

### **Corrigendum-II**

Bihar Medical Services and Infrastructure Corporation Limited (BMSICL) had invited E-Bids from the interested parties for the Supply, Installation & Commissioning of Laboratory Instruments on Turn-key basis for Bihar Drug Control Laboratory, Agamkuan, Patna, Bihar was floated vide Notice Inviting Tender No.- BMSICL/2022-23/ME-293. During and after Pre-bid meeting various suggestions were received from different prospective bidders regarding amendment in technical specification of equipment which were discussed and deliberated on by the experts, who after due deliberation recommended certain amendments in the technical specification of the equipment, which are annexed as Annexure-I of this corrigendum. In order to facilitate maximum participation of bidders the tender schedule is being revised as follows:-

Tender Reference No.	<b>BMSICL/2022-23/ME-293</b>
Date and time for downloading of bid document	<b>Up to 30<sup>th</sup> November 2022 till 17:00 Hrs.</b>
Last date and time of submission of online bids	<b>01<sup>st</sup> December 2022 till 17:00 Hrs.</b>
Last date and time of submission of original documents of EMD, Tender Fee and Document	<b>02<sup>nd</sup> December 2022 till 14:00 Hrs.</b>
Date, Time and Place of opening of Technical Bid	<b>02<sup>nd</sup> December 2022 (at 15:00 Hrs.) on the website of <a href="http://www.eproc.bihar.gov.in">www.eproc.bihar.gov.in</a> in the office of BMSICL</b>
Date and time of opening of financial Bids	<b>To be announced later on <a href="http://www.eproc.bihar.gov.in">www.eproc.bihar.gov.in</a></b>

**Note:-**

- 1. Bidders are advised to refer to the Annexure-I of this corrigendum before submission of bid.**
- 2. Those who have submitted their bids are requested to re-submit their bids in accordance with this corrigendum.**

**Annexed:- as above**

**Sd/-  
GM (Procurement)  
BMSICL**

Sl. No.	Name of Equipment	Technical Specification Before Amendment	Technical Specification After Amendment
1	<b>UV/VIS Spectrophotometer Double Beam</b>	1. Optics: High light throughput optical system with all reflecting optics	No Change
		2. Monochromatic: Czerny-Turner or equivalent	No Change
		3. Source: Deuterium and Tungsten halogen lamp OR Xenon Lamp with automatic change over	No Change
		4. Detector: Photo Multiplier Tube or Dual Silicon Photodiode	No Change
		5. Spectral bandwidth: variable from 0.5 to 4 nm	No Change
		6. Scan rate: Up to 6000 nm/min or better	No Change
		Stray light (%T): < 0.05 %T at 220 nm or better	
		7. Wavelength range: 190- 1100 nm	No Change
		Wavelength accuracy: $\pm 0.2$ nm	
		8. Photometric stability: < 0.0005 Abs/Hour at 500 nm	No Change
		Photometric noise (Abs, RMS): < 0.0018 A	
		9. Baseline flatness: $\pm 0.001$ Abs	No Change
		10. System should be supplied with standard 10 mm cell holder	No Change
		11. Software should be based on Microsoft Windows and must have following features such	No Change
		as: Scan, wavelength programming, Validation, Concentration, GLP administration,	
		Kinetics, System information.	
		12. Software should be 21CFR 11 Compliant.	No Change
		13. 13 Five pair of quartz cuvettes of 10 mm path length.	No Change
		14. Two pair of glass cuvettes of 10 mm path length	No Change
		15. Extra accessories other than standard supply:	No Change
		a. Deuterium Lamp and Tungsten Lamp: 02 Nos. each or Xenon Lamp: 02 Nos. (as the case may be)	
		b. Quartz cuvettes of 1 mm path length with cell holder: 01 pair.	
		c. Quartz cuvettes of 2 mm path length with cell holder: 01 pair.	
		Upgrade- system must be able to upgrade all accessories in future for food applications like- peltier cell, praying mantis, sipper unit, autosampler, fiber optic module.	
		16. Computer Specifications: (Higher configuration are acceptable)	No Change
		Make: HP/Dell/IBM/Lenevo	

		Processor - Intel i5 (5 th generation) ; RAM - 4 GB ; Hard disk - 1 TB ; Graphic Card; DVD writer; 19 ” TFT screen ; LAN Port ; USB Ports ; Wi-Fi ; Multimedia Keyboard ; Optical Mouse	
		Operating System – Preloaded Windows 10 Pro; Antivirus	
		Printer- Laser Printer Monochrome with duplex printing and LAN port.	
		UPS-2 KVA, Single phase with 60 minutes backup.	
		17. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
2	<b>FT-IR Spectrophotometer with accessories</b>	1. Fully computer controlled compact bench- top FTIR system with universal sample compartment. Sample module must be automatically identified.	No Change
		2. The system should have latest digital signal processor.	No Change
		3. The system should indicate whether the source and laser are operational.	No Change
		4. The System should have feature for humidity and vapour protection.	No Change
		5. Wave number range: 6000 to 350 cm <sup>-1</sup>	No Change
		6. Source: Long Life IR Source	No Change
		7. Detector: MID-IR /DLTGS/DLATGS detector with temperature control mechanism	No Change
		8. Resolution: 0.6 cm <sup>-1</sup> or better	No Change
		9. Signal to Noise Ratio 35000:1 Or better peak to peak for 1 min.	No Change
		10. Wave number precision: 0.001 cm <sup>-1</sup> or better at 2000 cm <sup>-1</sup>	No Change
		11. Beam splitter: KBr coated with Ge/ZnSe/CaF <sub>2</sub>	No Change
		12. The software should also have: -Compare Software, Spectral Search; Quantitative Analysis	No Change
		software Spectral interpretation for unknowns; Quality checks programs and CFR-21 Part-11 Compliance should be available.	
		13. The software should have real time data collection and should have the facility to	No Change
		continuously monitor the performance of source, detector, power supply and laser.	
		14. Libraries: Built in Library with Minimum 30000 reference spectra for pharmaceutical products and drugs and other compounds	No Change
		15. Attenuated Total Reflection (ATR) -1 Nos. Diamond Monolithic	No Change
		16. IR Grade KBr – 3x100 gm	No Change
		17. Fixed Volume Liquid Cell and fixed thickness (0.5 mm) -1 Nos.	No Change

		18. Sodium Chloride pellets with Holder for liquid paraffin mulls-1 No.	No Change
		19. Hydraulic Press of suitable capacity	No Change
		20. Set of 13mm KBr die, Pellet Holder and Nozzle oil should be supplied-2 Nos.	No Change
		21. Inbuilt Polystyrene film of 0.3 mm having NIST Traceable certificates- 1 Nos.	No Change
		22. Agate Mortar Pestle (Dia 2 inch) -2 Nos.	No Change
		23. Computer Specifications: (Higher configuration are acceptable)	No Change
		Make: HP/Dell/IBM/Lenevo	
		Processor - Intel i5 (5 th generation) ; RAM - 4 GB ; Hard disk - 1 TB ; Graphic Card; DVD writer; 19 ” TFT screen ; LAN Port ; USB Ports ; Wi-Fi ; Multimedia Keyboard ; Optical Mouse	
		Operating System – Preloaded Windows 10 Pro; Antivirus	
		Printer- Laser Printer Monochrome with duplex printing and LAN port.	
		UPS-2 KVA, Single phase with 60 minutes backup.	
		24. USFDA ( 510K) / European CE (Issued by Notified Body) approved Model should be offered.	
3	<b>HPLC (Gradient) with UV Detector, Auto sampler &amp; essential columns</b>	HPLC system consisting of Quaternary Gradient pump, Integrated Auto Injector,	No Change
		Online Degasser, Column Heater, UV Detector along with software and Accessories Quaternary Gradient Pump:	
		Principle: Low Pressure Mixing - Serial Dual Piston	
		Automatic Gradient Profile Facility 1-9 or higher	
		Quaternary Pressure Gradient pump	
		Operating Flow Range: 0.001–10 mL/min or better	
		Flow Accuracy: $\pm 0.1\%$	
		Flow Precision: $\leq 0.1\%$ RSD	
		Prop. Accuracy: $\pm 0.5\%$	
		Precision: $\leq 0.3\%$ SD	
		Pressure Range: 8500 psi or equivalent	
		Pulsation: $\leq 2$ bar or $\leq 1\%$ whichever is greater	
		Solvent Degassing: Built-in (Integrated), 4-channels	
		Error detection, Leak detection and safe leak handling display feature should be available.	
		Delay volume variable 390ul-1500ul user selectable.	
		The pulsation must be below 0.1% or 0.2 MPa (whichever is greater)	
		The flow accuracy must be $\pm 0.1\%$ or better	

