



OFFICE OF THE DEAN & PRINCIPAL,
MAHARAJA KRISHNA CHANDRA GAJAPATI MEDICAL COLLEGE,
BRAHMAPUR.760 004, GANJAM, ORISSA.

No. 1580 /MCB-2019/Welfare./Dated, Berhampur the

8th March, 2019

CORRIGENDUM

In continuation to this office Tender Call Notice No.1173 Dt.21-02-2019 & Pre Bid Notice No.1445 Dt.2-3-2019 for supply of Equipment/Instrument for MDRU, necessary changes have been made in the specification section by the Committee after receipt of suggestions by the bidders in the pre-bid meeting. The up-to date Specification has been uploaded in the website www.mkcgmch.org. The specification section uploaded earlier has been revised. The bidders are required to submit the tender as per revised specification. The last date for submission of Tender is 20-3-2019 instead of 15-3-2013 and the opening of technical Bid is 20-3-2019 at 5 P.M. The other terms & conditions of the Tender remain unchanged.

The undersigned reserves the right to cancel of the Tender in full or parts at any time without assigning any reason thereof.


Dean & Principal,
MKCG Medical College,
Berhampur

(SECTION-IV)

REVISED
SPECIFICATION

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SN	NAME OF EQUIPMENT	QTY	Specification
1	Thermocycler	1	<p>Specifications</p> <ol style="list-style-type: none"> 1. System should have with dual 48 well block to run 2 different protocols same time. 2. System should have interchangeable block 96 well block with 0.2ml tubes, Strips and 96 Well PCR Plate. 3. Heating Rate: 5°C/s & Cooling Rate: 4°C/s with temp. Accuracy: ± 0.1°C; Temp. Uniformity : ±0.2 (30-72°C,10s)/±0.3(90°C,10s); Temperature range : 0-100°C with 0.1°C min increment 4. Heating Rate: 5°C/Sec & Cooling Rate: 4°C/s 5. System should have Gradient Temp. Gradient Accuracy: ±0.5°C of programmed temperature. The gradient temperature can be set by both automatically and manually. Range 1-30°C in each block without sacrificing uniformity in each block with temperature range 30-100°C. 6. System should have adjustable hot lid technology to reduce evaporation. Hot Lid temp. range 30-110°C (Adjustable Default 105°C) 7. The System should have a display Size 8 inches with display Type Full Touch LCD. 8. Sample Volume should be 5-100 µL. 9. System should have on board Tm calculator facility to approximate the optimal annealing temperature. 10. System should have Built-in standard program file templates; can quickly edit the required files. 11. System should have choice of saving the methods up to 10000 to the instrument or unlimited to a USB memory stick. 12. The system should have the ability to store methods on a memory stick. 13. System should have capability to interlink up to 11 PCR systems via single Ethernet hub. 14. The system should have a USB port to transfer methods from one machine to another. 15. The system should allow easy product updates via USB port. 16. The system should have Auto restart option in event of Power failures. 17. Other Features: Gradient Calculator, Tm Calculator, Log Book, Email Notifications, Login facility 18. The system may upgradable to real time PCR.
2	Gel Documentation System	1	<p>Systems Gel Documentation System ; a wide front door ; slide-in/out tray for easy handling of gels ; high intensity UV source (mid range) Camera, White light conversion screen for viewing of protein:</p> <p>Basic Specifications</p> <ul style="list-style-type: none"> • Scientific grade camera with high end ultra sensitivity and have capacity to extract the very low level of detection from DNA. • Equipped with CCD detector • Resolution of 4 megapixels or more and can be extendable to 20 megapixel • Pixel density up to 12 bit or more • Pixel size (HxV) : 4.6x4.6 mm

