

### **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/2023-24/ME-306. 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/2023-24/ME-306</b>
Last date and time of submission of online bids	<b>24<sup>th</sup> May 2023 till 17:00 Hrs.</b>
Last date and time of submission of original documents of EMD, Tender Fee and Document	<b>25<sup>th</sup> May 2023 till 14:00 Hrs.</b>
Date, Time and Place of opening of Technical Bid	<b>25<sup>th</sup> May 2023 (at 15:00 Hrs.) on the website of <a href="https://eproc2.bihar.gov.in">https://eproc2.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="https://eproc2.bihar.gov.in">https://eproc2.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**

### Annexure-I

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 as: Scan, wavelength programming, Validation, Concentration, GLP administration, Kinetics, System information.	No Change
		12. Software should be 21CFR 11 Compliant.	
		13. 13 Five pair of quartz cuvettes of 10 mm path length.	
		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.	Upgrade- system must be able to upgrade all accessories in future for Drug applications like- peltier cell, praying mantis, sipper unit, autosampler, fiber optic module.
		16. Computer Specifications: (Higher configuration are acceptable) 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.	No Change
		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>	Wave number range: 6000 to 500 cm <sup>-1</sup>
		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.	Signal to Noise Ratio 50000:1 Or better peak to peak for 1 min.

	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 Software Spectral interpretation for unknowns; Quality checks programs and CFR-21 Part-11 Compliance should be available.	No Change
	13. The software should have real time data collection and should have the facility to continuously monitor the performance of source, detector, power supply and laser.	No Change
	14. Libraries: Built in Library with Minimum 30000 reference spectra for pharmaceutical products and drugs and other compounds	Libraries: Facility to create Library with Minimum 30000 reference spectra for pharmaceutical products and drugs and other compounds
	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/Lenovo	
	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>	<p>HPLC system consisting of Quaternary Gradient pump, Integrated Auto Injector,</p> <p>Online Degasser, Column Heater, UV Detector along with software and Accessories Quaternary Gradient Pump:</p> <p>Principle: Low Pressure Mixing - Serial Dual Piston</p> <p>Automatic Gradient Profile Facility 1-9 or higher</p> <p>Quaternary Pressure Gradient pump</p> <p>Operating Flow Range: 0.001–10 mL/min or better</p> <p>Flow Accuracy: <math>\pm 0.1\%</math></p> <p>Flow Precision: <math>\leq 0.1\%</math> RSD</p> <p>Prop. Accuracy: <math>\pm 0.5\%</math></p> <p>Precision: <math>\leq 0.3\%</math> SD</p> <p>Pressure Range: 8500 psi or equivalent</p> <p>Pulsation: <math>\leq 2</math> bar or <math>\leq 1\%</math> whichever is greater</p> <p>Solvent Degassing: Built-in (Integrated), 4-channels</p> <p>Error detection, Leak detection and safe leak handling display feature should be available.</p> <p>Delay volume variable 390ul-1500ul user selectable.</p> <p>The pulsation must be below 0.1% or 0.2 MPa (whichever is greater)</p> <p>The flow accuracy must be <math>\pm 0.1\%</math> or better</p> <p>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.</p> <p><b>2. Autosampler:</b></p> <p>Operating Principle: Inline Split Loop</p> <p>Sample Capacity: 90 vials or more</p> <p>Injection Volume: 0.01–100 <math>\mu\text{L}</math></p> <p>Injection Volume Accuracy: <math>\pm 1\mu\text{l}</math></p>	<p>No Change</p> <p>No Change</p>

	<p>Injection Volume Precision: &lt; 0.1% of RSD</p> <p>Injection Volume Linearity: &gt; 0.9999 RSD &lt; 0.5% at 5 – 90 µL</p> <p>Sample Carry Over: Not more than 0.005 % from previous injection</p> <p>Temperature Accuracy Sampler: ± 2°C</p> <p>Pressure Range: 8500 psi or equivalent</p> <p>Auto sampler should have auto dilution facility in needle derivations facility.</p>	
	<p><b>3. Column Heater:</b></p> <p>Temperature Control Range: 15° C to 80° C</p> <p>Temperature accuracy: ± 0.5° C</p> <p>Column heater should hold 3 columns of 30 cm length.</p> <p>Column switching valve should be supplied along with the instrument for automated method development.</p>	No Change
	<p><b>4. Diode Array Detector:</b></p> <p>The detector must typically provide a linear range &gt; 2.2 AU or more.</p> <p>The wavelength range of the detector must range from 190 to 800 nm with Additional Tungsten Lamp available.</p> <p>The drift of the detector must be below 1 mAU/h at 254 nm.</p> <p>Detector Noise must be &lt;± 8µAU at 254 nm.</p> <p>No. of Photodiodes must be 1024 for better spectral resolutions.</p> <p>The detector must provide a data collection rate of up to 120 Hz with spectra acquisition.</p> <p>The detector must be able to record 8 channels plus 3D field simultaneously. Standard analytical flow cell should be of 10mm path length and &gt;10µL flow cell volume.</p> <p>The detector must have an internal wavelength calibration using the D-alpha line of the deuterium lamp.</p> <p>Wavelength validation must be validated by a holmium oxide filter.</p> <p>Basic instrument control of the detector can be achieved by a keypad.</p> <p>The detector must provide a software-supported predictive performance function for scheduling maintenance procedures.</p>	No Change