	The flow precision must be below 0.05% RSD or 0.01 min SD (whichever is greater)	
	pH compatibility 1-13 or better with salt compatibility.	
	<b>2. Autosampler:</b>	
	Operating Principle: Inline Split Loop	No Change
	Sample Capacity: 90 vails or more	
	Injection Volume: 0.01–100 µL	
	Injection Volume Accuracy: $\pm 1\mu\text{l}$	
	Injection Volume Precision: $< 0.1\%$ of RSD	
	Injection Volume Linearity: $> 0.9999$ RSD $< 0.5\%$ at 5 – 90 µL	
	Sample Carry Over: Not more than 0.005 % from previous injection	
	Temperature Accuracy Sampler: $\pm 2^{\circ}\text{C}$	
	Pressure Range: 8500 psi or equivalent	
	Auto sampler should have auto dilution facility in needle derivations facility.	
	<b>3. Column Heater:</b>	
	Temperature Control Range: $15^{\circ}\text{C}$ to $80^{\circ}\text{C}$	
	Temperature accuracy: $\pm 0.5^{\circ}\text{C}$	
	Colum heater should hold 3 columns of 30 cm length.	No Change
	Colum switching valve should be supplied along with the instrument for automated method development.	
	<b>4. Diode Array Detector:</b>	
	The detector must typically provide a linear range $> 2.2$ AU or more.	No Change
	The wavelength range of the detector must range from 190 to 800 nm with Additional Tungsten Lamp available.	
	The drift of the detector must be below 1 mAU/h at 254 nm.	
	Detector Noise must be $<\pm 8\mu\text{AU}$ at 254 nm.	
	No of Photodiodes must be 1024 for better spectral resolutions.	
	The detector must provide a data collection rate of up to 120 Hz with spectra acquisition.	
	The detector must be able to record 8 channels plus 3D field simultaneously Standard analytical flow cell should be of 10mm path length and $>10\mu\text{L}$ flow cell volume.	
	The detector must have an internal wavelength calibration using the D-alpha line of the deuterium lamp	
	Wavelength validation must be validated by a holmium oxide filter	
	Basic instrument control of the detector can be achieved by a keypad	

	The detector must provide a software-supported predictive performance function for scheduling maintenance procedures.	
	The Detector must have built in safety features like Leak detection and safe leak handling, excess pressure monitoring.	
	<b>Fluorescence Detector:</b>	
	Detector Operating Principle: Concave, blazed holographic grating monochromators or similar	No Change
	Lamp: Xenon Flash Lamp for exciting the compounds to fluorescence.	
	Bandwidth: Excitation: 20 nm	
	Emission: 20 nm	
	Max. Data Collection Rate: Single wavelength: up to 100 Hz	
	Excitation Wavelength: 200 - 600 nm	
	Emission Wavelength Range 260 - 650 nm	
	Wavelength Accuracy: $\pm 2$ nm	
	Wavelength Precision: $\pm 0.2$ nm	
	Sensitivity Raman S/N: > 550 ASTM over the entire lifetime of the lamp	
	Flow Cell Thermostatting: Ambient +10 °C to 50 °C	
	<b>RI Detector:</b>	
	Refractive Index Detector should be having principle of deflection type along with Range of analyzing data from 1.00 to 1.75 RIU Range.	
	Detector must have detection settings from $\frac{1}{4}$ to 512 $\mu$ RIU.	
	Detector noise must be $\leq 2.5$ nRIU.	No Change
	Detector should have drift of $\leq 500$ nRIU/h	
	It must have Temperature Control settings like OFF, 30 to 50°C	
	Cell volume must be < 10 $\mu$ L with total volume.	
	<b>5. Software:</b>	
	Same software should be able to control all modules of HPLC system.	No Change
	To control, acquisition, online display, processing peak point integration and reporting HPLC data, Full 64 Bit Architecture software	
	Software must be 21 CFR part 11 compliant fulfilling all effective regulatory requirements.	
	Windows 10/8 environment or suitable	
	Data reports, online help and wizards	
	Data Integrity, Advanced Security, Audit Trails System suitability min 5 Parameter can be checked	
	Template saving & Auto run of templates	

	Calibration curves facility	
	Facility for data security, audit trails and electronic signatures etc., should be available for GLP and 21 CFR compliance.	
	<b>6. Columns (Pore Size 5 µ):</b>	No Change
	(i)C-18 Column : 6 No. (Two of 250x4.6 mm & Four of 150 x 4.6 mm).	
	(ii)C-8 Columns : Two of 250 x 4.6 mm	
	(iii)Phenyl Column : One of 250 x 4.6 mm	
	(iv)CN Column : One of 250 x 4.6 mm	
	<b>7. Accessories:</b>	No Change
	1. (A) Vials : 1 ml pack of 100 vials & 2 ml pack of 100 vials (One Each)	
	(B) Low insert vials (for low volumes) : A pack of 100 vials	
	2. Filtration Assembly consisting of	
	(A) Sample Filtration Kit – One Nos.	
	(B) Membranes [Type: Dual (Aqueous & Organic solvents)]	
	Size 13 mm diameter with Pore size 0.45 µ – 10 Pkt of 100 membranes	
	Size 47 mm of 0.45 µ Pore size ; Qty- 10 pkt of 100 membranes	
	(C) Pre-filters – 10 pkt of 100 circles	
	(D) Solvent filtration kit –One No	
	(E) Imported Oil Free Vacuum pump – One No.	
	(F) Nylon Syringe filters (13 mm ; 0.45 µ) – 2 Box of 100 filters.	
	3. Deuterium or suitable Lamp- One No.	
	4. HPLC Grade solvents of reputed brand	
	(A) Methanol – 10 x 2.5 Lit.	
	(B) Acetonitrile- 10 x 2.5 Lit	
	(C) Water- 10 x 2.5 Lit.	
	8. Suitable PC & Printer with 3 KVA UPS of 60 min. Back up of reputed brands specification as under:	No Change
	Processor - Intel i7 Latest generation; RAM - 8 GB ; Hard disk - 1 TB ; Graphic	
	Card; DVD writer; 21" TFT screen ; LAN Port ; USB 2.0 Ports (4 Nos.) ; Wi-Fi ;	
	Multimedia Keyboard ; Optical Mouse	
	Operating System - Windows 10/8 64 Bit architecture	
	Printer- Laser Printer Monochrome with duplex printing and LAN port.	No Change
	9. USFDA ( 510K) / European CE ( Issued by Notified Body) approved Model should be offered.	

4	<b>GLC with FID Detector with Head space</b>	1. Microprocessor based Automatic Gas Chromatography system with Capillary Injector, Flame Ionization Detector and automatic head space Main Instrument:	No Change
		Gas chromatograph Basic Unit with LCD & Keypad	
		Capillary Injector with Automatic Electronic Gas Controller	
		Detector FID with Automatic Electronic Gas Controller	
		Automatic Head Space with valve	
		2. Column Oven	No Change
		Column Oven Size should be 10 ltrs or more	
		Operating Temperature range: Ambient +5 °C to 450 °C or better	
		Temperature Set Point Resolution: 1 °C	
		Number of Ramps/Plateaus: 7/8 or more	
		Maximum Heating Rate: 50 °C/min or more	
		Oven Cool-Down: 400 °C to 50 °C in < 6 min or better	No Change
		3. Typical Retention Time Repeatability: 0.008 min or better	
		Typical Peak Area Repeatability: < 2% RSD or better	No Change
		4. Capillary Column Injector with Automatic Gas Controller	
		Suitable for all (0.1 mm to 0.53 mm i.d.) capillary columns	
		Temperature Range: 50° C - 450 °C	
		Pressure Range: 0–140 psi or more	
		Constant Pressure, Constant Flow and Programmed Pressure	
		Carrier Flow Setting: 0.1 ml/min to 100 ml/min or better	
		Split Flow Setting: 1 ml/min to 400 ml/min or better	
		Modes: Split and Splitless	
		Purge Flow Setting: 0 to 50 ml/min or better	
		Split Ratio: Up to 7500:1 or better	No Change
		5. Flame Ionization Detector with Automatic Electronic Gas Controller which should be compatible with 1/4" & 1/8", 1/16" and capillary columns	
		Flameout detection	
		Minimum detection limit : < 3 pg C/Sec for C9 hydrocarbon or better	
		Linear Dynamic Range: 10 to power7 or better	
		Maximum Temperature: 450 °C or more	
		6. <b>Automatic Headspace Sampler</b>	No Change
		Valve, Loop & Transfer-line based Automatic Headspace with Electronic	