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SN	NAME OF EQUIPMENT	QTY	Specification
			<ul style="list-style-type: none"> • Motorized zoom lens: C-mount, f/1.2 • Can be upgradable to Chemiluminescence when necessary <p>Work Station: Sturdy MS Cabinet - housing the following, Dimensions (LBH in cm) : 40 x 39 x 40 Weight : 21 kg. Sliding Tray : For easy handling of gels</p> <p>Transillumination, (UV) Filter area (Quartz) : 20 x 20 cm UV source – Eight - 8W - 302 nm) UV blocking cover for UV Protection.</p> <p>for Uniform –Cool light, capturing images of all stained gels Emission filters: Special Amber filter with spectral range of 548 - 630nm for the following applications; EtBr, SYBR Green, GFP, SYBR Gold, Fluorescein, CY3, Rhodamine, SYPRO Ruby, Texas Red, Hoechst, Cumarin etc.,</p> <p>Gel Analysis software (Basic) Image acquisition Image refinement – crop – rotate – smooth – brightness – contrast Lane formation – Auto – manual Band detection – Auto – Manual Rf, MW, BP determination Quantitative analysis Report data, Export Tiff packages, JPEG file export. Contour Analysis, Comet Analysis, Micro plate Reading (96, 192 and 354 well)</p> <p>Advance options: Image acquisition Image refinement – crop – rotate – smooth – brightness – contrast Lane formation – Auto – manual Band detection – Auto – Manual Rf, MW, BP determination Quantitative analysis Report generation and presentation. With additional features like, Dendrogram / Phylogenetic tree. Similarity – dissimilarity Jacard / UPGMA analysis.</p> <p>To be supplied with branded computer and suitable UPS etc.</p>
3	Sub-marine gel electrophoresis with Gel casting tray (diff size)	1	<p>Mini Submarine horizontal gel Electrophoresis Unit Specifications:- The unit includes buffer chamber, safety lid with cables. UV transparent tray and one each of 1.5 mm thick 8 and 15 well comb, casting tray size 7x10 cm, base buffer volume up to 270 ml.</p> <p>Midi Submarine horizontal gel Electrophoresis Unit Specifications:- The unit includes buffer chamber, safety lid with cables. UV transparent tray and one each of 1.5 mm thick 15 and 20</p>

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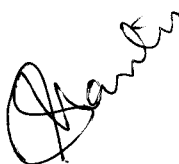
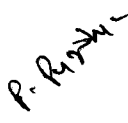

SN	NAME OF EQUIPMENT	QTY	Specification
			<p>well comb. Casting Tray size 15x10cm, base buffer volume up to 650 ml</p> <p>Electrophoresis Power Supply Unit</p> <p>Specifications:-</p> <ol style="list-style-type: none"> 1. This unit can be used with submarine and vertical electrophoresis unit. 2. It can run two units at constant voltage or constant current output with maximum output of 300V, 400 mA and 80 Watts. 3. Time can be set from 1 minute to 999 minute in increment or continuous mode. 4. Equipped with LED display. 5. Automatic recovery after power failure. 6. Easy handling. 7. The unit should equip with a 'pause' system so that the run can be paused in any time before reaching to the set time and can resume the run again. 8. Power supply: 220/240V. 9. Operating conditions : 0-40⁰C; and humidity of 0-95% 10. CE certified
4	Spectrophotometer (nanodrop)	1	<p>Specifications</p> <ol style="list-style-type: none"> 1. System should have both pedestal and cuvette mode of measurement. Pedestal material of construction should be of quartz fibre and stainless steel. Pedestal pathlength should have auto-ranging from 1 mm or 0.5 mm. 2. Built-in touch screen android/Linux or Windows based operating system with internal memory 3. In-built protocols for Detection, quantification and purity ratio for nucleic acids (dsDNA, ssDNA/ RNA) and Proteins 4. USB connectivity, Ethernet connectivity, LabX compatible or Wi-Fi connectivity 5. Shortcuts keys for user friendly. 6. In future, upgradation of software can be performed 7. May upgraded to fluorescence 8. Low Volume Performance: <ul style="list-style-type: none"> Detection Range dsDNA: 1ng/ µl – 27500 ng/ µl Detection Range BSA: 0.06- 800mg/ml Photometric Range: 0.02 – 550 A Sample volume (Minimum):-0.5 µl 9. Optical Specifications: <ul style="list-style-type: none"> Wavelength Scan range: 190 – 840 nm Wavelength Accuracy: ±0.1nm to 1 nm Absorbance Accuracy: 3 % or better Absorbance Precision: 2% or better Lamp: Xenon flash lamp Detector: CCD or diode array or CMOS detector 10. Certification: CE or ISO or Any other recognized certification

