File No. 12015/03/2017-QA
Food Safety and Standards Authority of India
(A statutory Authority established under the Food Safety and Standards Act, 2006)
(Quality Assurance Division)
FDA Bhawan, Kotla Road, New Delhi – 110002

Dated, the 28th June, 2018

RFP No. 01/2018-19 FOR SETTING UP MICROBIOLOGY SECTION AND INSTALLATION OF EQUIPMENTS: CORRIGENDUM

Further to this office Tender Enquiry No. 01/2018-19 dated 15th June 2018 and Pre-Bid conference held on 25th June 2018.

2. The following amendment are made in the ibid tender:

PART II – ESSENTIAL DETAILS OF ITEMS/SERVICES REQUIRED

2. **Technical Details:**

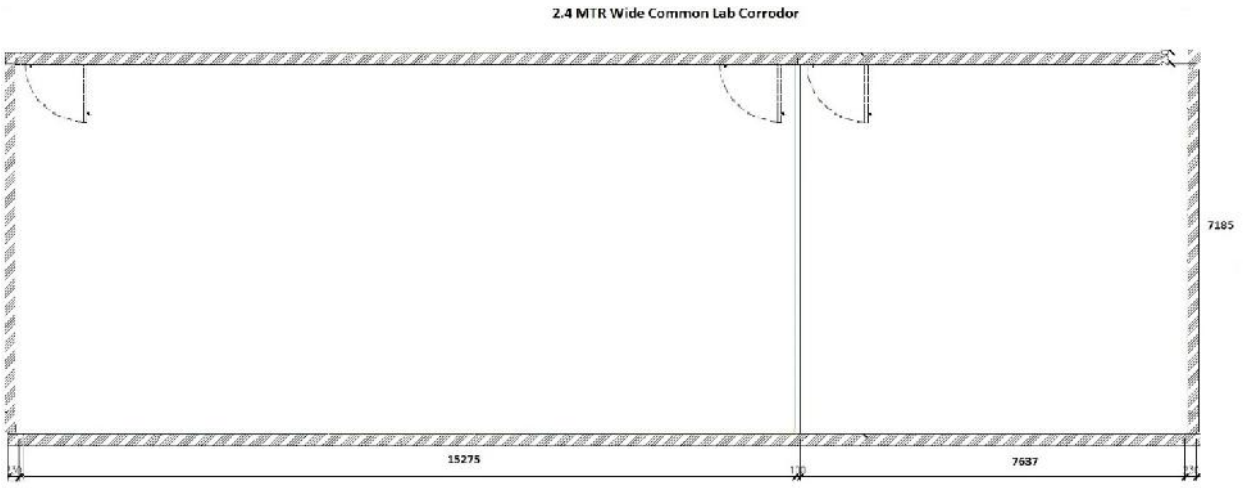
Technical specifications for CLEAN ROOM laboratory set up & FURNITURE at CFL, Kolkata, on turnkey basis -

Sl. No	Specifications
1.	**GENERAL:** The microbiology laboratory shall be modular with unidirectional flow with different zones. **The area purposed for the Microbiology Lab is mentioned in Annexure A** to accommodate the area/activities mentioned below. A representative zoning floor plan is shown as **Annexure B** which can be suitably modified by the bidder keeping the flow (personnel and sample) unidirectional and avoiding cross contamination. The modified layout should be submitted to FSSAI for approval along with the BOQ for civil and electrical work as per specifications mentioned. 1. Sample receiving area, a documentation room and office area (Unclassified). 2. Media preparation room (Unclassified) attached to sterilization room and washing (having sufficient space to store dry media/reagents and prepared media in refrigerators) 3. Sample preparation room (Class B/ISO 7) over pressure 45 pa having LAF 4. Inoculation room (Class B/ISO 7) over pressure 45 pa 2 nos (One having biosafety cabinet and another for automated systems/open lab) 5. Reference culture room (Class B/ISO 7) over pressure 45 pa having Biosafety Cabinet. 6. Clean corridor minimum 6 feet wide. 7. Incubation room and enumeration room (ISO 7) having space to accommodate 4 individual / 2 stackable Incubators. The incubation room should be accessible from separate entry other than clean room such that, the analyst need not enter clean room to observe the results. 8. Small Biochemical identification and staining room attached to Incubator room (ISO 7)