		Flow/Pressure Control system.	
		The unit should be equipped with a 120 vial sample tray or more	
		Standard 20-mL vials with crimped cap & Septa for analysis of samples	
		Incubation oven with 12-vial capacity or more and vial shaking capability	
		Sample overlapping with constant incubation time	
		High temperature oven, valve, and transfer line Inert sample flow path	
		MHE with up to ten successive samplings from each vial	
		Crimper & decapper should be supplied along with system	
		Typical area repeatability <0.8% RSD or better	
		Vial size to use 10 mL, 20 mL and 22 mL headspace vials with:	
		Magnetic crimp or screw caps; flat or rounded bottom without any need of Vial adapter Dimensions, including septum and cap	
		Oven capacity: Air ventilated oven with 24-seat electrically-driven carousel	
		7. Suitable Columns for analysis –	
		5% Phenyl Methyl polysiloxane Capillary column or equivalent :- Qty 1	No Change
		Polyethylene Glycol (PEG)/Wax capillary column or equivalent :- Qty 1	
		8. Licensed Chromatography Management Software 64 bit or suitable with 21 CFR Part	
		11 (Compliance) with running capability in windows. The system should be completely control from computer	No Change
		9. All necessary consumables & spares like all Gases cylinders with regulators, Tubing,	
		Nut & ferrule, Gas Purification panel for all gases to install this equipment should be quoted	No Change
		UHP Grade Nitrogen Gas with Double Stage SS Diaphragm Regulator – Qty 1	
		UHP Grade Hydrogen Gas with Double Stage SS Diaphragm Regulator – Qty 1	
		UHP Grade Zero Air Gas with Double Stage SS Diaphragm Regulator – Qty 1	
		Gas Purification Panel for all gases	
		Startup/Installation Kit as required.	
		10. Computer Specifications: (Higher configuration are acceptable)	No Change
		Make : HP/Dell/IBM/Lenovo	

		Processor - Intel i5 (5 th generation) ; RAM - 4 GB ; Hard disk - 1 TB ; Graphic Card;	
		DVD writer; 21" TFT screen ; LAN Port ; USB Ports ; Wi-Fi ; Multimedia Keyboard	
		Optical Mouse	
		Operating System –Preloaded Windows 10 Pro ; Antivirus	
		Printer- Laser Printer Colour with duplex printing and LAN port.	
		UPS-5 KVA, Single phase with 60 minutes backup	
		11. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
5	<b>Atomic Absorption Spectrophotometer (AAS) with Hydride and graphite</b>	1. General: Optical Double-Beam system with Facility of automated changeover from Flame to future Graphite Furnace upgradation to avoid any mechanical movement	No Change
		of the set up while changing from flame to furnace mode (Including Auto sampler	
		of GF) (Simultaneously)	
		Future Ready Graphite furnace upgradation.	
		2. Optics:	
		Wavelength range: 185 to 900nm or better	
		Variable band width: 0.2 to 1.0 nm spectral bandwidths or better	
		Monochromator: Monochromator and prism or Grating with 1800lines/mm blazed	
		at 240nm or so with Reciprocal linear dispersion: 1.6 nm/mm or better	
		Sensitivity: Minimum absorbance of >0.9Abs for 5ppm Cu (Copper)	
		Reciprocal Linear Dispersion 0.5 nm/mm at 200 nm	
		Spectral bandpass of 0.1, 0.2, 0.5 or 1.0 nm should be automatically selectable	No Change
		No. Of lamps mount: Minimum 6 or more	
		Background Correction: High intensity D2 for flame as well as Zeeman with	
		Graphite Furnace back ground correction	
		Burner height: Automatic optimization of burner height	
		Fuel Flow: Automatic optimization of fuel flow	
		Detector: PMT [Photomultiplier tube] OR Solid State Detector (CMOS)	
		Titanium or inert Burner or better.	
		The burner height is to be automatically optimize	
		3. Other Features:	
		Flame ignition-Automatic.	
		Nebulizer chamber- An inert fluoroplastic spray chamber or equivalent.	No Change
		Automatic gas control system.	

	Safety measures: Software controlled, automatic oxidant changeover. Software controlled, automatic fuel gas boost on oxidant changeover. Automatic flame shut down. Fuel line flashback arrestor etc.	
	Suitable air compressor should be there Graphite Furnace Atomization	
	Integrated Zeeman background correction.	
	Monochromator: Echelle type	
	Suitable Air Compressor to be supplied of Internationally Reputed Brand	
	Single Elements for : Fe, As, Pb, Cr, Cd, Zn, Hg, Sn & Cu & all coded hollow cathode lamps to carry a 5000 mA/hr lifetime guarantee or better	
	Continuous Flow /Flow injection/Automated hydride Vapour Generator for analysis of As, Se, Hg etc. It should come with an integrated controller & four channel peristaltic pump.	
	Suitable Branded Desktop Computer with original software loaded. AAS software for automatic analysis, parameter setting, concentration computation, baseline correction, report generation. QA/AC data logging, etc	
	4. Automated hydride generator:	
	Continuous Flow /Flow injection/Automated hydride Vapour Generator for analysis of As, Se, Hg, Pb etc. It should come with an integrated controller & four channel peristaltic pump.	
	5. Local Supplies:	No Change
	Suitable compatible branded desktop computer with latest configuration (i5 or better with $\geq 21$ " Monitor, UPS) and licensed software (OS, Office, antivirus etc.) along with compatible laser jet printer.	
	Laser Jet (A-4 size) Printer	
	Acetylene Filled Cylinder for AAS analysis (UHP Grade) filled with gases, with necessary Tubing & Connectors -2 No.	
	Nitrous Oxide Filled Gas Cylinder for AAS application filled with gases, with necessary Tubing & Connectors. -2No.	
	Argon Filled Cylinder for AAS analysis (UHP Grade) filled with gases, with necessary Tubing & Connectors. -2No.	
	Double Stage Gas Regulators for Acetylene Gas Cylinder -1 No.	
	Double Stage Gas Regulators for Argon Gas Cylinder -1 No.	
	Double Stage Gas Regulators for Nitrous Oxide with heater -1 No	
	Stainless Steel Double Mood with Exhaust fan including necessary fitting and Ducting Facility -1 set.	

		Gas Distribution Line for Ar	
		Certified Standard solution for AAS (1000 PPM) (each bottle of 100 ml.) for Fe, As, Pb, Cr, Cd, Zn, Hg, Sn & Cu -1 Set	
		Cylinders may require to be kept in a separate room from the instrument. The supplier should carry out all the necessary pipe fittings to properly run the instrument at their end following standard safety protocols. Warranty for this will run concurrently with the instruments and costs will be included in the main offer.	
		The equipment should be provided with all necessary accessories and spare parts to run without hindrance.	
		The system should be suited to Indian system of electrical inputs (230V/ 50Hz). To be supplied with Branded 5KVa UPS with 30 minutes power backup.	
		Warranty of all items will strictly be applicable from the date of installation for the entire installation. Warranty of minimum 4 years must be provided.	
		The bidder should quote for only that equipment for which hardware, software and spare parts support will be available in next minimum 7 years.	
		There should be minimum 5 installations of the instrument in Indian Public Sector or CGIAR research institutes. The list should be provided.	
6	<b>Potentiometric Titrator with necessary electrodes</b>	1. Microprocessor controlled titration unit (vortex type) and control unit and shall also comprise the following:	No Change
		10 ml and 20 ml burette with tubing, connector & Teflon coated valve: 2 Nos each	
		Temperature sensor, Moisture filter	
		Glass dispensing tip 150 ml. Glass beaker 4 Nos.	
		Stand for mounting all above items	
		Electrode for aqueous titration – pH combination	
		Reagent bottles	
		The automatic titrator shall be accompanied with the following accessories:	
		Electrode pH glass body combination	
		Electrode for argentometric / precipitation titration – silver pin combination	
		Electrode for redox titration – Platinum pin combination	
		2. Combine functionality:	No Change
		Offered auto titrator must have functionality for determination of pH and for performing	
		aqueous titration, redox titration, argentometric / precipitation titration,	
		complexometric titration and silver assay	