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SN	NAME OF EQUIPMENT	QTY	Specification																												
5	Microcentrifuse (4°C) 36 Places for 1.5 and 2 ml tube	1	<p>Technical Specifications</p> <p>Maximum RPM 15,000 Maximum RCF 21,500g Maximum capacity 30 x 1.5 / 2.0 ml, Time control Pulse, timed < 100 min or continuous RPM to RCF conversion Yes Noise level (dB) ≤ 56 dB Acceleration/ Declaration (Sec) 5/6 steps Program memory 100 Imbalance cut off Yes Display Blue LCD Safety lid Lock Yes Lid drop protection Yes Automatic door release at completion Yes Power supply (V/Hz) 220V/50-60 Hz(110V optional) Power requirement (VA) 2.0 Dimension (W x D x H, mm) 310 x 620 x 265 Weight without rotor (Kg) 43kg CE mark Yes Temperature range (°C) -20 to +40 Fast Cool Button Yes Rotor Identification Automation</p> <p>Rotor & Accessories: Fixed angle rotor, 30 x 1.5/ 2.0 ml 45 degree Whole diameter 11.1 mm. Max. height of tube fit 56mm Supply with aerosol tight O-ring.</p> <table border="0"> <tr> <td>Tube capacity</td> <td>0.2ml</td> <td>0.5ml</td> <td>1.5/2.0ml</td> </tr> <tr> <td>Adopter</td> <td>Yes</td> <td>Yes</td> <td>None</td> </tr> <tr> <td>Adopter</td> <td>6.5 x 23 mm</td> <td>8 x31 mm</td> <td>none</td> </tr> <tr> <td>Bore(Φ x L, mm)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Radius</td> <td>67/79mm</td> <td>73/86mm</td> <td>84.3/96.4mm</td> </tr> <tr> <td>Max. RPM</td> <td>17,000/14,000</td> <td></td> <td></td> </tr> <tr> <td>Max. RCF</td> <td>21,600/17,300</td> <td>23,900/18,800</td> <td>27,200/21,120</td> </tr> </table>	Tube capacity	0.2ml	0.5ml	1.5/2.0ml	Adopter	Yes	Yes	None	Adopter	6.5 x 23 mm	8 x31 mm	none	Bore(Φ x L, mm)				Radius	67/79mm	73/86mm	84.3/96.4mm	Max. RPM	17,000/14,000			Max. RCF	21,600/17,300	23,900/18,800	27,200/21,120
Tube capacity	0.2ml	0.5ml	1.5/2.0ml																												
Adopter	Yes	Yes	None																												
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6	Vertex Mixture	1	<p>Specifications:</p> <ol style="list-style-type: none"> Equipped with two modes of operations, touch mode and constant mode. Compact and rugged construction Heavy metal base and rubber feet to prevent movement during use. Should have one cup attachment, one hand attachment and one micro tube insert In tube insert attachment a total of 13-15 tubes can be placed 																												

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SN	NAME OF EQUIPMENT	QTY	Specification
			6. Maximum speed up to 3000 RPM 7. Equipped with variable speed control 8. Working condition of 4 to 60°C ambient. 9. Power supply : 230V,50Hz, A.C.Supply
7	pH meter	1	Specification: 1. Bench top pH meter : pH Meter with pH electrode (integral) with an indicating sensor made of High Temperature (HT) glass 2. pH Range : -2.00 to 16.00 pH 3. pH Resolution : 0.01pH 4. pH Accuracy : ± 0.01 pH 5. pH temperature compensation by both automatic or manual from -30 ⁰ C to 125 ⁰ C with a temperature resolution of 1 ⁰ C and temperature accuracy of ±1 ⁰ C 6. Should have an mV mode that can be used with a wide variety of ORP electrodes. 7. mV range of ±2000 mV 8. mV resolution of 0.1 mV 9. mV accuracy of ±0.1 mV 10. Up to 5-point easy calibration with auto-buffer recognition. 11. Can stored memory up to 100 data points or more. 12. Supplied with three standard buffers for calibration. 13. Supplied with electrode storage solution 14. Power supply: 9 V DC adapter, 1.3A 15. Can be placed under environment of 0 to 50°C 16. System may compatible with LabX 17. Weight up to 1-2 KG
8	Microcentrifuse for 0.2 to 0.5 ml tube	1	Specifications:- 1. Max. RPM/RCF 13500 / 12,300 x g 2. Max. Capacity of 12 places for 1.5/2.0 ml tube, 4x8 tube PCR strips or 32x 0.2 ml PCR tubes or 0.5 ml PCR tubes. 3. Should equipped with time control pulse or timer < 30 mins 4. Should equipped with RPM/RCF conversion 5. Noise level < 56 db 6. Acc/Dec should maintain in < 12 / <16 seconds 7. Equipped with LCD Display 8. Safety Lid Lock system should present 9. Presence of Lid Drop Protection 10. After completion, automatic door release should perform. 11. Power Supply (V/Hz) 220/50 12. Power requirement (VA) 110 13. Dimension approximately (W x D x H) 210 x 250 x 150 mm 14. Weight without rotor should be less than 5 kg 15. Spare rotors should be provided with the instruments and can be easily changeable and autoclavable.
9	Waterbath	1	Specifications 1. Made up of high-quality stainless steel both inner and outer body 2. Equipped with digital temperature controller that can be set to 0.1 degrees Celcius. 3. Temperature range: above Ambient to 95°C.



