have a digital display of mAs and kV.
3) Ergonomically designed unit with total soft touch switches for various operations.
4) Self Diagnostic Program with indicators for earthing fault error, KV error or filament error.
5) kV range at least 40kV to 100kV, digitally displayed mAs range at least 0.5 to 250 mAs or more.
6) Exposure time range at least 10 ms to 5s.
8) Tube power rating at least 4 kW.
9) Adjustable multileaf collimator, rotatable 90ºwith patient centring light.
10) Must be supplied with protective dust cover at least for control panel.
11) Should be compatible with various basinet size in NICU & PICU.
12) The generator should have microprocessor/micro-controller based electric overload system.

Settings

1) KV increase & decrease switches.
2) mAs increase & decrease switches.
3) Machine On/Off Switch.
4) Collimator lamp On/Off switch.
5) X-rays ON indicator should available.
6) Foot switch should available for trigger X-rays. Dimensions (metric)

1. Unit should have max. 7 foot in height, 2 foot in width and 5 foot in length.

2. Weight -Maximum 160 Kg.

Configuration

1) The unit must have an effective braking system for parking, transport and emergency braking.
2) The tube stand must be fully counterbalanced for rotation in all directions.
3) It must have an articulated arm for imaging with any patient position.
4) All cables should be concealed in the arm system.
5) Unit base wheels must be easily accessible for cleaning. Safety / Certificate & Electrical configuration

1. Valid AERB type approval (national standards) certificate to be submitted.
2) Should work on 220VAC +/-10%, 50 Hz.
3) US FDA (510K) / European CE (issued by notified body only) & AERB Approved model should be offered.

Echocardiography machine

1. system should have dedicated presets for application- Abdominal, Obstetrics & Gynaecology, vascular, paediatric, small parts, MSK, fetal Echo, urology, TDC, interventional radiology
2. System must be offered with a minimum 19 inch High resolution flat panel Medical grade display monitor with nearly infinite position adjustments.
3. System must be offered with 4D imaging with quantification software for general imaging and obstetrics & gynaecology applications.
4. System should have tomographic ultrasound imaging quantification to analyze multiple parallel slice of a volume data set, Review of 3D/4D, color 3D data set
5. System should have at-least Four univerasl active probe ports with electronic switching facility.
6. System should have minimum 1000 frames per second or more. Please specify through data Sheet.
7. The system should have 2 Lac or more digital processing channels.
8. System should support multi-frequency/broad band probes spanning a frequency of 2-16 MHz of even better
9. B mode & color mode should be available simultaneously side by side real time display. Digital zoom facility for region of interest in real time and frozen.
10. Image storage facility on inbuild hard disc or CD/DVD-Rw facility should be available. In built
11. hard disc with capacity of 500 GB. System should have extensive image management capability including thumb nail review, cineloop editing etc.
12. Auto trace & automayic Doppler calculations should be available in Live & frozen images.
13. Should have the state of the art Transmit Real time Compound Imaging Technology with multiple transmitted lines of sight, wherin Multiple Coplanar images from different viewing angles are obtained and combined into single compound Image at real-time frame rates for improves visualization.
14. System must be offered with speckle Reduction imaging technology to remove speckles and clutter artifacts
15. System should be capable of scanning depth of 30 cm.
16. System must be offered with a 2D frame rate of least 1000 frames/second.
17. System must be offered with user friendly high resolution user interface 9 " touch panel and backlit keyboard. User friendliness will be given priority.
18. Fully optimized CEUS mode should be available with simultaneous acquisition of B-mode and Contrast images in real-time in full screen or Side-by-side display. Micro-vascular Imaging, and persistence imaging should preferably be available to assess slow micro-vessel perfusion

19. System should have THI & should be able to work in combined mode of harmonic imaging and real time compound imaging to get excellent image quality
20. System should be capable of FUSION / navigation to allow Fusing real time ultrasound images with images acquired from other imaging modalities such as eg. CT,MRI,PET.
21. The system shall be capable of providing a " GPS" alike functionality. This allows the operator to mark a specific point of interest within the image (e.g. Liver lesion). While moving the transducer, the system indicates position and distance relative to the marked target.
22. The system should be quoted along Elastography imaging for Breast & Thyroid on appropriate probe and convex probe for liver.
23. The system should be DICOM ready.
24. System should have inbuilt Gel Warmer
25. Following probes to be quoted as standard
26. 1-5 MHz Convex Transducer with +/- 1 MHz variation acceptaed for General Imaging, Renal. OB/GYN, abdominal imaging with capabilities of CEUS. Must have Tissue Harmonic Imaging. Probes must have compatibilities of Elastrography Imaging of Liver.
27. 4-10 MHz Linear Array Transducer with +/- 1 MHz variation for entirely covering frequency range accepted for Vascular, breast, Musculoskeletal, small parts, elastography imaging.
28. Broad band Endocavitary Probe for TV/TR Application with frequency range between 5 to 9 MHz +/- 1 MHz variation with reusable biopsy guide
29. 2-6 MHz Broadband 4D volume transducer, with +/- 1 MHz variation for entirely covering frequency
30. 5-16 MHz Matrix Linear probe, +/- 1 MHz variation for entirely covering frequency
31. Only US FDA Approved model should be offered.