	3. mV range: $\pm 2000$ mV or higher	No Change
	4. Accuracy: $\pm 0.10$ mV or better	No Change
	5. Polarized sensor range: $0 \pm 3200$ mV	No Change
	Polarized sensor Resolution: $0.10$ mV or better	No Change
	6. Burette resolution: $1 \mu\text{L}$	No Change
	7. Fill and drain time: Burette for Fill and Drain Time : $20$ s	No Change
	8. Titration head: Manual stand with swiveling arm	No Change
	9. Stirrer System: Instrument must have inbuilt magnetic stirrer which prevent vortex formation and enables better mixing for fast response of electrode	No Change
	10. End point detection: Potentiometric and voltametric	No Change
	11. Cut-off criteria: Volume, pH/mV and endpoint	No Change
	12. Special feature: Auto titrator should perform fast, reliable, and reproducible automated titrations. Auto burette recognition It should have a mode for performing automated calibrations program and save at least 100 user defined methods with password protection.	No Change
	It should provide flexible pH, redox, and ion concentration titrations. The unit should also	
	have feature of equivalence point titrations, preset pH or mV endpoint titrations. Auto titrator should have minimized downtime with easily replaceable burettes, tubing,	
	and dispensers. Auto titrator should have a feature to leave unattended in running condition until titration is completed.	
	Provision to connect electrode with BNC connector and also for differential electrode	
	13. Memory: Auto titrator should have memory to store at least 100 titration data sets with	No Change
	date/time stamp, transferable to printer, computer, or USB drive.	
	14. Display: Minimum 7" touch screen display with LCD graphic display the display should	No Change
	clearly show online graph of titration trend and also the status of burette filling, dispensing	
	15. Report format: Parameters and results, Data table for mV, pH, mV/ml, and volume ( $\mu\text{L}$ )	No Change
	titration curve mV v/s $\mu\text{L}$	
	16. Workstation: Computer latest model exclusive for use with Potentiometric Auto titrator to be provided with appropriate licensed software. Laser jet printer to be supplied.	No Change
	17. USFDA ( 510K) / European CE ( Issued by Notified Body) approved Model should be offered.	No Change

7	<b>Photo Fluorimeter</b>	1. Supply, Installation and demonstration of LED based Uranium Analyser with windows based software.	No Change
		2. Analytical technique: Fluorescence property of uranium.	No Change
		3. Element to be analysed: Uranium in aqueous medium.	No Change
		4. Radiation source: UV Light Emitting Diode (LED)	No Change
		5. Energy of LED per Pulse: 20µJ or higher	No Change
		6. Repetition rate: 1000 pulse per second	No Change
		7. Pulse to pulse variation of output energy: less than 1%	No Change
		8. Life of source of excitation: Minimum 5 years or more	No Change
		9. Detector: Photomultiplier tube	No Change
		10. Fluorescence averaged over: 2000 pulses	No Change
		11. Analyte volume: less than 10 millimetres	No Change
		12. Cuvette: Open top with non-sealing PTFE cover and transmission better than 80%	No Change
		13. Minimum detection level: $0.2 \pm 0.1$ microgram per litre of uranium concentration	No Change
		14. Dynamic range: 0.2 – 500 microgram per litre uranium concentration	No Change
		15. Precision: RSD must be less than 5%	No Change
		16. Mode of operation: Calibration curve method, standard addition method and fluorescence counts method	No Change
		17. Display: 18cm full colour LCD display with touch screen operation showing mode of operation, sample ID, uranium concentration in microgram per litre and other relevant information	No Change
		18. Memory: Uranium concentration data with sample ID can be stored (Min. 1000 measurement).	No Change
		19. Software: Windows based software for data administration and documentation of measuring series.	No Change
		20. Facility for introduction of sample ID, matrix type and date of analysis.	No Change
		21. Facility for transferring the data to computer and statistical analysis of data should be available.	No Change
		22. It should include the provision to draw the calibration curve with best – fit line equation and correlation coefficient.	No Change
		23. Facility for standard addition method and concentration calculation should be available.	No Change
		24. Accessories: Cuvette (4 numbers with each analyser unit), uranium standard, micro pipettes and power supply for the analyser unit	No Change
		25. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change

8	<b>Dissolution Apparatus with Auto Sampler 14 Stations</b>	Programmable tablet/capsule dissolution tester as per latest IP/BP/USP with all standard	No Change
		Polycarbonate Jars, Jar lids, fan paddles, basket paddles with basket in glass/acrylic bath	
		with heater.	
		Microprocessor controlled automatic dissolution rate test apparatus with a comprehensive self check routine which is initiated when power is switched on with following features /specifications:-	
		2. Quick interchangeable between USP 1 and 2 Method of testing.	No Change
		3. Suitable for sustained and controlled release products.	No Change
		4. High resolution Display with touch screen interface and Microprocessor controlled electronic speed controller.	No Change
		5. Should have Motorised lift mechanism for hands free and quiet operations.	No Change
		6. Automated tablets drop at single instance should be available.	No Change
		7. Speed range: 20 to 320 rpm ( $\pm 1$ accuracy) or better.	No Change
		8. Water bath must be made of acrylic/equivalent material with capacity to accommodate at	No Change
		least 8 bowls having a normal capacity of 1000 ml each of drawing system and On-Off. Drain tap for easy draining.	No Change
		9. The test vessels/Jars should be made of UV resistant Boro silicate glass or other suitable	No Change
		transparent material.	No Change
		10. Temperature range should be Ambient to 55°C or above with auto calibration system and	No Change
		that should not start until required temperature is achieved.	
		Temperature Accuracy : $\pm 1$ °C	
		Temperature Resolution : $\pm 0.1$ °C	
		11. Output: (A) RS 232 port / USB port for PC connectivity (B) Print out of test parameters	No Change
		and report. Suitable laserjet printer should be supplied.	
		12 The software should make the system GLP compliant with 21CFR part 11 compliances.	No Change
		13. Audit trails for all activities report generation and printing with multilevel user roles with	No Change
		password protection, electronic signature facility should be available.	
		14. Time interval Selector- In steps of 1 minute.	No Change
		15. Temperature sensor – Pt 100	No Change
		Dissolution process time-1 min to 72 hours and more.	



		16. System should be PC compatible	No Change
		17. EXTRA ACCESSORIES:	No Change
		(i) Intrinsic Dissolution Apparatus (rotating and stationary) - One Set	
		(ii) Enhancer Cell- One Set	
		(iii) Felodipine Basket - One Set	
		(iv) Sampling Cannula - One Set	
		(v) Apparatus 5 & 6 as per U.S.P – One Set each	
		(vi) Sinkers for capsules- 24 nos.	
		(vii) Chemical resistant poly carbonate bowls-08 nos.	
		(viii) Standard Calibration and Validation Kit- 01 nos.	
		(ix) Bowl stand for eight bowls- 01 nos.	
		(x) Particle filters: 10 micron- 100 nos. and 0.45 micron -100 nos.	
		18. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
9	<b>DT apparatus with facility for Bolus, Vaginal Tablet &amp; Suppository</b>	1. Microprocessor controlled Disintegration Test Apparatus with four basket unit and water bath system which should conform to standards of I.P/B.P/U.S.P in regards of	No Change
		Disintegration tests with following specifications with standard accessories:	No Change
		2. It should conduct four different tests individually as well as simultaneously.	No Change
		3. Digital indicator for temperature with electronic heater driver with water bath.	No Change
		Illuminator for clear observation of disintegration process.	
		Printer interface should be provided for recording parameters such as Temperature, batch no., time etc	
		4. Illuminated LCD Display screen.	
		Programmable digital timer.	No Change
		PAUSE & PARKING facility and Password protection should be available.	
		Instrument should be Wobble and vibration free.	
		5. Number of Strokes: 30 strokes per min.	No Change
		Extra Accessories:	No Change
		(i) 6 Basket unit with discs: 8 Nos.	No Change
		(ii) Only fluted Discs for six basket unit: 24 nos	No Change
		(iii) Bolus basket with three tubes with discs: 02 Nos.	No Change
		(iv) Bolus basket with one tube with discs: 02 Nos	No Change
		6. TABLET DISINTEGRATION TEST APPARATUS FOR SUPPOSITORY & PESSARIES with following specifications:	No Change
		i. Automatic rotation through 180 Degrees.	