Sl. No	Specifications
	9. De-contamination room (Unclassified) having access to collect material after Incubation room and also from Inoculation /Reference Rooms. 10. Two small inter connected rooms for Molecular Biology Lab set up (Class B/ISO 7) over pressure 45 pa. 11. Entry to clean Room through three air lock rooms; ALI, AL2 (change room) and AL3. Exit from clean room through air lock AL2 and AL1 having different air pressure. The necessary civil and electrical work shall be done as per the specifications. The class validation of 'clean area' shall be done and report should be submitted by the tenderer through a third party accredited agency. Equipment used for validation should have valid traceable calibration certificates. The furniture shall be supplied as per the specifications given below.
2.	**MODULAR PANELLING and FLOORING WORKS** The entire lab as per the layout shall be made with clean room modular partitions as per the following specification. 1. **Wall panels**: Pre-fabricated insulated sandwich panels made up of 0.8 mm GPSP (Galvanized Plain Skin Pass) GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40±2 Kg/m^3. Overall thickness of the panel shall be 80 mm. 2. **Cladding panels**: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40±2 Kg/m^3. Overall thickness of the panel shall be 40mm. 3. **Non Walkable Ceiling panels**: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40±2 Kg/m^3. Overall thickness of the panel shall be 60mm. Panels shall be designed to fit within each other with self-supported system. Load bearing capacity of the panel shall be 150kg/cu.M. Necessary clean room lightings and provision for air conditioning outlets shall be provided. Suitable factory made cutouts wherever required should be provided in the wall panel as applicable for fan filter units, HEPA filters, light fixture, return air grills, power sockets, cables. Pipes, exhaust ducts, magnahelic gauge, smoke sensors, utilities etc. It should be easily repairable/accessible. 4. **Riser Panels**: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and overall thickness of the panel shall be 80mm with inbuilt riser duct along with perforated grill. 5. **Glazed panels** flushed view panel with 5mm thick toughened glass of size 900 x 900mm. 6. Aluminium coving: Aluminium coving with radius 50/65 mm with fastening arrangement and aluminium coving corner 3D aluminium coving corner 2D. 7. **Clean Room Doors**: Single Door fit to flush into the wall panels and must open as shown. Shutter sheet thickness will be 0.8mm and frame will be 1.2mm thick made up of GPSP GI sheet with epoxy polyester powder coating. Leaf thickness will be 44mm and infill will be PUF with density 40±2 Kg/m33. Door size shall be as per requirement. Door bottom seal shall be provided. 8. **Single Door Accessories** - 03 Hinges (Altos), 01 Door Closer (Altos) - 01 Nos. Back to Back Handle