Arterial blood gas analyser (ABG)

1. Compact system for measuring pH, pCO2, pO2, -HCO3 & four Electrolytes like Na, K, Ca+ and Cl - in blood.
2. All should be measured in a single injection / aspiration of Sample.
3. May have provision of modular platform for future up gradation to include glucose, lactate & haemoglobin the same machine with the inspiration of single sample.
4. Should be able to analyse all parameters using low blood volume directly from syringe or capillaries.
5. Fast and accurate result of test made available in about 60 seconds.
6. Automatic Calibration by liquid calibrators with flexible time mode. Instrument should have Stand-by mode facility and Economy mode.
7. It should not be cartridge-based system.
8. Start-up Kit, Calibrators, Consumables, Accessories and spares required performing initial 500 tests.
9. All the consumables and spares should be quoted separately unit wise.
10. Compatible online UPS with battery backup of at least one hour
11. Only US FDA (510K) Approved model should be offered.

Multi Parameter Monitor with ETCO2 Monitoring

1. Should have facility for adult, paediatric and neonatal patient monitoring.

2. Should have touch screen TFT display with at least to 15" & Modular based system.

3. The waveforms should be user selectable.

4. Should have 3/5 lead ECG, SPO2, NIBP, Respiration rate , Temperature & 2 IBP.

5. Should be provided Battery backup for minimum two hours.

6. Should have automatic graphic and tabular trending of all monitored parameters as standards.

7. Should have event recall with waveforms, graphical and tabular trends, alarm logs.

8. SpO2 sensor with Plethysmograph & Pulse strength indicator With Variable pitch with change in SpO2.

9. NIBP should have display Systolic, diastolic, mean pressure in large, easy to read display.

10. NIBP should have manual/ stat mode or automatic mode with adjustable time intervals from 2- 30 minutes and adjustable alarm limits.

11. Should have Arrhythmia detection.

12. Pacemaker detection function

13. Should have up gradation facility ETCO2 & CO.

14. US FDA / European CE approved model should be offered.

15. Scope of supply must include: · Reusable 3-5 LEAD ECG Cable- 02 no. · Reusable SpO2 sensor for adult and paediatric- 02 no. Each · Reusable Rectal/ Esophageal temperature probe_ 02 no. · NIBP House - 02 no. · NIBP cuff – Adult -02 no. paediatric -02 no. & Neonatal -02 no. · IABP kit 10 nos. each.

16. Power Supply 220VAC +/- 10 %, 50Hz fitted with Indian plug.

17. ETCO2 & CO module should be compatible to all monitors.

18. Wall mount monitor stand should be supply with each Monitor.

Multipara Monitor

1. Should be able to monitor 5 lead ECG, SPO2, NIBP, Respiration rate and Temperature.

2. Should be portable with carrying handle.

3. Should have touch screen TFT display with at least 10 inches or higher with at least 6 waveforms and numeric display simultaneously.

4. Should have Lithium ion battery with 4 hours battery backup.

5. Should have keys for quick access to main functions.

6. Should have adult, pediatric and neonatal modes.

7. Should provide prominent prioritised audio, visual alarms for high, low heart rate, Spo2, RR, low battery, lethal arrhythmia recognition and ST Analysis.

8. Should have separate volume control for beep sound for QRS and alarm sound.

9. Should provide following accessories:

· Reusable adult 3 lead ECG cable set – 2 nos.

· Reusable adult and pediatric SPO2 finger probes – 1 each.