		ii. Selectable cycling time for 1 minute or as desired.	
		iii. Programmable testing time for 1 min. to 10 hours.	
		iv. Digital display of elapsed testing time.	
		v. Built-in circulation pump, to maintain the Temperature at 37.0 °C.	
		vi. Temperature settable between 32.0 °C to 40.0 °C	
		vii. Separate attachment for Pessaries should be provided	
		7. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
10	<b>Polarimeter digital with Multi Wavelength</b>	1. Measuring Mode: Optical Rotation, Specific Rotation, Specific Rotation Plus Concentration, Sugar Scale °Z(ISS)	No Change
		2. Display: On screen LCD / LED (touchscreen) and / or on personal computer via USB ports (if operating on PC, PC requirement should be mentioned). Touchscreen will be preferred	No Change
		3. Accuracy: 0.01 deg Arc or better	No Change
		4. Reproducibility: 0.01 deg Arc optical rotation	No Change
		5. Resolution: 0.01 deg Arc optical rotation, 0.001% concentration, 0.001 specific rotation	No Change
		6. Measuring Range: ± 89.9 deg Arc Optical Rotation, ± 999.99° Arc Specific Rotation, 0-99.9% Concentration	No Change
		7. Optical Wavelength: 589 nm Na and Tungsten-halogen or Hg- Lamp (for 633 nm / 578 nm / 546 nm / 436 nm / 405 nm)	No Change
		8. Light Source: Sodium/Tungsten-halogen/LED with lifetime 100,000 h of operation	No Change
		9. Prism: Glan Thompson Calcite prism	No Change
		10. Detector: PMT	No Change
		11. Aperture: Should be variable for low concentration measurements	No Change
		12. Temperature: Temperature Range 15 °C to 40°C	No Change
		Temperature Accuracy: ±0.1°C	No Change
		13. Calibration: Automatic Calibration In-built via touchscreen.	No Change
		14. Calibration Standards: As per applicable standards	No Change
		15. Measurement time: 5 Measurements in less than 25 sec Avg.	No Change
		16. Sample Compartment: Accept sample tubes up to 200 mm	No Change
		17. Compliance: Full GMP/GLP and 21 CFR Part 11	No Change
		18. Data memory: > 2 GB	No Change
		19. Interfaces: Min. 4 USB ports, RS 232 standard or later standard, Ethernet, VGA port, CAN	No Change

		bus. Instrument should be compatible with common brands of PC, Keyboard, Printer and memory stick/external hard drives.	
		20. Sample cells:	
		Two Sample cells having pyrex glass with stopper.	
		Sample Length Sample Volume	No Change
		a. 100 mm 1.5 ml	
		b. 200 mm 2.0 mL	
		21. Power requirements: 230 V / 50 Hz – 230V/60Hz	No Change
		22. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
11	<b>Melting point apparatus Digital</b>	1. System should have microcontroller-based temperature controller.	No Change
		2. System should be based on automatic detection principle of melting point by silicon photodiode.	No Change
		3. Heating media must be by aluminium block.	No Change
		4. Temperature range of instrument should be +5°C above ambient to 350°C.	No Change
		5. It should have readability of approx. 0.1°C or better	No Change
		6. Instrument should have accuracy of temperature approx. $\pm 0.2^\circ\text{C}$ for +5°C above ambient to 200°C and $\pm 0.5^\circ\text{C}$ for 200°C to 350°C.	No Change
		7. System should have in-built overheating protection set by user in method parameter.	No Change
		8. It should have feature of automatic heating depending upon temperature difference for heating before electromagnetic pulse.	No Change
		9. Heating rate should be variable from 0.2 to 5.0 °C /min.	No Change
		10. LCD Display of approx. 20 x 4 Line Alphanumeric Backlit.	No Change
		11. System should have automatic detection of melting point and melting range.	No Change
		12. Must have the average reading display for three same sample of Melting Point	No Change
		13. Detection of boiling point through manual/automatic.	No Change
		14. It should have 5X magnification or better.	No Change
		15. Keypad should be membrane waterproof polycarbonate soft touch keypad.	No Change
		16. Should have camera with TFT Display for viewing melting capillary and boiling tube in capillary view.	No Change
		17. Should have feature of approx. 40 method for melting & 10 for boiling sample with view and print and delete facility.	No Change
		18. Should be with seven calibration standards.	No Change
		19. It should have sample filling height of 3mm.	No Change

		20. Maximum heating time should be around 6 minutes from 50°C to 350°C	No Change
		21. Maximum cooling time should be around 6 minutes from 350°C to 50°C	No Change
		22. Should have temperature sensor Duplex PT-100, One for internal used and one for calibration purpose by external source.	No Change
		23. Should have calibration data storage and analysis data storage features.	No Change
		24. It should have function of report formation as per GLP Compliance.	No Change
		25. A printer of 40 / 80 Column Dot Matrix Printer of Centronics Parallel Port / Serial (RS-232 C) Port interface should be provided with system.	No Change
		26. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
12	<b>Analytical Balance (4 digit) with printer along with Anti Vibrator Table</b>	1. Application: Required to measures mass to a high degree precision with a weighing capacity upto 220 g and a readability of 0.1 mg and protected by a draft shield or an enclosure.	No Change
		2. Operational Requirements: It should have Microprocessor based, single pan top loading analytical balance with high accuracy and precision.	No Change
		· Reading of the weight by digital display	
		· Balance with transparent case.	
		· Weighing with automatic and manual start and provision for data interface.	
		3. Technical Specifications:	No Change
		· Weigh accurately up to 3rd decimal place.	
		· Fully automatic time and temperature controlled internal calibration and balance should be capable to adjust itself Auto zero setting.	
		· Weighing capacity up to 220g Readability 0.1 mg, Repeatability 1 mg or less.	
		4. Balance should have:	No Change
		· Fast dismantling chamber for easy clean up	
		5. Environmental factors:	No Change
		· Safety for electromagnetic compatibility.	
		· The unit shall be capable of operating in ambient temperature of 20-30 ° C and relative humidity of 80%.	
		6. Accessories : All necessary accessories should be provided with unit.	No Change
		7. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change

13	<b>VISCOMETER</b>	1. Display type: Built-in-Display	No Change
		2. Measuring range for dynamic viscosity: 1.0 to 30000 mPas	No Change
		3. Measurement: Single and multipoint	No Change
		4. Display Resolution	No Change
		Viscosity: 4 significant digits or better Density: 0.001 gm/cm <sup>3</sup> or better	
		Thermostat: 0.01 °C or better	
		5. Accuracy	No Change
		Viscosity: 0.5% of measured value or better	
		Repeatability + 0.01 °C or better	
		6. Standards: Standards silicon oil	No Change
		7. Control system Interfaces: USB,	No Change
		8. Spindle/Speed combination 18 or more	No Change
		9. Speed 0.1-200 rpm	No Change
		10. Other Features-Programmable	No Change
		Auto range function, Temperature display, Stop condition, Time, Temperature, Torque and Viscosity.	
		11. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
14	<b>Bench Top pH Meter digital</b>	1. Unit: Consisting of Tri-combination pH/ATC electrode with an electrode holder/arm with smooth movement and protection cover	No Change
		2. Working pH Range: 0 – 14 pH	No Change
		3. pH resolution: ± 0.01 pH	No Change
		4. Mv Range: 0 - ± 1999 Accuracy ± 1mV	No Change
		Resolution: 1 mV	
		5. Temperature Compensation: 0 to 100 °C with ATC	No Change
		6. Temperature Range -10 to +105°C Resolution 0.1°C Accuracy ±0.5°C	No Change
		ATC range 0 to 100°	No Change
		7. Calibration Points : Should have 3 stage calibration with auto buffer recognition	No Change
		NIST traceable buffer set 500 ml each (pH 4.0, 7.0 & 9.0).	
		8. Alarm : Calibration reminder interval (1 to 999hrs)	No Change
		9. Temperature Compensation: Automatic	No Change
		10. Display: Backlit blue LCD with operation icon digital display with 0.001 pH unit readability	No Change
		11. Accessories	No Change
		Extra Electrode	
		Standard buffer solution (pH 4.0, 7.0, 9.0 x 500ml for each bottle)	
		Standard electrode holder	
		AC /DC Adaptor.	
		12. Power: 9V DC	No Change