		The Detector must have built in safety features like Leak detection and safe leakhandling, excess pressure monitoring.	No Change
		<b>Fluorescence Detector:</b>	
		Detector Operating Principle: Concave, blazed holographic grating monochromators or similar	
		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 Thermostating: Ambient +10 °C to 50 °C	
		<b>RI Detector:</b>	No Change
		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.	
		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>	No Change
		Same software should be able to control all modules of HPLC system.	
		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	No Change
		Printer- Laser Printer Monochrome with duplex printing and LAN port.	
		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	
	<b>6. 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	
	<b>7. Suitable Columns for analysis –</b>	
	5% Phenyl Methyl polysiloxane Capillary column or equivalent :- Qty 1	No Change
	Polyethylene Glycol (PEG)/Wax capillary column or equivalent :- Qty 1	
	<b>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</b>	No Change

		control from computer	
		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	
		UHP Grade Nitrogen Gas with Double Stage SS Diaphragm Regulator – Qty 1	No Change
		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)	
		Make : HP/Dell/IBM/Lenovo	
		Processor - Intel i5 (5 th generation) ; RAM - 4 GB ; Hard disk - 1 TB ; Graphic Card;	No Change
		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 of the set up while changing from flame to furnace mode (Including Auto sampler of GF) (Simultaneously)	No Change
		Future Ready Graphite furnace upgradation.	
		2. Optics:	
		Wavelength range: 185 to 900nm or better	No Change
		Variable band width: 0.2 to 1.0 nm spectral bandwidths or better	Variable band width: 0.1 to 2.0 nm
		Monochromator: Monochromator and prism or Grating with 1800lines/mm blazed at 240nm or so with Reciprocal linear dispersion:	No Change

		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. 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.	
		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.	No Change
		Suitable air compressor should be there Graphite Furnace Atomization	
		Integrated Zeeman background correction.	
		Monochromator: Echelle type	
			Monochromator: Echelle type/Czer ny type
		Suitable Air Compressor to be supplied of Internationally Reputed Brand	No Change
		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.	No Change
	It should come with an integrated controller & four channel peristaltic pump.	
	5. Local Supplies:	
	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.	No Change
	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 form 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	

		<p>run concurrently with the instruments and costs will be included in the main offer.</p> <p>The equipment should be provided with all necessary accessories and spare parts to run without hindrance.</p> <p>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.</p> <p>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.</p> <p>The bidder should quote for only that equipment for which hardware, software and spare parts support will be available in next minimum 7 years.</p> <p>There should be minimum 5 installations of the instrument in Indian Public Sector or CGIAR research institutes. The list should be provided.</p>	
6	<b>Potentiometric Titrator with necessary electrodes</b>	<p>1. Microprocessor controlled titration unit (vortex type) and control unit and shall also comprise the following:</p> <p>10 ml and 20 ml burette with tubing, connector &amp; Teflon coated valve: 2 Nos each</p> <p>Temperature sensor, Moisture filter</p> <p>Glass dispensing tip 150 ml. Glass beaker 4 Nos.</p> <p>Stand for mounting all above items</p> <p>Electrode for aqueous titration – pH combination</p> <p>Reagent bottles</p> <p>The automatic titrator shall be accompanied with the following accessories:</p> <p>Electrode pH glass body combination</p> <p>Electrode for argentometric / precipitation titration – silver pin combination</p> <p>Electrode for redox titration – Platinum pin combination</p> <p>2. Combine functionality:</p> <p>Offered auto titrator must have functionality for determination of pH and for performing aqueous titration, redox titration, argentometric / precipitation titration,</p>	<p>No Change</p> <p>No Change</p>

	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 (µL) titration curve mV v/s µL	No Change
		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 windowsbased 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 ± 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.	
		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	No Change