· Adult and pediatric NIBP cuff of different size

10. Should work on 200-240V AC/50Hz with inbuilt rechargeable battery.

11. Model Should by US FDA / CE (Issued by Notified Body) approve product.

12. Electrical safety conforms to standards for electrical safety IEC-60601/IS-13450.

Pulse Oximeter

1. Should have plethysmograph wave form with numeric display for SPO2 and Heart rate on LCD/TFT display screen.

2. Should have a SPO2 range of 0 to 100%.

3. Should have SPO2 accuracy of ±2%.

4. Should provide bar graph for pulse strength.

5. Audio and visual alarm for both upper and lower SPO2, Heart rate.

6. Beep sound and alarm sound should have separate volume control.

7. Should have a minimum of 2 hours' back-up time.

8. Should be a portable, light weight and desktop model.

9. Should work with input 200 to 240Vac 50 Hz supply.

10. Should have trend data of at least 24 hrs.

11. Model Should by US FDA / European CE (Issued by Notified Body) approve product.

12. Electrical safety conforms to standards for electrical safety IEC-60601/IS-13450

ECG MACHINE (12 Channel)

1. Simultaneous 12 Channel ECG recording with 12 lead simultaneous acquisition

2. Should have visual alarm for open lead

3. Should have a digital display of 12 channel ECG

4. QWERTY Alphanumeric keyboard.

5. Built-in ECG Parameters measurements and Interpretation

6. Minimum 40 ECG Storage inbuilt memory.

7. 3 Operating modes: Automatic, Manual and Rhythm

8. Should have a maintenance free digital thermal array printer

9. Printer should work with standard thermal paper (should be available in Local Market)

10. Should have 12 lead ECG preview display before taking printouts and should have printer on/off selection.

11. Should have ECG lead annotation facility

12. Machine should have sufficient battery backup for taking at least 25 nos ECG on a fully charged battery

13. Should supplied with 2 patient cable sets, 8 clip on electrodes, 12 chest electrode with silicon rubber bulb, 12 packets of recording paper,1 bottle of jelly and 12 nos. reusable button type electrode

14. Should operate on mains(220V-50Hz) and rechargeable battery

15. Recording speed should be 25 mm/ sec and 50 mm/ sec.

16. Should have defibrillation protection.

17. CMRR should be>90dB or ECG machine should have digital processing with atleast 7000 samples per second from each lead wire.

18. Frequency response 0.05 Hz to 150 Hz.

19. Should have a digital filter for AC and EMG.

20. Should be supplied with suitable stabilizer.

21. Should supplied with a suitable Trolley with following specifications

a) Trolley should made of Stainless Steel / Powder coated frame with SS 304 grade Top

b) Should be a 3-shelf (including the top) cart, one with a drawer for storing the accessories and consumables.

c) Should have four superior castors (two with brakes)

d) Trolley should have at least 30" height and the shelves should have sufficient space for storing the accessories

e) Top shelves shall be surrounded by railing.

f) Trolley should have a suitable cable arm firmly affixed having holder for ECG cables while not in use

22. Should work on a220VAC +/- 10 %, 50Hz AC Supply

23. US FDA (510K) / European CE(Issued from notified Body Approved model should be offered

Defibrillator

1. Biphasic, Manual and AED with voice prompt, compact and light weight.

2. Energy selection 5J to 200J in steps.

3. Momentary energy selection access on front panel.

4. Should have adult and paediatric paddles integrated on same handle.

5. Monitor should display selected and delivered energy.

6. Charging time maximum 5 secs for 200J.

7. Should have battery backup for 50 discharges of 200J.

8. Should have ECG inputs through paddles or 5 lead cables.

9. Should have display for selected ECG input source

10. Should have an inbuilt thermal recorder.

11. Should supply 2 bottles of jelly, 12 roll of thermal paper.

12. Should supply three pairs of AED pads and the prices of AED Pads should be quoted separately in financial bid.

13. Should work on 220VAC +/-10%, 50 Hz.

14. US FDA 510 (k) Approved model should be offered.

Infusion Pump

1. Flow rate range 1 to 1000 ml/h in normal mode (1 ml/h increments).

a. to 100 ml/h in micro-infusion mode (0.1 ml/h increments).

2. Flow rate accuracy + 5% with recommended sets.

3. Volume range § 1 to 9999 ml in normal mode (1 ml increments).

a. to 999.9 ml in micro-infusion mode (0.1 ml increments).

4. Infusion time adjustable from 1 minute to 96 hours (1 min. increments).

5. Setting modes flow rate only, flow rate + volume, volume / time, rate + time, ramp up/ramp down, primary/secondary,

6. sequential, bolus, induction/loading dose, micro-infusion.

7. OCS (Occlusivity Check system)set thus preventing all risk of free flow.KVO rate 3 ml/h, adjustable.

8. Pressure limit 750 mmHg, adjustable from 100 to 900 mmHg (50 mmHg increments).

9. Pause function adjustable from 1 minute to 24 hours.

10. History module up to 750 last dated events.

11. Configuration infusion modes (micro or macro-infusion), ramp up/ramp down, sequential, induction, bolus, primary

12. /secondary, keyboard lock, KVO, pressure limit, display of drug name, time and hour setting,

13. language, LCD contrast, alarm sound level, ward name, maximum authorised flow rate, air bubble

14. size, recall of last parameters at power ON, display mode, volume cumulating, end of infusion prealarm setting.