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SN	NAME OF EQUIPMENT	QTY	Specification
			4. Temperature sensitivity of $\pm 0.5^{\circ}\text{C}$ 5. Supplied with a perforated tray which covers the elements and even allows circulation of the content of the bath 6. Dual display for reading actual and set temperature 7. Microprocessor based PID controller 8. Easy to install and operate 9. Precisely stable temperature for repeatable results 10. Compact space saving design for minimal space usage 11. Capacity of around 14 lts 12. Weight up to 12 kg 13. Input Voltage of 230V, 50 Hz, 15 amps (max), A.C. Supply.
10	Magnetic Stirrers with Hotplate	1	Specifications:- 1. Approximate dimension of plate 18 x 18 cm acid and alkali resistant ceramic top. 2. Mild steel with powder coated body construction 3. Should maintain a heating range of 50-500 $^{\circ}\text{C}$, 4. Working condition from 4 to 60 $^{\circ}\text{C}$ 5. Stirring speed range 100-1200 RPM 6. Analogue RPM and temperature indicator 7. Max withstanding load of 10 kg, 8. Max stirring capacity of 5 Liters. 9. Having overall dimension of 32x24x12cm. 10. Power of 240V, 50Hz, 4.7Amp and 1115 watt 11. Supplied with feasible magnetic stirrer bar
11	Microoven	1	Features : - 54 standard cook menu, Digital Clock, 5 power level, child safety lock, Gril with combitech (2 options (Conversion with combitech, double grill function, weight defrost, auto reheat, quick start, multistage cooking, overheating protection, delay start. Sensor :- Mall function protection, Cooking features: - Capacity: 25 Ltr. Colour :Metallic Silver Outer dimension : 294x483x440 mm (HxWxD)
12	Hemoglobin gel electrophoresis system with tank	1	Specifications:- 1. The unit should include buffer chamber, safety lid with cables. 2. UV transparent tray and one each of 1.5 mm thick 15 and 20 well comb. 3. Casting tray size of 15x10cm. 4. Able to perform acid and alkaline hemoglobin electrophoresis 5. The power supply unit can run two units at constant voltage or constant current with maximum output of 300V, 400 mA and 80 Watts. Time can be set in 1 minute increment or continuous mode

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SN	NAME OF EQUIPMENT	QTY	Specification
13	a) Freezer (-20 Deg)	1	<p>Freezer (-20⁰C)</p> <ol style="list-style-type: none"> 1. Upright freeze 2. Capacity 340-350L 3. Suitable for routine laboratory works in non-regulated environments 4. Double wall, steel with powder coated, rust free 5. Inner with non-corrosive materials 6. Temperature: -18⁰C to -22⁰C, easily changeable by authorized personnel. 7. Fastest temperature recovery time (within 5 minutes) following opening and closing of door 8. Hermetically sealed noise less compressor, CFC free refrigeration system, 9. High and low visual temperature and audio alarms 10. Lock and Key for door for unauthorized opening. 11. Excellent Temperature holding time during power Failure 12. Defrost facilities 13. Air-tight door gasket 14. At least 5 compartments or more. Feasibility of both shelves and draw, Washable 15. Dimension: Approximately of 75Hx25Wx25D 16. Power supply: 220-230V; 50Hz, single phase 17. Others: with 1KVA stabilizer

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SN	NAME OF EQUIPMENT	QTY	Specification
	b) Deep Freezer-86 Deg C	2	<p><u>Insulated Deep Freezer (600 L Capacity) -86°C</u></p> <p><u>Specifications:</u></p> <ol style="list-style-type: none"> 1. Upright ultralow freezer 2. Capacity of 600 litres, 3. Dimension : 1300Hx600Wx700D interior and 2000Hx 800W x1000D of external dimension 4. Can be use for laboratory freezing of enzymes, chemicals reagents, nucleic acids etc 5. Made up of scratch and corrosion-resistant, high grade, polished stainless steel 6. Air Filter: Front-mounted; to be easily accessed by 1/4 turn screws 7. Temperature: Microprocessor-controlled temperature with alarms, non-volatile memory programmable, -30 to-86°C (input range -20 to -100°C) in 1°C increments at ambient temperature of 30°C. 8. Display: Large, bright, digital LED characters, easy viewing 9. Remote Monitoring system 10. Dual Gasket system, pressure equilizing door locking and opening, Lock and Key for outer doors/lids 11. Security features: 4-6-Digit Password for temperature set point and alarms, to prevent unauthorized changes, 12. Battery Back-up for activating alarms and to display temperature during power failure. 13. Separate switching system for cleaning, servicing, thawing of freezer. 14. Compressor: CFC-free and HCFC-free, Low-noise, heavy-duty, Reduced power consumption, 15. Compressor Lubricants: Biodegradable and commercially available, high-performance, synthetic polyolester oil. 16. Auto air filters 17. At least five compartments with at least 10 adjustable-heights, stainless-steel shelves, washable, 18. Defrost: Activates alarms and displays temperature 19. Accessories: Rack, box , divider & CO2 backup system should be quoted optionally. 20. Power requirement: 220-230 V , 50 Hz , single phase. 21. CE and ISO certified