	On-Off. Drain tap for easy draining.	
	9. The test vessels/Jars should be made of UV resistant Boro silicate glass or other suitable transparent material.	No Change
	10. Temperature range should be Ambient to 55°C or above with auto calibration system and that should not start until required temperature is achieved.	No Change
	Temperature Accuracy : $\pm 1^{\circ}\text{C}$	
	Temperature Resolution : $\pm 0.1^{\circ}\text{C}$	
	11. Output: (A) RS 232 port / USB port for PC connectivity (B) Print out of test parameters and report. Suitable laserjet printer should be supplied.	No Change
	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 password protection, electronic signature facility should be available.	No Change
	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.	No Change
	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.	No Change
		Programmable digital timer.	
		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	No Change

		Notified Body) approved Model should be offered.	
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 bus. Instrument should be compatible with common brands of PC, Keyboard, Printer and	No Change

		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 automatically detection principal 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	No Change

		viewing melting capillary and boiling tube in capillary view.	
		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/cm3 or better	
		Thermostat: 0.01 0 C or better	
		5. Accuracy	No Change
		Viscosity: 0.5% of measured value or better	
		Repeatability + 0.01 0 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 $\pm 0.5^{\circ}\text{C}$	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.	
		14.USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.	No Change
15	<b>HOT AIR OVEN</b>	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	
		6. Adjustable Shelf 2– 3 Perforated Stainless-Steel shelves (Removable) 304 Grade	No Change
		7. Shelf Rest Pitch 30 mm	No Change
		8. Temperature Range RT +5°C to 300 °C	No Change
		9. Temperature Accuracy: $\pm 0.5^{\circ}\text{C}$ 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 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 Overheating prevention), independent overheating prevention, Key lock function, Electric leakage breaker	No Change
		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)	

		4. Safety timer	No Change
		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 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 °C to +8 °C Freezer -15 to -20 °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 of different sizes that can be adjusted for storage flexibility	No Change
		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	
		4. Alarms: Acoustic/visual Safety alarms for	No Change
		• 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	No Change

		Notified Body) approved Model should be offered.			
23	Thermostatic Water Bath	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			No Change
		i. Temperature Range: Ambient +5°C to 99°C Temperature Accuracy: ± 0.2 °C at 37			
		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			No Change
		i. Audible warning safety signals should be there for high/low temperature warnings			
		ii. Low liquid level			No Change
		5. USFDA (510K) / European CE (Issued by Notified Body) approved Model should be offered.			
		Tank Capacity not less than 12 ltr.			No Change
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	3.7 or more		No Change

Base Frequency (GHz)			
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	Yes		No Change

desktop model)			
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)		No Change
Memory	RAM Size (GB)	8 or more	No Change
RAM Expandability up to(using spareDIMM 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 1Ports	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
Printer			
1. Print Technology- Laser			No Change
2. Type of Machine- Multifunction Machine			No Change
3. Type of Printing- Mono			No Change
4. Cartridge Technology- Separate Drum and Toner (MonoComponent)			No Change
5. Developer Unit- Yes			No Change

		6. Platen/Flatbed Size- A4	No Change
		7. Paper Size (Original/Image)- A4/A4	No Change
		8. RAM size (MB)- 64	No Change
		9. Minimum Speed per Minute as per ISO/IEC 24734 in A4 Size-Mono-25	No Change
		10. Scanning Feature Availability- Yes	No Change
		11. Duplexing Feature Availability- Yes	No Change
		12. Networking Feature Availability- Yes	No Change
		13. If yes, Type of Network Interface- Ethernet 10/100	No Change
		14. Original Document Feeder Type- ADF	No Change
		15. Feeder Capacity (Number)- 35	No Change
		16. Number of Main Paper Tray-1	No Change
		17. Each Main Paper Tray Capacity (Number)- 250	No Change
		18. Bypass Facility- Yes	No Change
		19. If Yes, Bypass Tray Capacity-1	No Change
		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	No Change
		21. Life of Drum in terms of number of Prints in case of Separate Drum and Toner cartridge technology - Black (Number of Prints)- 100000	No Change
		22. Duty Cycle (No of Prints/month)- 10000	No Change
		23. Minimum Operating Temperature (Degree C)- 10	No Change
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	
		potable tap water, Wall mountable/bench-top system for microbiology / molecular biology/LC-MS/MS, GC-MS/MS, ICPMS grade water applications.	No Change
		2. System should be capable of handling feed water Specification:	No Change
		3. Conductivity up to 2000 $\mu$ S/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 5 $\mu$ m & 1 $\mu$ m filter followed by a 3-stage pre-treatment cartridge consisting of Activated Carbon, Anti-scaling Agents and 0.5 $\mu$ m depth	
		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.	No Change
		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	
		mixed bed ion exchange resin/ micro filter / activated carbon to ensure better purification and longer life of the cartridges.	No Change
		11. System should have dual wavelength UV Lamp (185 and 254nm) to ensure reduction of TOC	
		as well as destruction of bacteria.	No Change
		12. To ensure constant flow rate system should have unique temperature feedback mechanism	No Change
		13. System should have co-axial resistivity cell	No Change