15. RS 232 connection bi-directional connection Nurse call outlet for alarm report.

16. Safety features and Alarms § air detection: set at 250 µl over the last 15 minutes, adjustable.

17. protections against free flow: check of pump + set occlusivity (OCS test), automatic clamping of the set at door openning.

18. check of line: OCS test, door open, set positioning, set installation, downstream occlusion, upstream occlusion, line disconnection.

19. check of infusion: End of infusion warning, end of infusion, empty container, flow error, unconfirmed setting, end of pause.

20. check of device: OCS test, door open, mains power disconnection, low battery, discharged battery, technical fault, auto-test, motor rotation.

21. detection of occlusions: downstream and upstream.

22. DPS (Dynamic Pressure System): detection of pressure variations in the line (increase, drop)

23. allowing both a faster occlusion detection or a line disconnection.

24. anti-bolus system: automatic bolus reduction at occlusion release.

25. keyboard lock: protection against change of settings, function available in configuration.

26. Technical specifications

27. Pumping system second generation linear wave peristaltic pumping system controlled by an intelligent software for a constant and precise flow rate.

28. Pump fixation the Optima VS can be placed onto a table, or secured to a pole or to a rail with the incorporated clamp.

29. US FDA (510K) Approved model should be offered.

30. complies with EN 60601-1 and EN 60601-2-24 requirements.

31. waterproofness: protection against splashing liquid IP31.

32. protection against leakage current: type CF equipment .

33. protection against electrical shocks: class I equipment.

34. Mains supply 100-240 V ~ / 50-60 Hz.

35. Battery characteristics: NiMH – 6 V 2.7/3 Ah.

36. battery life: 5 h 30 in average at 125 ml/h.

37. Battery charging time device off: 5 hours / Device on: 16 hours.

Rapid Autoclave

1. Portable High Speed microprocessor-controlled rapid autoclave suitable for sterilization of unwrapped instruments, Wrapped instruments, Packs and special cycle for liquids.
2. Have 2 or more programmable cycles to allow custom creation of different cycle parameters for special sterilization needs. The programmable cycle should allow change of time, temperature, Dry time and Vent.
3. Pre-programmed cycles should have selection of 2 temperatures (132 0C and 1210C) and pressures (186 kPa and 104 kPa).

4. Have a microprocessor-based fault detection circuit for monitoring all functions of sterilizer during a cycle, giving necessary signals to alert operator.
5. Should be fully automatic and have a drying cycle.
6. Should meet the requirements of ASME Boiler and Pressure Vessel Code.
7. Chamber size should be 27 cm dia or more and chamber depth should be 45 cm or more.
8. Equipment should be compact, not larger than 58 cm in length, 46 cm width, and 46 cm height
9. Printer should be provided for recording cycle, cycle time, temperatures and pressure.
10. Should have 3 Air removal purges, prior to sterilization.
11. Should have Front filling and Drain facility behind front door, for safety.
12. Should incorporate all safety features possible, including fault detection circuit, continuous monitoring of chamber temperature to prevent overheat condition.
13. Display should indicate cycle selected, cycle temp and exposure time for selected cycle. During cycle, display should reflect messages indicating status of cycle and errors.
14. During sterilization mode, LCD display should show --remaining cycle time, temperature and pressure.
15. US FDA (510K) / European CE (Issued from notified Body Approved model should be offered

Radiant Warmer

17. Should have microprocessor based heater control and manual modes of operation.
18. Should have user friendly touch sensitive control panel with large easy to read LED displays for actual and set temperatures.
19. Should have Quartz Infrared Heater/ Calrod Heater with parabolic reflector / J shaped reflector for uniform heat radiation.
20. The heater unit should be protected by a suitable grill.
21. The heater unit should be swiveling type/ recessed heater type and should be able to position effortlessly for performing various procedures including X rays etc .
22. The probes should be detachable type and should be supplied as 2nos for each machines.
23. Should have memory back up to retrieve set data against power failure.
24. Should have calibration free temperature sensors.
25. The heater should automatically cut off at 38ºCelsius irrespective of the set parameters.
    10.Should be mounted on four smooth running swiveling casters with integrated brakes.
    11.Should have a monitor stand and IV drip pole.
26. Should have alarms with visual indicators for the following i. Temp high Temp low ii. Probe failure iii. Power failure, iv. Heater failure etc.
27. Should have an examination light with ON/OFF switch.
28. Should be provided with integrated baby bed system with cassette tray compatible for taking X-ray.
29. Should be provided with withdraw able bed with head raising facility on both end.
    16.Should be supported with easily removable side flaps.
30. The unit should be made of mild steel tubular structure pretreated and powder coated.
    18.Should work with input 200 to 240Vac 50 Hz supply.
31. The mains supply voltage variation may be 180-270V and frequency variation max. 3 %. The necessary protective device shall be there with the machines.
32. US FDA / European CE (Issued from notified Body) Approved model should be offered