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SN	NAME OF EQUIPMENT	QTY	Specification
	c) 4Deg Refrigerator (1000 Ltrs)	1	<p>4⁰C REFRIGERATOR (1000lts)</p> <ol style="list-style-type: none"> 1. Capacity: 950-1000 liters 2. Upright Freezer 3. Temp. Range: 0°C to 10°C 4. Suitable for routine laboratory works in non-regulated environments 5. Double wall (glass or steel), steel with powered coated, rust free 6. Forced Air cooling facilities 7. LED display 8. Puff insulation 9. Digital Display of temperature 10. Dimension: Approximately 45W x 30 D x 75 H 11. At least 10 shelves, easily removable, washable 12. Door Lock facility for unauthorized handling. 13. Air tight gasket 14. Defrost system 15. Wheels for easy transfer 16. Power supply: 220-230V; 50Hz, single phase 17. Others: with 1KVA stabilizer
	d) 4Deg Refrigerator (400 Ltrs)	1	<p>4⁰C REFRIGERATOR (400lts)</p> <ol style="list-style-type: none"> 1. Capacity: 400 liters 2. Upright Freezer 3. Temp. Range: 0°C to 10° C 4. Suitable for routine laboratory works in non-regulated environments. 5. Steel with powered coated, rust free 6. Forced Air cooling facilities 7. Digital Display of temperature 8. Dimension: Approximately 25W x 25 D x 75 H 9. At least 4 shelves, easily removable, washable 10. Door Lock facility for unauthorized handling. 11. Air tight gasket 12. Defrost system 13. Wheels for easy transfer 14. Power supply: 220-230V; 50Hz, single phase
14	Water purification System (millipore with pre purification &softener	1	<ol style="list-style-type: none"> 1. System should produce [ASTM Type 1] and analytical grade (ASTM D1193 - 06) water directly from tap water feed. 2. System feed water: Potable (as per WHO, EC, EPA and ISO) tap water- <ol style="list-style-type: none"> a. Conductivity: 10- 2000 µS/cm @ 25°C b. Hardness: < 300 ppm (as CaCO3) c. pH: 4 to 10 d. Fouling Index: upto 12


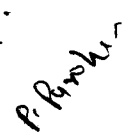

SN	NAME OF EQUIPMENT	QTY	Specification
			<p>e. Temperature: 2 to 35 °C f. Free Chlorine: upto 3 ppm</p> <ol style="list-style-type: none"> 3. System should include a OEM made pre-filter to take care feed water with TDS as high as 5000 ppm & SDI up to 50. 4. Iron Removal Filter must be from OEM and having the backwash and rinse facility, capacity should be upto 400 L/Hr and which can take care up-to 4 ppm of Iron contamination. 5. Main System should contain three Stage pre-treatment cartridge, include silver imprinted activated carbon which prevents the proliferation of Bacteria present in tap water and anti-scaling compound compounds must to eliminate hardness and protect the RO membrane against oxidation, scaling and plugging. 6. High flux thin film composite polyamide RO membrane (MW>200 Dalton) with 95- 99% rejection 7. RO pressure, RO water quality, RO membrane efficiency (% ion rejection) should be seen on display 8. Conductivity cells before and after the RO Membrane and should have high recovery loop with capillary tube and diaphragm valve to reduce the wastage of feed water. 9. Auto regenerated Electro deionization module with Carbon beads at cathode. 10. EDI (Electro-deionisation) module should not require softening pre-treatment. 11. Coaxial resistivity cell with 0.01cm⁻¹ cell constant for optimum measurement accuracy as required by ASTM® D 1125-95 and comply USP <645> 12. To avoid maintenance errors and to improve traceability, the internal water purification cartridges should have a built-in RFID [Radio Frequency identification] tag. 13. Large built-in display with Auto diagnostic facility ensure real time various Error Number and Alarm Code for complete traceability. 14. 50L reservoir with air sanitization kit to store product ensuring the water quality 15. Optional data management and monitoring software ensure real time data reliability, traceability, and access to system history, needed for various world class accreditation. 16. To ensure water quality minimum 3 Nos of conductivity and resistivity cell 17. Application Specific cartridges to remove ionic and organic contaminants to trace levels 18. Cartridge must attach to the water system without treaded fittings, screws, clamps, or locking tabs 19. Optional 17watt, low pressure mercury vapor lamp made of ultrapure quartz with dual wavelength (185 and 254nm). The lamp has an electro polished 316L ss housing 20. To prevent deterioration of water quality during periods of non-use, the ultrapure water system will be able to recirculate water to maintain high water quality.