		with 0.01cm -1 cell constant at various stages of 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	No Change

	ppm	
	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 Stock Solution	No Change
	500 ml, Keypad Screen Guard, Lithium (Li) Filter, Lithium 100 ppm Stock Solution – 500 ml, Potassium	No Change
	100 ppm Stock Solution – 500 ml, Sodium 100	No Change

		ppm Stock Solution – 500 ml	
		Power Supply: 230VAC $\pm$ 10%, 50 Hz	No Change
29	<b>LIMS (With High Speed Internet)</b>	<p>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.</p>	No Change
		<p>2. An ideal LIMS should: -</p> <p>An ideal LIMS should be a provision of</p> <p>(1) Sample Registration, Status of sample, Test Result report printing (250 Users)</p> <p>(2) Drug Analyst</p> <ul style="list-style-type: none"> <li>- Sample Coding</li> <li>- Distribution of sample to lab technician</li> <li>- Review of Result</li> <li>- Authentication of Result</li> </ul> <p>(3) Lab Test – Uploading/Filling of test result and completion of test result (First review also)</p> <p>(4) Office In-charge (Admin users) – Monitoring of all activities of sample registration, testing, authentication report, printing of report and inventory management.</p>	<p>2. An ideal LIMS should: -</p> <p>An ideal LIMS should be a provision of</p> <p>(1) Sample Registration, Status of sample, Test Result report printing (300 Users)</p> <p>(2) Drug Analyst</p> <ul style="list-style-type: none"> <li>- Sample Coding</li> <li>- Distribution of sample to lab technician</li> <li>- Review of Result</li> <li>- Authentication of Result</li> </ul> <p>(3) Lab Test – Uploading/Filling of test result and completion of test result (First review also)</p> <p>(4) Office In-charge (Admin users) – Monitoring of all activities of sample registration, testing, authentication report, printing of report and inventory management.</p>
		<p>a. Sample Location and Tracking</p> <p>(i) Sample Location and Tracking- Current real time status of each sample, allotment of sample and uploading of test result, authentication of</p>	No Change

	<p>report.</p> <p>(ii) It should be provision to facilitate at least 300 user space for sample registration collection, uploading of result and tracing.</p>	
	b. Reagent and consumables Inventory - Day to day reporting for consumption of reagent and consumables at lab store.	No Change
	<p>c. Instrument integration</p> <p>(i) Instrument integration with all existing equipment of lab as per the requirement of user department.</p> <p>(ii) SMS integration</p> <p>(iii) API Integration</p> <p>(iv) PACS integration module</p>	No Change
	<p>d. Development, optimization and expansion of workflows:-</p> <p>Development, Deployment and integration are not only the equipment in this tender only but in the future purpose. It Should be scope for integration of additional equipment of the drug lab like pathology, biochemistry and microbiology department.</p> <p>(a) Space required for integration to the server has to be provided by the supplier so that the same could be arrange by the BMSICL for hosting on state data center.</p> <p>(b) Space requirement has to be communicated by the developer</p>	No Change
	3. Modularity - Lab receiving module	No Change
	<p>4. Configuration:-</p> <p>(i) Cloud based server</p> <p>(ii) Data storage should be at least three year.</p>	No Change
	<p>5. Report and dashboard generation</p> <p>(i) Patient Display Board,</p> <p>(ii)TAT Deskboard,</p> <p>(iii)MIS Deskboard</p> <p>(iv) Report and Deskboard Generation and Preparation</p> <p>(v) Barcoding of all events/documents.</p>	<p>Report and dashboard generation</p> <p>(i) Report Display Board,</p> <p>(ii) MIS Deskboard</p> <p>(iii) Report and Deskboard Generation and Preparation</p> <p>(iv) Barcoding of all events/documents.</p>

		6. Compliance (i) Report Compliance (ii) Sample testing report	No Change
30	<b>Weighing Box (Calibrated)</b>	1. Accuracy Class F2	No Change
		2. Standard OIML R 111-1 Edition 2004 (E)	No Change
		3. Construction 50kg – 20g - 2 pieces	Construction 50g – 20g - 2 pieces
		4. 10g – 1mg - 1 piece	No Change
		5. Shape of weight 50kg - Cylindrical with handle	Shape of weight 50g - Cylindrical with handle
		6. 20kg to 1g - Cylindrical with knob	20g to 1g - Cylindrical with knob
		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

**Note:- All Supplementary electrification and earthing work during installation process will be cover under the scope of work.**