		13. Data storage& Output: Data storage facility and record maximum and minimum value.	No Change
		RS.232C output and supplies Data connector cable.	
15	<b>HOT AIR OVEN</b>	14. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
		1. Size Inner Volume: 200 – 250 L	No Change
		2. External Body: Mild Steel with powder coated/ Stainless Steel 304 Grade	No Change
		3. Internal Chamber: Stainless Steel 304 Grade	No Change
		4. Insulation: Mineral Wool/ Ceramic Wool	No Change
		5. Door	No Change
		Inner: Stainless Steel 304 Grade	
		Outer: Powder coated Mild Steel/ Stainless Steel 304 Grade	
		Self-closing magnetic lock having door sealing material suitable to high temp	No Change
		6. Adjustable Shelf 2– 3 Perforated Stainless-Steel shelves (Removable) 304 Grade	
		7. Shelf Rest Pitch 30 mm	
		8. Temperature Range RT +5°C to 300 °C	No Change
		9. Temperature Accuracy: $\pm 0.5$ °C or better	No Change
		10. Temperature Uniformity: $\pm 2$ °C or better	No Change
		11. Control Panel: Door mounted Digital LCD display for set temperature, attained temperature, set time, heating ON/OFF	
		12. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	
16	<b>VACUUM OVEN</b>	1. Useful volume: 27 L or more	No Change
		2. Shell construction: High quality fabrication of S.S body with double wall arrangement and	No Change
		M.S panel board with neat powder coat painting	No Change
		3. Door: Specially designed SS door and inner door	No Change
		4. Insulation: Alumina fiber insulation/Rockwool	No Change
		5. Skin temperature: Maintained just above ambient	No Change
		6. Number of trays: Two SS Trays (Min.)	No Change
		7. Heating elements: Heater provided around the chamber	No Change
		8. Operation:	No Change
		Single phase / AC	
		Maximum Temperature: 200°C	
		Temperature control: PID programmable temperature indicator	
		Accuracy: $\pm 1$ °C	
		Indications: Main indicator and Output indicator	
		Control Switches: Mains on, output on and output power selection	
		Vacuum: Min 1 (One) Torr	

		Vacuum Indication: Analog/ Digital gauge Vacuum pump: Rotary vane	
		oil less Timer: Special timer for vacuum system	
		9. Operation function: Fixed temperature operation, Auto-start operation,	No Change
		10. Safety features: Self-diagnosis functions (Sensor, Heater Triac, Automatic	No Change
		Overheating prevention), independent overheating prevention, Key lock function, Electric leakage breaker	
		11. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
17	<b>Sonicator</b>	1. Tank capacity: 5 L or more (along with lid cover & drain valve)	No Change
		2. Ultrasonic power: 100 W or more	No Change
		3. Ultrasonic frequency: 32 to 38 KHz	No Change
		(Ultrasonic power and frequency should be variable to form uniform cavitation in tank)	
		4. Temperature Range: Ambient +5°C to 70°C with accuracy $\pm 1^\circ\text{C}$ .	No Change
		5. Timer: Electronic digital timer (0-99 minutes) with automatic switch on/off	No Change
		6. Control panel: Digital indicator & auto-controller for temperature, ultrasonic frequency and electronic digital timer	No Change
		7. Material of construction: All parts including accessories should be made of AISI-304/316 or equivalent stainless-steel material	No Change
		8. Accessories:	No Change
		SS mesh baskets- 2 Nos	
		Perforated trays - 2 Nos	
		Beaker holder - 2 Nos	
		Conical flask holder - 4 Nos	
		Test tube holders - 2 Nos.	
		Glass bottle holder - 2 Nos.	
		Tool kit, cleaning accessories and spare parts	
		9. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
18	<b>Fume Hood</b>	1. Working Size: W x D x H (mm) – 1200 x 900 x 900 with Temp/Air Vel/Air Flow	No Change
		2. Body Features:	No Change
		Double Wall Construction Completely made from GI sheet with Highly corrosion resistant epoxy powder coating Inner Chamber - Chemical & Heat Resistance, Fire retardant, smooth finish, easily cleanable, made out of durable FRP sheets / SS 304 of 18- 20 gauge thickness.	

		3. Working Table Top: Granite with 18 mm Thickness (Min.)	No Change
		4. Utility connections: Should be provided with Utility Pipe lines for Nitrogen, Compressed	No Change
		Air, Water	No Change
		5. Outer Covering (MoC): Epoxy Powder Coated	No Change
		6. Exhaust Duct:	No Change
		Chemically Resistant, PVC duct pipe Provided with bends, dampers, transitions and clamps up to blower	
		All joints should be curved in order to avoid any backtracking of fumes and a smooth	
		flow to exhaust fumes Two exhaust ports connected to the fume hood exhaust system internally	
		7. Sink & Tap:	No Change
		Sink : Shall made of chemically resistant material	
		No leakage shall observe from Outlet Nipple Shall be provided with Single way / Three-way swan neck tap	
		8. Exhaust Blower & Motor:	No Change
		Motor	
		Blower: 1400/2800 Rpm	
		Chemical & heat resistance heavy-duty	
		9. Door / Sash/ Shutter Material - Toughened Glass	No Change
		10. Noise Level: Not more than 65 dB	No Change
		11. Shelves in Base Storage Units/ Cabinets Number – 2	No Change
		12. Display LCD Control panel	No Change
		13. Illumination LED Light	No Change
		14. Electrical Arrangements Min. 2 Nos. 15/5 amps 3 pin electric socket	No Change
		15. Power Requirement 220/ 230 Volts	No Change
		16 Recommendations or Warnings: Any warning signs would be adequately displayed	No Change
19	<b>UV Cabinet</b>	1. Unit:	No Change
		• User-safe, self-contained chamber with Convenient handling	
		• Clear viewing window (open/close via hinged door) through button operation for each of two UV tubes	
		• Homogeneous illumination of chamber	
		2. Viewport: Soft rubber viewport and contrast control filter that absorbs UV energy to protect the eyes	No Change
		3. UV tubes: Two UV tubes for illumination each 8W	No Change
		• Long-wave UV light 366nm	
		• Short-wave UV light 254nm	No Change
		4. Safety timer	



		User safety through tilt sensor and timer (automatic switch- off after 10 min)	
		5. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
20	<b>Magnetic Stirrer</b>	1. Should have Work plate Dimensions(mm)—approx. 5-inch X 7 inch	No Change
		2. Work Plate should be coated with poly-ceramic.	No Change
		3. It should have maximum stirring capacity for approx. 5 liters	No Change
		4. Should have speed and temperature with twin display LCD	No Change
		5. Should have maximum work plate heating temperature 500°C	No Change
		6. Should have RPM-100- 1100 with speed +5 % with digital display	No Change
		7. External temperature sensor PT100 should be available for hotplate model, real-time controls medium temperature.	No Change
		8. Should have PID temperature technology precise controls heating process, should rapidly reach target temperature and should have enhanced control accuracy.	No Change
		10. It should have hot warning which indicates residual hotplate temperature.	No Change
		11. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
21	<b>Refrigerator 235 ltr double door</b>		<b>Refrigerator 500 ltr double door</b>
		1. Material: Stainless steel	No Change
		2. Capacity: Approx. 500 L and above	No Change
		3. Adjustable Shelves: Tempered glass shelves 05 No.	No Change
		4. Doors:	No Change
		5. Two Stainless steel doors side by side	No Change
		6. Refrigerator and freezer must be side by side	No Change
		7. Temperature Range:	No Change
		8. Independent Digital display and temperature controls for refrigerator and freezer	No Change
		9. Refrigerator +2 o to +8 o C Freezer -15 to -20 o C	No Change
		10. Audio alarm: Alarm if door is ajar for long	No Change
		11. Inner body: Rust Free Material	No Change
		12. Refrigerant: CFC / HCFC Free	No Change
		13. Frost Free: In built Voltage Stabilizer	No Change
		14. Door Lock & Interior light High/Low cut with timer delay	No Change
		15. Temperature Control:	No Change



		16. Same Temperature: Top to Bottom Microprocessor based	No Change
		17. Temperature Controller with Digital Display	No Change
22	<b>Deep freezer -20 °C</b>	1. Unit:	No Change
		• Interior: Full stainless steel which can be easily cleaned and eliminates any possibility of cross-contamination	
		• Cooling Type: Direct cooling	
		• Should be Vertical (Upright) type Microprocessor-based	
		• Frost Free Refrigerant: CFC Free Easy to read, LED control pane and alarm status	
		• with integrated diagnostics.	
		• Doors with key lock	
		• Castors for easy movability	
		2. Capacity: 250 L or higher with a combination of sealed 5-7 pullout drawers/shelves	No Change
		of different sizes that can be adjusted for storage flexibility	
		3. Temperature	No Change
		• Range - 10 ~ - 20 °C with temperature controller	
		• Digital temperature display	
		• LED Display for temperature and temperature history which can be downloaded via a USB port	
		• Calibration facility	No Change
		4. Alarms: Acoustic/visual Safety alarms for	
		• High/low temperature,	
		• Door ajar and	
		• Malfunction system alarms	No Change
		5. Optional Accessories: Racks for 50 mm boxes (incl. dividers), Racks for 75 mm boxes (incl. dividers)	
		6. Voltage stabilizer: Suitable and compatible voltage stabilizer	No Change
		7. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
23	<b>Thermostatic Water Bath</b>	a. Material of construction	No Change
		b. Rounded, seamless stainless-steel bath to preventing rust, chemical damage and contamination.	
		i. Powder coating like epoxy coating exterior for easy cleanup	
		ii. Corrosive resistant stainless-steel Gabled drip free lid	
		2. Unit	No Change
		i. Microprocessor controlled digital display.	
		ii. Instrument should have lift up drip free bath cover;	
		iii. Carrier racks should be given for flasks and test tubes racks.	