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SN	NAME OF EQUIPMENT	QTY	Specification
			<p>21. Auto regenerated Electro deionization module with Carbon beads at cathode.</p> <p>22. Optional point of delivery unit with</p> <ol style="list-style-type: none"> Adjustable height and rotating arm-adjustable to any glassware. Multi-color monitor displaying: resistivity, level of water in reservoir, volume dispensed and other alarms, to be directly accessible from the point of delivery unit <p>23. Point of delivery unit with the polishing filters at the point of use. Final Filters Options:</p> <ol style="list-style-type: none"> Pharmaceutical grade, final filter with 0.22micron membrane filter in stack disc configuration, UF cartridge at the collection end with LRV is between 5.6 and 7.65 over challenge range of 220 and 22000 Eu / mL. Specific filter to remove volatile organics. Specific filter for trace organic applications. <p>24. Product water quality [TYPE II] (Analytical Grade):</p> <p>Resistivity : 10-15 MΩ·cm @ 25° C TOC : <30 PPb Product water delivery : 3L/hr Silica Rejection : > 99.9%</p> <p>25. Product water quality [ASTM Type I]</p> <p>Resistivity : 18.2 MΩ·cm @ 25° C TOC : <10 PPb Bacteria : < 0.1cfu/ml Product water delivery : >1.5 L/min Pyrogen Levels (EU/mL):<0.001 RNase Level (ng/mL) : < 0.01 DNase Level (pg/μL) : < 4</p> <p>26. Mandatory Requirement:</p> <ol style="list-style-type: none"> Minimum 50 Installation in the Same State Minimum 10 appreciation letters from any government organization in India. Service should be directly from the manufacturer's engineer, provide contact details. <p>27. Quality Certifications- The system should designed to produce ultrapure water in agreement with the quantitative specifications of Type I water as described in- ISO 3696, ASTM D1193, and of EP and USP Purified Water, as well as the CLSI® - CLRW. ISO 9001 v. 2000- and ISO 14001-registered manufacturing site - Certificates are available upon request. CE, cUL, FCC - To ensure efficiency and safety of operation, the system is certified for safety and electromagnetic compatibility</p>
15	Autoclave	3	<p>Specifications</p> <ol style="list-style-type: none"> Fully Automatic operation; cycle, vertical type Air is automatically should be removed from the chamber initially. Microprocessor based Digital Temperature Indicator Controller Controls temperature / pressure precisely at set value.

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SN	NAME OF EQUIPMENT	QTY	Specification
			<ol style="list-style-type: none"> 4. Temperature Sensor: PT -100. 5. Adjusted digital timer as per the load requirement 6. Automatic steam exhaustion at the end of cycle. 7. Safety high pressure release valve. 8. Safety high temperature cut off. 9. Working chamber made of stainless steel of 304 grade preferably resistant to corrosion. 10. Outer cover made of stainless steel of 304 grade 11. Lid, flange & bottom sheet also made of stainless steel 304 grade. 12. Silicon gasket. Heavy duty industrial flange heater. 13. Pressure range: 10 to 30 PSI, factory set at 15 PSI, 14. Temperature Range: 110°C to 130°C. 15. Temperature Resolution: 0.1°C / Temperature Accuracy: ±0.5°C. 16. Pressure display dial gauge, pressure resolution of 1 PSI 17. Low water level alarm and cut off. 18. Easy draining of chamber 19. Power supply: 230V / 15A / 50 Hz. 20. Should provide Calibration certificate 21. Provided with, IQ, OQ, documentation. 22. Should have capacities range: 85-180L <ol style="list-style-type: none"> a. <u>Optional accessories</u> <ol style="list-style-type: none"> 1. Basket 2. High Temp Safety Controller. 3. Electrical actuator to ensure lid doesn't open under pressure. 4. Electromagnetic door lock for locking lid under pressure, 5. Touch Screen display
16	Hot air oven	2	<p>Specifications:</p> <ol style="list-style-type: none"> 1. Microprocessor based PID controller type Drying oven 2. Polished stainless steel chamber 3. Temperature range Ambient +50°C to +200°C or better 4. Chamber Volume- 80-95 L 5. Interior Dimension (WxDxH) mm- 450x450x450 or better 6. Double layer glass door system 7. Provision of independent temperature limiting alarm 8. At least of 2 shelves 9. Automatic cut off of heater and blower when door opened 10. Display resolution: 0.1°C 11. Temperature Stability: ±1 °C 12. Temperature uniformity: ±3% at test point 100 °C or better 13. Structured internal chamber ensures easy cleaning as well as any leakage prevention. 14. Force air convection type ensures good temperature uniformity under continuous high temperature 15. Timing range-1 to 9999 min or better 16. CE and ISO certification