SECTION-VI (SAMPLE FORMS)

1.BID FORM

(Note: -This Annexure must be sworn before First Class Magistrate/Notary)

Date: ..... 2021 *[insert: **date of bid**]*

[Purchaser specify: "IFB No.: BMSIC/2021-22/ME-215 "]
[Insert:** Procurement and Contracting of **Medical Equipment for Medical Colleges and Hospitals of Bihar]

To:
Managing Director,

Bihar Medical Services and Medical Services Corporation,
4th Floor, Bihar State Building Construction Co. Ltd,
Hospital Road, Shastri Nagar, Patna -800023 (Bihar) India.

Dear Sir or Madam:

Having examined the Bidding Documents, including Amendment and all corrigendum, the receipt of which is hereby acknowledged, we, the undersigned, offer to supply and deliver the Goods under the above-named Contract in full conformity with the said Bidding Documents for the sum of Rs. 10,000/-(hereinafter called "the Total Bid Price") or such other sums as may be determined in accordance with the terms and conditions of the Contract. The above amounts are in accordance with the Price Schedules attached herewith and are made part of this bid.

We undertake, if our bid is accepted, to deliver the Goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our bid is accepted, we undertake to provide an advance payment security and a performance security in the form, in the amounts, and within the times specified in the Bidding Documents.

We agree to abide by this bid, for the Bid Validity Period specified in Clause 18 of the ITB and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.

Until the formal final Contract is prepared and executed between us, this bid, together with your written acceptance of the bid and your notification of award, shall constitute a binding Contract between us. We understand that you are not bound to accept the lowest or any bid you may receive.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

We confirm that we comply with the eligibility requirements as per ITB Clause 3 of the bidding documents.

We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this *[insert: **number**]* day of [*insert: **month**], [insert: **year**].*

Signed: _____
Date:

_____

In the capacity of *[insert: **title or position**]*
Duly authorized to sign this bid for and on behalf of *[insert: **name of Bidder**]*

2.PRICE SCHEDULE

1	2	3	4	5						6	7	8
Sch No	**Item Description**	**Country of origin**	**Quantity**	**Ex-factory Ex-warehouse ex-Showroom off-shelf** (A)	**Excise duty if any** (B)	**Packing & Forwarding** (C)	**Inland transport, Insurance & Incidental costs incidental to delivery** (D)	**Incidental services as listed in GCC** (E)	**Customs Duty** (F)	**Unit Price** A+B+C+D+E+F	**Total Price per schedule for delivery at final destination** (4X6)	**GST payable if contract is awarded**

Unit Price (6) (Rs. In words)

AMC Charges (Labour only)

Equipment name	AMC CHARGES						
	4TH YEAR	5TH YEAR	6TH YEAR	7TH YEAR	8TH YEAR	9TH YEAR	10TH YEAR
TOTAL							

CMC CHARGES

Equipment name	CMC CHARGES						
	4TH YEAR	5TH YEAR	6TH YEAR	7TH YEAR	8TH YEAR	9TH YEAR	10TH YEAR
TOTAL							

Note:

In case id discrepancy between unit price & total price Unit price shall prevail.

Place **Signature of Bidder/Authorized**

Signatory……

Date **Name ……**

(Should be submitted in format as available in e-mode only)

FORM – 3 FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT is made the _____day of _____ *[month and year purchase]* and between the Bihar Medical Services And Infrastructure Corporation Limited, Patna [*Name of Purchaser*] on behalf of Governor of Bihar (hereinafter referred to as the 'Purchaser') and _____ _____ __ _____*[Name of Supplier],* having its principal place of business at _____ _ _____*[address of Supplier]* (hereinafter referred to as the "Supplier) on the other part.

WHEREAS the Purchaser invited bids for certain goods and ancillary services, viz., *[insert:* ***brief description of goods and services****]* and has accepted a bid by the Supplier for the supply of those goods and services in the sum of *[insert:* ***contract price in words and figures]*** (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall constitute the Contract between the Purchaser and the Supplier, and each shall be read and construed as an integral part of the Contract:

(a) This Contract Agreement

(b) General Conditions of Contract.

(c) Special Conditions of Contract

(d) Technical Requirements (including Functional Requirements and Implementation Schedule).

(e) The Supplier's original Techno-commercial and Price bid

(f) The Schedule of Requirements.