		iv. Convenient water bath drains.			
		v. Water bath surface coating should prevent contamination and formation of algae.			
		vi. Easy cleaning			
		3. Temperature			
		i. Temperature Range: Ambient +5°C to 99°C Temperature Accuracy: ± 0.2 °C at 37			No Change
		ii. .0°C Temperature Uniformity: ± 0.5 °C at 37 .0°C			
		iii. Digital LED display for operating status of TEMP Over-Temperature Cut-Off			
		iv. Temperature calibration function			
		4. Alarms			
		i. Audible warning safety signals should be there for high/low temperature warnings			No Change
		ii. Low liquid level			
		5. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.			No Change
		Additional Point			Tank Capacity not less than 12 ltr.
24	1. Computer with Printer	Items	Specification Name	Final Specification	No Change
		Processor- Intel, AMD	Processor Make		No Change
		Processor Generation	10 or higher		No Change
		Number of Cores per Processor	4 or higher		No Change
		Processor Base Frequency (GHz)	3.7 or more		No Change
		Processor Description	Latest Generation 64 Bit processor support up to 4.40 Ghz or higher clock speed.		No Change
		Cache (MB)	6.or higher		No Change
		Motherboard	Chipset Series	Intel, AMD compatible chipset with the above processor. Motherboard make from the same desktop OEM (OEM logo must be embossed in the motherboard)	No Change

Security	Discrete TPM 2.0		No Change
Expansion Slots (PCIe x 16) (Number)	1 or more		No Change
Expansion Slots (M Dot 2)	2 or more		No Change
Graphics	Graphics Type	Dedicated / Integrated	No Change
Certification	ROHS Compliance	Yes	No Change
Energy Star for the quoted Desktop Model	8.0 or latest		No Change
FCC, UL, CE (for the quoted Desktop model not for the quoted	Yes (all)		No Change
ISO (OEM/Bidder)	ISO 9001,14001,27001		No Change
EPEAT India (for the quoted desktop model)	Yes		No Change
Operating System	Operating System (Factory Pre-Loaded)	Factory pre-install Windows 11 Home (64 bit) with latest Service Pack and Preloaded License, Systems Hardware driver should be available in OEM website against the offered model.OEM letter confirming that Operating system pre-loaded / pre-installed from OEM factory	No Change

OS Certification	Windows Professional and Linux (Linux certification must available in the Public Domain with the quoted Desktop model no. ** Quoted Desktop series will not accept)		
Memory	RAM Size (GB)	8 or more	No Change
RAM Expandability up to (using spare DIMM Slots in GB)	64, 128 Or higher		No Change
Power	Power Supply Capacity (Watt)	Minimum 200W	No Change
Minimum Power Efficiency Range (%)	85 - 94		No Change
Storage	Type of Drives used to populate the Internal Bays	SATA	No Change
Total SATA Capacity (GB)	1000 or more		No Change
Connectivity	Wireless Connectivity	Yes	No Change
If Yes, Type of Wireless Connectivity	Wi-Fi 802.11ac		No Change
Number of Ethernet Ports	1		No Change
Type of Ethernet Ports	10/100/1000 on board Integrated Gigabit Port		No Change
Ports	Number of USB Version 2.0 Ports	4	No Change
Number of USB Version 3.2 Gen 1 Ports	4		No Change
Number of VGA Ports	1		No Change
Number of HDMI Ports	1		No Change
Cabinet	Cabinet Form Factor	SFF or Tower	No Change
Monitor (Same Desktop OEM Make)	Monitor Technology	IPS, VA, TN	No Change
LED Backlit Monitor Size (INCHES)	18.5 or higher		No Change

Monitor Resolution (PIXELS)	1366 x 768 or better	No Change
<b>Printer</b>		
<b>SPECIFICATION</b>	<b>PARAMETER</b>	<b>Deleted</b>
Rating in KVA/ min VAH capacity of battery (KVA/VAH)	0.6/84	
Technology	MOSFET-PWM	
Type of battery	SMF-VRLA confirming to JISC-8702 Pt 1,2 &3	
Rated Output (Volt)	Single phase sinewave 230v AC, 50Hz	
Degree of protection	IP 20	
Inverter Efficiency (%)	> / = 60%	
Warranty for the battery from the date of delivery	1 year	
Warranty for Line Interactive UPS	1 Year	
Installation and commissioning instructions	No	
Type of enclosure	ABS	
AC out put for printer (not through inverter)	No	
Inverter out put socket AC out put for printer (not through inverter)	Not applicable	
Total harmonic distorsion (%)	< / = 40%	
Input (Volt)	Single phase sinewave(160-280v)	
Switching over time (Mili sec)	Maximum 10 milli seconds	
Overload Time (Minutes)	> / = 5 minutes	
Load power factor	> / = 0.6	
Variation in AVR output in AC mode (%) AVR (Voltage regulation) output voltage in AC Mode	230 Volts +/-9%, 50 +/-3 Hz	
Overload (%)	> / = 10%	
Variation in output voltage in battery mode (%) (UPS output voltage in battery mode)	230 Volts +/- 10%	
Variation on output frequency in battery mode (Hz)	< / = 0.5	
Protection against (over discharge)	10.5	

discharge per 12v battery (Volt)	
Protection for outside input voltage range: If Input voltage goes outside the range 160 to 280 Volts, the system shall switch over to battery mode	Yes
Protection against short circuit of UPS	Yes
Protection for over voltage and over load	Yes
Damp heat Test at 45 degree , RH -95% for 2-cycle as per IS:9000 pt-5/sec-1	Yes
Dry heat Test at 45 degree for 16 Hrs as per IS:9000 pt-3/sec-5	Yes
Cold Test as per IS:9000 pt-2/sec-4	Yes
<b>Additional Point</b>	1. Print Technology- Laser
<b>Additional Point</b>	2. Type of Machine- Multifunction Machine
<b>Additional Point</b>	3. Type of Printing- Mono
<b>Additional Point</b>	4. Cartridge Technology- Separate Drum and Toner (Mono Component)
<b>Additional Point</b>	5. Developer Unit- Yes
<b>Additional Point</b>	6. Platen/Flatbed Size- A4
<b>Additional Point</b>	7. Paper Size (Original/Image)- A4/A4
<b>Additional Point</b>	8. RAM size (MB)- 64
<b>Additional Point</b>	9. Minimum Speed per Minute as per ISO/IEC 24734 in A4 Size-Mono-25
<b>Additional Point</b>	10. Scanning Feature Availability- Yes
<b>Additional Point</b>	11. Duplexing Feature Availability- Yes

		<b>Additional Point</b>	12. Networking Feature Availability- Yes
		<b>Additional Point</b>	13. If yes, Type of Network Interface- Ethernet 10/100
		<b>Additional Point</b>	14. Original Document Feeder Type- ADF
		<b>Additional Point</b>	15. Feeder Capacity (Number)- 35
		<b>Additional Point</b>	16. Number of Main Paper Tray- 1
		<b>Additional Point</b>	17. Each Main Paper Tray Capacity (Number)- 250
		<b>Additional Point</b>	18. Bypass Facility- Yes
		<b>Additional Point</b>	19. If Yes, Bypass Tray Capacity-1
		<b>Additional Point</b>	20. Yield of the cartridge/Ink Tank/Ink Pack supplied with Machine as per ISO/IEC: 19752/2004(E) for Black (Number of prints)- 1000
		<b>Additional Point</b>	21. Life of Drum in terms of number of Prints in case of Separate Drum and Toner cartridge technology - Black (Number of Prints)- 100000
		<b>Additional Point</b>	22. Duty Cycle (No of Prints/month)- 10000
		<b>Additional Point</b>	23. Minimum Operating Temperature (Degree C)- 10