SN	NAME OF EQUIPMENT	QTY	Specification
17	Electronic weighing balance	2	<p>Specification:</p> <ol style="list-style-type: none"> 1. Maximum capacity of 220 g 2. Readability of 0.1 mg 3. Linearity of ± 0.2 mg 4. Tare range of full capacity i.e. -220g 5. Repeatability of ± 0.1 mg 6. Pan size of 90-100 mm Dia. 7. Different weighing unit such as G, kg, ct, lb, oz, ozt, tlh, tls, tlt, Gn, dwt, mg, /lb, tlc, mom, k tol, bat, and MS should be provided 8. Automatic internal calibration 9. Working temperature range: +10 to +40°C 10. Stabilization time of 3.5 secs 11. Display: LCD with back light 12. 3 sides removable draft shields 13. Power supply of 110-230 V, AC/ 50-60 Hz 14. Memory: Can store around 1000000 weighing record, 10 users and around 1000 products. 15. Interface: 2 \times RS 232, USB-A, USB-B, Wi-Fi (optional), 4 input & 4 output 16. GLP/GMP complies: Yes
18	Biosafety (laminar hood) cabinet	1	<p>Specification</p> <p>As per complies with the guidelines laid down by U.S. National Institute of Health, and the specifications of British Standard 5726, A whole assembled system i.e. Class II Biosafety (laminar hood) Cabinet provided with following features:</p> <ol style="list-style-type: none"> 1. Externally shielded body housing with Pre Filters, HEPA Filters & Blowers assembly 2. Table top made up of stainless steel (1.2 mm thickness) with full body steel with powder coated (1.5mm thickness). Stainless steel should be in 304 grade 3. U.V. germicidal light 4. For HEPA filters monitoring: Static Pressure Manometer 5. Filtered Exhaust of air borne particles. 6. Re-Circulation of Air 7. Sliding Sash 8. Should be provided with Cock – for gas, air or vacuum 9. Microprocessor-based control and alarm system. 10. Automatic device to switch off the air flow/motor when door is closed 11. Noise level: <58 db 12. Flow velocity of 80-100 FPM at work access opening 13. Work area dimension (approx.): 1100x600x600 14. Interlocking of UV/Fluorescent light: For user's safety, either UV light will glow or fluorescent light will glow 15. Ease of maintenance : HEPA and pre filters can be replaceable from front 16. HEPA filters: with 0.3 micron with an efficiency of 99.97% 17. Optional Features: –

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SN	NAME OF EQUIPMENT	QTY	Specification
			<ul style="list-style-type: none"> a. Glove Ports and Gauntlets b. Fumigation Tray c. Proper Exhaust Ducting d. Proper sterilization facility for viral infection 18. Spare Accessories :- <ul style="list-style-type: none"> a. HEPA filter b. U.V. Tube 19. Power supply: 230 V, 50 Hz, Single phase
19	Automatic pipettes	15	Variable volume micro pipette Specifications <ul style="list-style-type: none"> 1. Rugged Construction 2. Extremely smooth piston movement 3. Autoclavable tip ejector & tip holder 4. Easy to maintain 5. Individual factory calibration certificate with Micropipette Capacity <ul style="list-style-type: none"> 0.5-2 ul 1-10 ul 2-20 ul 10-100ul 20-200 ul 100-1000 ul 1000-5000 ul 1000-10000 ul
20	Incubator	2	Specifications: <ul style="list-style-type: none"> 1. Digital PID Temperature Controller with Timer, alarms and auto tuning. 2. Eye level door mounted Controller for easy access and monitoring. 3. Over temperature safety protection. 4. Solid and plain bottom without electrical. 5. Seamless round cornered edge of internal chamber ensures easy cleaning & prevents any leakage. 6. Transparent safety glass door. 7. Supplied with wire mesh shelves. Shelf height adjustable in 25mm steps. 8. Temp range: ambient +5°C to 70°C. 9. Control accuracy: ±0.1°C. 10. CE certified. 11. Approximate dimension (capacity) of 450x450x450 mm
21	Shaker incubator	1	Specifications <ul style="list-style-type: none"> 1. Made up of stainless steel (304 grade) in inner and outer body, powder coated 2. Brushless induction Motor with variable frequency drive suitable for continuous operations 3. Step less variable frequency drive ensures gentle shaking start and maintains set speed 4. Counter balanced mechanism for high stability in uneven load of