(g) The Purchaser's Notification of Award

(h) *[Add here:* ***any other documents****]*

3. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

Brief particulars of the goods and services which shall be supplied/provided by the Supplier are as under:

SL	Brief Description of goods	Unit Price	Quantity to be supplied	Total price

TOTAL VALUE:

Delivery Schedule:

For and on behalf of the Purchaser

Signed:

_____ in the capacity of *[insert: **title or other appropriate designation**]*

in the presence of

_____

For and on behalf of the Supplier

Signed:

_____ in the capacity of *[insert: **title or other appropriate designation**]*

in the presence of

_____

CONTRACT AGREEMENT

dated the *[insert: **number**]* day of *[insert: **month**]*, *[insert: **year**]*

BETWEEN

Bihar Medical Services And Infrastructure Corporation Limited, "the Purchaser"

and

*[insert: **name of Supplier**]*, "the Supplier"

4. PERFORMANCE SECURITY BANK GUARANTEE

(Unconditional)

Date: *[insert: **date**]*
IFB: *[insert: **name or number of IFB**]*
Contract: *[insert: **name or number of Contract**]*

To:
Managing Director,
Bihar Medical Services And Infrastructure Corporation Limited,
Patna

Dear Sir or Madam:

We refer to the Contract Agreement ("the Contract") signed on *[insert:**date**]* between you and *[insert:**name of Supplier**]* ("the Supplier") concerning the supply and deliver y of *[insert:**abrief description of the Goods**]*. By this letter we, the undersigned,*[insert: **name of bank**]*, a bank(or company) organized under the laws of *insert:**country of bank**]* and having its registered/principal office at *[insert:**address of bank**]*, (hereinafter, "the Bank") do hereby jointly and s everally with the Supplier irrevocably guarantee payment owed to you by the Supplier, pursuant to the Contract, up to the sum of *[insert:**amount in numbers and words**]*. This guarantee shall be reduced or expire as provided for by GCC clause 5.

We undertake to make payment under this Letter of Guarantee upon receipt by us of your first written demand signed by your duly authorized officer declaring the Supplier to be in default under the Contract and without cavil or argument any sum or sums within the above-named limits, without your need to prove or show grounds or reasons for your demand and without the right of the Supplier to dispute or question such demand. Our liability under this Letter of Guarantee shall be to pay to you whichever is the lesser of the sum so requested or the amount then guaranteed under this Letter in respect of any demand duly made under this Letter prior to expiry of this Letter of Guarantee, without being entitled to inquire whether or not this payment is lawfully demanded.

This Letter of Guarantee shall be valid from the date of issue until the date of expiration of the guarantee, as governed by the Contract. Except for the documents herein specified, no other documents or other action shall be required, notwithstanding any applicable law or regulation. Our liability under this Letter of Guarantee shall become null and void immediately upon its expiry, whether it is returned or not, and no claim may be made under this Letter after such expiry or after the aggregate of the sums paid by us to you shall equal the sums guaranteed under this Letter, whichever is the earlier. All notices to be given under this Letter shall be given by registered (airmail) post to the addressee at the address herein set out or as otherwise advised by and between the parties hereto.

We hereby agree that any part of the Contract may be amended, renewed, extended, modified, compromised, released, or discharged by mutual agreement between you and the Supplier, and this security may be exchanged or surrendered without in any way impairing or affecting our liabilities hereunder without notice to us and without the necessity for any additional endorsement, consent, or guarantee by us, provided, however, that the sum guaranteed shall not be increased or decreased.

No action, event, or condition that by any applicable law should operate to discharge us from liability hereunder shall have any effect, and we hereby waive any right we may have to apply such law, so that in all respects our liability hereunder shall be irrevocable and, except as stated herein, unconditional in all respects.

For and on behalf of the Bank _____
Signed:
Date: _____

in the capacity of: *[insert: **title or other appropriate designation**]* Common Seal of the Bank

5. MANUFACTURER'S AUTHORIZATION FORM

(Manufacturer's / Producer's letterhead)

To:
Managing Director,
Bihar Medical Services and Infrastructure Corporation Limited,
Patna

WHEREAS *[**name of the manufacturer / producer**]* (hereinafter referred to as "we" or "us") who are established and reputed manufacturers / producers of *[**name and/or description of the Goods requiring this authorization**]*(hereinafter referred to as "Goods") having manufacturing / production facilities at*[insert: **address of factory**]*do hereby authorize*[**name and address of Bidder**]*(hereinafter, the "Bidder") to submit bid, and sign the Contract with you against IFB *[**title and reference number of the Invitation for Bids**]*including the above Goods produced by us.

We hereby extend our full guarantee and warranty for the above specified Goods against these Bidding Documents and also confirm full functionality of the said equipment during the entire post warranty Comprehensive Maintenance Contract Period as agreed.