25	<b>Muffle Furnace Digital</b>	1. Inside Chamber Volume: 7 L or better with lift door with hot surface facing away from the operator and swing aside door at the front	No Change
		2. Furnace construction: Double shell steel case with cooling fan to keep outside case cool	No Change
		High purity alumina fibre insulation for max. energy saving	
		3. Temperature Range: 900 - 1600 o C	No Change
		4. Standard Working Temperature: 1200 o C	No Change
		5. Temperature accuracy: +/- 1°C	No Change
		6. Heating rate: The furnace should be of fast heating type with the maximum attainable temperature should reach as a ramp function in less than one hour.	No Change
		7. Accessories to be supplied:	No Change
		Protection Glove 2 pairs	
		Crucible Clip 1 pair	
		Crucibles 6 pcs	
		SS Tongs 2 pcs	
		8. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
26	<b>Water purification system HPLC water system</b>	1. System should be capable of providing ASTM Type I (18.2 Mega ohm resistivity) Water from	No Change
		potable tap water, Wall mountable/bench-top system for microbiology / molecular biology/LC-MS/MS, GC-MS/MS, ICPMS grade water applications.	
		2. System should be capable of handling feed water Specification:	No Change
		3. Conductivity up to 2000 µS/cm,	No Change
		4. B. Fouling Index (SDI) & 12 and	No Change
		5. C. Total Chlorine less than 3 ppm,	No Change
		6. D. Should have Pressure 1-6 bar	No Change
		7. System should have a Pre-Filtration kit with 5µm & 1 µm filter followed by a 3-stage pre-treatment cartridge consisting of Activated Carbon, Anti-scaling Agents and 0.5µm depth	No Change
		filter to protect downstream cartridge. Pre-treatment with inbuilt softener to handle 250-300 ppm of hardness & activated carbon for the removal of free chlorine & tap water Organics.	
		8. Reverse Osmosis module should be made up of thin film composite polyamide RO membrane with rejection rate of 94 - 99% and recirculation loop for optimum utilization of feed water, with provision of monitoring the performance on display.	No Change
		9. Should have Conductivity sensor before and after RO to monitor feed water conductivity.	No Change



		10. System should have Feed water specific Purification pack before UV lamp consisting of	No Change
		mixed bed ion exchange resin/ micro filter / activated carbon to ensure better purification and longer life of the cartridges.	
		11. System should have dual wavelength UV Lamp (185 and 254nm) to ensure reduction of TOC	No Change
		as well as destruction of bacteria.	
		12. To ensure constant flow rate system should have unique temperature feedback mechanism	No Change
		13. System should have co-axial resistivity cell with 0.01cm -1 cell constant at various stages of	No Change
		purification chain to monitor the quality of water	
		14. System's Cartridge should have RFID Tag which enables traceability of Mfg. Date, Lot No., Life of Cartridge no. of day's usage etc. and facilitates estimation of volumetric life of the cartridges.	No Change
		15. 50 liters PE tank with auto cut-off level sensors.	No Change
		16. Production rate of Purified Water @ 8 liters/hr	No Change
		17. Ultra-Pure (Type I) water should have following specs:	No Change
		Resistivity 18.2 Mega Ohms.cm @ 25 Degree C.	
		TOC < 5 ppb	
		Bacteria < 0.1 cfu/ml	
		Particulates (.22 micron) < 1 /ml	
		Flow rate Adjustable between 50 ml / min to 2000 ml /min.	No Change
		18. All Consumables should be covered like (cartridges, filters etc.) during the warranty period and must quote separately after warranty usage.	
		19. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
27	<b>Eye wash and shower</b>	1. Safety shower and eye wash operates independently	No Change
		2. Type: Emergency Eyewash and Shower	No Change
		3. Water Inlet and Drain	No Change
		4. Water Outlet Connection	No Change
		5. Flow: 8 - 15 LPM	No Change
		6. Activation: For shower - Pull rod, For eyewash - Push plate/Foot paddle	No Change
		7. Bowl material: ABS	No Change
		8. Valve Material: SS stay open ball valve with yellow ABS push plate	No Change
		9. Pipe Material: Stainless steel	No Change
		10. Shower Head Material: Highly Visible Yellow ABS plastic	No Change
		11. Supply Water: Drinking Water	No Change
		12. Operating Pressure: 2.81 kgf/cm <sup>2</sup> (40 PSI)	No Change

28	<b>Flame Photometer</b>	1. Element Range: Should have Na, K, & Li: 0.1-100 ppm, Ca: 15-100 ppm, Ba: 50-1000 ppm	No Change
		2. Sensitivity– Should be Na: 0.5 ppm, K: 0.5 ppm, Li: 0.5 ppm, Ca: 15 ppm, Ba: 50 ppm	No Change
		3. Specificity should be less than 0.5% interference when concentrations are equal to test sample concentrations	No Change
		4. Filter Selection should be Automatic	No Change
		5. Should have Resolution: 0.1 ppm	No Change
		6. Reproducibility-	No Change
		Should be <1% Coefficient of Variation (CV) for 20 consecutive samples Using 10 ppm	
		Na set as maximum standard “Curve Fitting Accuracy <1% error when 3 ppm Na/K and 5 ppm Li are set as maximum standards.	
		7. Detector Should be: Silicon Photodiode	No Change
		8. Should have Calibration: Up to 05 standards per Elements with Curve Fitting Software in-built with Instrument.	No Change
		9. Ignition System should be: Automatic	No Change
		10. Flame Type: Should have LPG & Dry Oil Free Air	No Change
		11. Display:12.5mm or more, Line Alphanumeric LCD/led with Backlight	No Change
		12. Auto Flame ON / OFF Detection: Yes, Audio and Visual Alarm	No Change
		13. Linearity- Should be Better than 2%	No Change
		14. Gas Control: Should be Adjustable with Regulator	No Change
		15. Atomizer should be of Axial Flow Type	No Change
		16. Air Supply Unit: It should Consist of Air Compressor, Pressure Gauge, Pressure Regulator, Moisture Filter, PU Tube (2 Meters) and Air filter with moisture absorbent catalyst	No Change
		17. Analysis Data Storage at least should be more than 750	No Change
		18. Accessories:	No Change
		Barium (Ba) Filter, Barium 1000 ppm Stock Solution, Calcium (Ca) Filter, Calcium 100 ppm	No Change
		Stock Solution	No Change
		500 ml, Keypad Screen Guard, Lithium (Li) Filter, Lithium 100 ppm Stock Solution – 500 ml,	No Change
		Potassium	No Change
		100 ppm Stock Solution – 500 ml, Sodium 100 ppm Stock Solution – 500 ml	No Change
		Power Supply: 230VAC ±10%, 50 Hz	No Change

29	<b>LIMS (With High Speed Internet)</b>	1. Laboratory information management system (LIMS): Need an advance customize software for Laboratory information management system to improve the Laboratory productivity and efficiency by keeping track of data associated with sample, laboratory workflows and Instruments.	No Change
		2. An ideal LIMS should: -	No Change
		a. Sample Location and Tracking	
		b. Reagent and consumables Inventory	
		c. Instrument integration	
		d. Development, optimization and expansion of workflows	
		3. Modularity	No Change
		4. Configuration	No Change
		5. Report and dashboard generation	No Change
30	<b>Weighing Box (Calibrated)</b>	6. Compliance	No Change
		1. Accuracy Class F2	No Change
		2. Standard OIML R 111-1 Edition 2004 (E)	No Change
		3. Construction 50kg – 20g - 2 pieces	No Change
		4. 10g – 1mg - 1 piece	No Change
		5. Shape of weight 50kg - Cylindrical with handle	No Change
		6. 20kg to 1g - Cylindrical with knob	No Change
		7. 500-50-5mg - Pentagon	No Change
		8. 200-20-2mg - Square	No Change
		9. 100-10-1mg - Triangle	No Change
		10. Weight Material Stainless Steel	No Change
		11. Box Type & Accessories Polished wooden box lined with velvet cloth, brushes and Piece of Chamois	No Change
		Leather, forceps and gloves	
31	<b>PRECISION BALANCE</b>	1. Dimension :225 mm X 65 mm X 200 mm	No Change
		2. Linearity:100 gm± 0.03 gm or better	No Change
		3. Maximum Capacity: 620 gm	No Change
		4. Minimum weight (USP) Typical:15 gm or less	No Change
		5. Readability:0.01 gm	No Change
		6. Setting time: 5 sec or Less	No Change
		7. Weighing Pan Diameter: 150 mm (Approx)	No Change
		8. Display: LCD/LED Display	No Change
		9. Interfaces: 9 Pin Male Connector	No Change
		10. Printing Unit : Dotmatrix 24 Character / line	No Change
		11. Printing Speed : 1 line per second	No Change
		12. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change