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SN	NAME OF EQUIPMENT	QTY	Specification
			<p>different sized flasks</p> <ol style="list-style-type: none"> 5. Universal Shaking Platform to accommodate different sized assorted flasks 6. Maximum shaking capacity " 9 Flasks x 2000 ml 7. Powerful fan motor for forced air circulation to maintain uniform conditions inside chamber 8. Machine filled PUF insulation to eliminate void pockets 9. Unique design of thermal barrier for better energy efficiency 10. Heating by long SS tubular heaters 11. Additional tray to store samples 12. Chamber calibration port on side 13. Hermetically sealed Compressor with CFC free refrigerant 14. Microprocessor controller with 4 LCD display for display of shaking speed & temperature 15. Can stored up to 10 programs in memory 16. Power failure and resumption recorded with data and time. 17. High temperature safety cut off & alarms for high / low set temperature 18. Electrical circuit breaker 19. Rounded inner chamber for easy cleaning 20. Approx internal dimensions (WDH): 650x750x650 21. Temperature Range Ambient: +5° to 70°C 22. Temperature Increments: +0.1°C 23. Temperature Uniformity: ±0.25°C 24. Temperature Accuracy: ±0.1°C 25. Shaking Speed Range :20 -300 rpm 26. Shaking amplitude : 25mm 27. Speed Increments:1 rpm 28. Shaking Orbit :19mm (4/4") 29. Timer :1 min. to 48 hours / continuous 30. Noise level: <65db 31. Electrical 115 - 230V, 50-60Hz 32. Supplied with voltage stabilizer. 33. CE and ISO certified
22	Ice flaking machine	1	<p>Specifications</p> <ol style="list-style-type: none"> 1. Storage capacity up to 40 kg 2. Fully Automatic microprocessor control 3. Compact Design and low maintenance 4. Stainless Steel construction (304 grade) 5. Continuous Ice Flakes output 6. Air cooling type 7. CFC free R134a refrigerant 8. Noise: <55 DB 9. Overload protection 10. Low water level detection 11. Wheels for easy mobility 12. Capacity of Ice Flakes kg per 24 hr. 50 kgs

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SN	NAME OF EQUIPMENT	QTY	Specification
			13. Power supply: 110 - 230V, 50-60Hz 14. CE certified
23	CO ₂ incubator	1	Specifications 1. Microprocessor control & programmable 2. Temperature range amb+5° C to 80° C 3. Temperature accuracy : heating +0.1° C 4. Capacity 150 Ltr. 5. Stainless steel interior and outer 6. Auto sterilization at 160-180 ⁰ C 7. Single door 8. CO ₂ sensor : IR 9. CO ₂ range : 0-20% 10. CO ₂ recovery : < 5 minutes 11. Humidity : 95% @37°C 12. Audible & visible alarm for temperature program abnormality on operation etc., 13. Shelves : Stainless steels shelves sare provided 14. Weight -20 kgs 15. Provided with CO ₂ intra red sensor for the measurement of CO ₂ concentration and temperature controller with PID controller for CO ₂ and temperature control 16. Suitable to work on 220-230 V AC 50Hz. Single phase 17. Inner chamber SS : 470 x 605 x 530 mm 18. (W x H x D) 19. CE and ISO certified
24	CO ₂ cylinder with regulator	1	Compatible with CO ₂ incubator
25	Inverted microscope with micro imaging	1	Viewing Head: Trinocular Head with 30° inclination of head with interpupillary distance 48-75 mm. Eyepiece: High point extra wide field eyepiece EW10x/22 Objectives: Long working distance (LWD) infinity plan objectives 4x,10x(phase), 20x(phase), 40x(phase) Nose piece: Quintuple nose piece Condenser: ELWD condenser N.A. 0.3, LWD 72 mm, (without condenser 150mm) Phase Annulus: 10x-20x phase annulus plate and 40x phase annulus plate. Stage: Plan stage 160 X 250 mm, Glass insert and auxiliary stage 70 X 180 mm, attachable mechanical stage, X-Y co-axial control, Moving range 120 X 78, terasaki holder, 38 mm diapetridish holder, 54 mm dia slide glass holder. Focusing: Co-axial coarse & fine focusing, co-axial stroke 37.7mm per rotation, fine stroke 0.2 mm per rotation. Illumination: halogen(6v30w) Filter: Blue, green and frosted glass, 45 mm dia Camera: 5.1 MP , Maximum resolution 2592 X 1944 pixels, frame rate – 5@2592X1944,18@1280 X 960, 6@640X480, sensor size1/2.5'', 2.2 X 2.2 micron, dynamic range 66.5 db, signal to noise



SN	NAME OF EQUIPMENT	QTY	Specification
			ration40.5 db, bining 2x2, 4x4, Exposure time- 0.29ms to 2000ms, spectral range- 38—650nm IR filter. Camera will be connected to external pc with USB cable and live image can be show in PC. Image analysis software should be including with camera software.



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