For and on behalf of the Manufacturer or Producer

Signed: _____

Date: _____

In the capacity of *[**title, position, or other appropriate designation**]* and duly authorize to sign this Authorization on behalf of *[**name of manufacturer or producer**]*

Note: This letter of authority should be on the letter head of the manufacturers and should be signed by a person competent and having the power of attorney to legally bind the manufacturer. This should be included by the bidder in it's bid.

6. PROFORMA FOR PERFORMANCE STATEMENT

Bid No: _____ Date of Opening: _____ Time: _____Hours

Name of the Firm: _____

Order Placed By (Full address of Purchaser)	Order No and Date	Description of works /project on turn key basis completed	Date of completion of projects		Was the completion of works/projects was Satisfactory? Yes/No	*(Attach a certificate from the Purchaser/consignee (as applicable)*
			As per contract	Actual		

(Signature and seal of the Bidder/Authorised Signatory)

7. CONSIGNEE RECEIPT CERTIFICATE/ INSTALLATION REPORT/PROJECT COMPLETION CERTIFICATE

(To be given by consignee / end user of the project)

The following equipment has / have been received in good condition:

Name of Project completed	
Name of the Supplier / Manufacturer	
Quantity supplied / cost of the project	
Purchase Order reference no.	
Detailed item list of the project	
Place of the project executed	
Name and Address of the Consignee along with tel. no. and fax no.	
Date of receipt by the Consignee	
Date of completion	
Signature of Authorized Representative of Consignee with date	
Name and designation of the authorized representative	
Seal of the consignee	

Note: In case of Hospital the In charge of the hospital concerned would be treated as consignee. In case of office (other than hospital), the office in charge of the office would be treated as consignee.

(Hospital / Office In charge) (User Department)

8. STATEMENT FOR TECHNICAL DEVIATION:

Sr. No	Specifications desired by BMSICL	Bidders' specifications	Bidders Deviation if Any

(Signature of Bidder/ Authorized Signatory)

9. FORMAT FOR WARRANTY CERTIFICATE

(To be submitted on Firms Letterhead)
Warranty Certificate

Date:

We the Undersigned ……...hereby guarantee satisfactory operation of ……. supplied by us to you against your purchase order No…….for a period of……. *calendar months* from the date of commissioning and shall be responsible for failure of the equipment to conform to the standard of performance, proficiency, production and / or out-turn stipulated or implicit in the order and for any defects that may develop under proper use arising from the use of faulty materials, design or workmanship in the supply made and shall remedy such defects at our cost.

Consignee Name-
Serial number of Equipment-

For……

Station: (Signature with Name and Designation)

Date:

Company Seal

10. NON-CONVICTION DECLARATION (DULY NOTARIZED)

From:-
M/s.....
.....
.....
.....
To
Managing Director
BMSICL, Patna

1. I, _____Son / Daughter / Wife of Shri_____
Proprietor/Director authorized signatory of the agency/Firm, mentioned above, is competent to sign this declaration and execute this tender document;
2. I have carefully read and understood all the terms and conditions of the tender and undertake to abide by them;
3. The information / documents furnished along with the above application are true and authentic to the best of my knowledge and belief. I / we, am / are well aware of the fact that furnishing of any false information / fabricated document would lead to rejection of my tender at any stage besides liabilities towards prosecution under appropriate law.
4. I/We further undertake that none of the Proprietor/Partners/Directors of the Agency/agency was or is Proprietor or Partner or Director of any Agency with whom the Government have banned /suspended business dealings. I/We further undertake to report to the Managing Director, BMSICL, Patna immediately after we are informed but in any case not later 15 days, if any Agency in which Proprietor/Partners/Directors are Proprietor or Partner or Director of such a Agency which is banned/suspended in future during the currency of the Contract with you.

Yours faithfully,

(Authorized Signatory/Signature of the Bidder)

Date:
Place:
Seal of the Agency

Name:
Designation
Address:

(Note: - This annexure must be sworn before First Class Magistrate/Notary)

11.BANK GUARANTEE FORM FOR EARNEST MONEY DEPOSIT (EMD)

Date: *[insert: **date**]*
IFB: *[insert: **name and number of IFB**]*
Contract: *[insert: **name and number of Contract**]*

To:
Managing Director,
Bihar Medical Services And Infrastructure Corporation Limited,
Patna

WHEREAS *[insert: name **of Bidder]*** (hereinafter called "the Bidder") has submitted its bid dated *[insert: **date of bid]*** for the performance of the above-named Contract (hereinafter called "the Bid")

KNOW ALL PERSONS by these present that WE *[insert **name of bank]*** of *[insert: **address of bank]*** (hereinafter called "the Bank") are bound unto *[insert **name of Purchaser]*** (hereinafter called "the Purchaser") in the sum of: *[insert: **amount]***, for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents.

Sealed with the Common Seal of the said Bank this *[insert: **number]*** day of *[insert: **month]***, *[insert: **year]***.
THE CONDITIONS of this obligation are the following:

1. If, after the bid submission deadline

   (a) the Bidder withdraws or amends its tender or impairs or derogates from the tender in any respect before signing of the agreement or

   (b) does not accept the Purchaser's corrections of arithmetic errors in accordance with the Instructions to Bidders; or

   (c) within the period of validity of its tender or if it comes to notice that the information/ documents furnished in its tender is incorrect, false, misleading or forged or

   (d) engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice

2. If the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of bid validity

   (a) fails or refuses to sign the Contract Agreement when required; or

   (b) fails or refuses to issue the performance security in accordance with the Instructions to Bidders.

We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due it, owing to the occurrence of any one of the two above-named CONDITIONS, and specifying the occurred condition or conditions.
This guarantee will remain in full force up to and including *[insert:**the date that is 30 days after the period of bid validity**]*.

For and on behalf of the Bank

Signed: _

Date: _____
in the capacity of: *[insert: **title or other appropriate designation**]*

12. POWER OF ATTORNEY
(Notarized)

I/ We……. (name and address of the registered office) do hereby constitute, appoint and authorise Sri/Smt ……..…(name and address) who is presently employed with us and holding the position of …… As our attorney, to act and sign on my/our behalf to participate in the tender no…… for …… (Project Name).

I/ We hereby also undertake that I/we will be responsible for all action of Sri/Smt…….... undertaken by him/her during the tender process and thereafter on award of the contract. His / her signature is attested below

Dated this the …. day of ... 201_

Accepted _ For_____

_____

(Signature) (Name, Title and Address of the Attorney) (Name, Designation and Address)

Date: _____

13. CHECK LIST

Name of the Tenderer

SL. No.	Item	Whether Included Yes/No	Page No.
A.	**Tender Fee, EMD**		
1.	Tender Fee (in the form of Demand Draft) – Rs.10,000/-		
2.	EMD (in the form of Demand Draft/Bank Guarantee as per annexure-11).		
B.	**Check list & Registration.**		
1.	Make & Model Quoted items in the project. (Bidder can offer TWO alternate makes & Models.)		
2.	Document claiming the Registration for Trading/ Manufacturing		
3.	Certificate of Incorporation and Articles of Memorandum of Association/Partnership Deed (As applicable)		
4.	Copy of certificate from Central Excise and Trades Tax/ Sales Tax		
5.	Copy of average Turn over certificate for last five consecutive Assessment years issued by Chartered Accountant.		
6.	Copy of certificate of Balance Sheet of last five consecutive Assessment years under the stamp and signature of Chartered Accountant.		
7.	Copy of certificate of P&L Statement of last five consecutive Assessment years under the stamp and signature of Chartered Accountant.		
8.	Copy of self-attested IT Returns for any three of last four consecutive Assessment years		
9.	Non-Conviction Declaration (Sworn before First Class Magistrate/Notary) as per Annexure 10		
10.	Submission of Manufacturer's Authorization (if quoted by bidder other than manufacturer) as per Annexure 5 at the time of supply is mandatory.		
11.	Bid Form (Sworn before First Class Magistrate/Notary) as per Annexure 1		
12.	Supply/Purchase order issued by user institution to comply the completion of turnkey project criteria mentioned in ITB clause 15		
13	Performance Statement for project completion in Annexure 6		
14	Certificate from end user(s) indicating the Purchase order(s) as submitted by the Bidder, date of completion of project/installation of the Equipment.		
15.	Technical Data Sheet/Brochure/Catalogue of the model of quoted items may be submitted in hard copy along with the hardcopy of online submitted tender document as per the submission date in the tender. This fact should be mentioned in writing in online submitted bid document.		
16.	Technical Deviation Compliance for every quoted item in project as per annexure 8		

17.	Power of Attorney for the Signatory to the Bid as per annexure 12, duly notarized.		
18.	Quality Standard Certification (USFDA/CE issued by notified body/BIS) in accordance with technical specification in this bid document must be furnished in technical bid documents		
19.	Notary attested declaration if exempted in EMD Fee, Technical Qualification as per Sankalp 675 (1), Dated 09/09/2013 of Govt. of Bihar as mentioned in special condition of contract.		
20.	Approval from Reserve Bank of India in case of Foreign Collaboration		
21.	IEC Certificate if the bidder is an importer of the quoted items in project.		