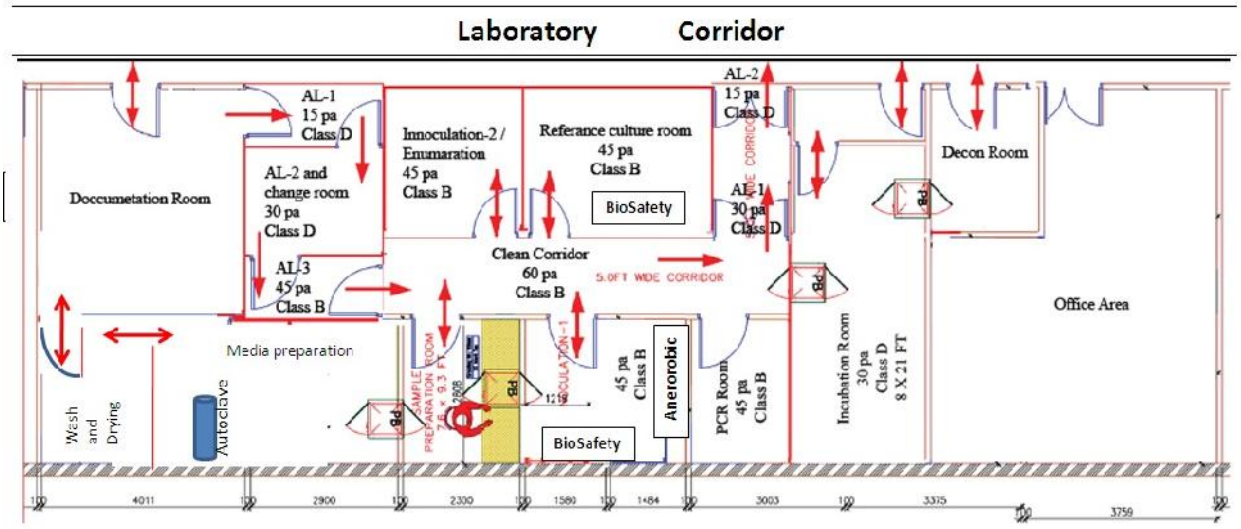
Sl. No	Specifications
	01 Nos. Vision (400 x 600) - , 01 Drop Seal 01 Lock 01 Kick plate 9. **Flooring**: Seamless antistatic PU floor – Laying 4mm (2+2) thick self leveling epoxy floor. 2mm screed + 2mm epoxy floor. The existing floor should be properly cleaned up, surface preparation carried, apply one coat of primer & laid with 2mm thick self-leveling epoxy unpigmented screed floor. And finished with 2mm self-leveling epoxy floor. The floor finish should be 4mm. The self-leveling PU made of MRF / DUPONT or equivalent. The installed floor should display good abrasion resistant & monolithic jointless surface. Shall be of stain proof, Scratch resistant, Uniform color and free of joints / undulations / bubbles etc. The floor level shall match with the surrounding area. 10. **Wall to Floor Ceiling** – The cove shall be made with silica sand and PU with a radius of 60mm or larger, with all wall / floor joints made as merging without any unevenness. 11. The panels shall be made of a durable and uniform material that should be easy to clean and extremely hygienic. 12. Should not have any sharp edges and corners and do not support bacteriological or fungicidal growth and is resistant to most chemicals used in the lab. 13. Gas pipe line shall be provided. The cylinders shall be kept outside conveniently for replacement. 14. Plumbing lines as required shall be provided. Water drain work with SS GMP TRAP & it's Connect with main drain line including all civil work 15. Exhaust line for autoclave, biosafety cabinet, laminar flow and other equipment shall be provided. 16. All temperatures, humidity and pressure should be displayed in the clean corridor. 17. The switch board should not have any sharp edges 18. All doors except the doors in change rooms shall have view panels. 19. Air locking system to maintain different pressure at entry and exist area of clean room as shown in figure. 20. The room and sterile corridor over pressure (high positive pressure) should be as indicated above. 21. Fresh air and exhaust should be provided for wash/sterilization and decontamination area. 22. Application of PU Paint on Ceiling & Walls with acrylic pulley base, & Final Finish with two coats for Media preparation area, sample receipt and decontamination and wash area 23. The bidder should do validation initially while commissioning and 2 more validations in an interval of 6 months in a year in the warranty period.

Annexure A



Area proposed for setting up Microbiology lab (Scale in mm)

Annexure B



Representative zoning floor plan for Microbiology Laboratory in CFL, Kolkata

MICROBIOLOGY LABORATORY EQUIPMENTS

MICROBIOLOGY LABORATORY EQUIPMENTS

Microbiology laboratory equipment(s) with the following specifications and from the following make:

Sl. No.	Description	Quantity	Purpose	Make (Model)
1.	**Bio-Safety Cabinet (Class II Type A2)**	**2**	For safe handling of pathogen culture media and test samples	LABCONCO/COLE PARMER/ESCO/BAKER/NUAIRE/ FASTER AIR
2.	**Vertical Top Loading Autoclave**	**2(Both of different Sizes)**	For sterilization of media / glassware	TOMY/PANASONIC/HIRAYAMA/TUTTNAUER/ALP/YAMATO/JEIOTECH
3.	**Laboratory Refrigerator -2ºC – 8ºC**	**3**	For Storage of reference cultures and Test reagents / Enzymes etc.	ESCO/DAIREI/PANASONIC/HAIER/BIOBASE/FRIMED/LIEBHERR/ JEIOTECH
4.	**Digital Precision Balance**	**2**	For weighing at low level	METTLER/RADWAG/SARTORIUS /OHAUS
5.	**Circulating water-bath**	**2**	Tempering of microbial media	JULABO/THERMO/LAUDA/JSR/JEIOTECH
6.	**Incubator (*Multi chambered*)**	**2**	Suitable for conducting independent incubations in four chambers.	JEIOTECH/DAIHAN/JSR/VISION SCIENTIFIC/BINDER
7.	**Hot Air Oven**	**1**	For sterilization	THERMO/COLE PARMER/MRC/JEIOTECH/ BIOBASE/BINDER
8.	**Fogger**	**1**	For room disinfection	IDEALIN NANOFOGGER/ VECTORFOG/COLDMIST/AEROJET
9.	**Automatic colony counter (bench-top, digital)**	**1**	For microbial enumeration	INTERSCIENCE/WHITLEY/ SYNBIOSIS / MRC/ BIOBASE/SCHUETT-BIOTEC
10.	**Anaerobic Work Station**	**1**	For growing anaerobes with strict gas requirements - Clostridium, Campylobacter, etc.	WHITLEY / SHEL LAB / BAKER
11.	**Ultra pure water purification system**	**1**	For generation of laboratory grade water for Microbiological purpose	THERMO/PALL /SARTORIUS/MERCK MILIPORE/ CRYSTAL E/BIOBASE/ELGA/STAKPURE
12.	**Fully Automated Elisa Reader & Washer**	**1**	For analysis of Staphylococcal endotoxin, Mycotoxins	PERKIN ELMER/TECAN/ BIORAD/ AWARENESS TECHNOLOGIES/MOLECULAR DEVICES
13.	**Temperature data logger**	**6**	For routine temperature calibration checks	TESTO/FLUKE/MADGETECH/FISHER SCIENTIFIC
14.	**Trinocular Microscope with**	**1**	For direct count of microorganisms and	LEICA/OLYMPUS/ DEWINTER/ OPTIKA

Sl. No.	Description	Quantity	Purpose	Make (Model)
	digital display system		their structural identification	
15.	**Automatic Safety Bunsen Burner**	**2**	For streaking of pathogens	INTEGRA/FIREBOY/COLE PARMER/ MRC/ SCHUETT-BIOTEC
16.	**Shaking Incubator (Orbital)**	**2**	For enrichment of bacteria	EPPENDORF/IKA/THERMO/MRC/ GLF/JEIOTEC/BIOBASE
17.	**Vacuum Filtration Assembly**	**1**	For Water microbiology	MILIPORE/PALL/SARTORIUS/ROCKER
18.	**Blender/Homogenizer**	**1**	For sample homogenization	BIOMERIEUX/MERCK MILLIPORE/ SEWARD/VWR/ INTERSCIENCE
19.	**Air Sampler**	**1**	For routine bio-burden checks of clean-room	MERCK/BIOMERIUX/PBI/LIGHTHOUSE
20.	**Laboratory glassware washer/dryer**	**1**	For routine glassware cleaning	LABCONCO/VWR/COLE PARMER/ LANCER/STEELCO/MRC/BIOBASE
21.	**Bench top UV-visible spectrophotometer**	**1**	For bacterial growth/DNA/RNA/Protein studies	AGILENT/ SHIMAZDU/PERKIN ELMER/THERMO FISHER
22.	**Multi-parameter Water Quality Meter**	**1**	For Water Quality Testing	HACH/LOVIBOND/MERCK
23.	**Digital Thermohygrometer**	**1**	For Routine monitoring of Room Temp. & Humidity	FLUKE/TESTO/VWR/COLE PARMER
24.	**pH / ORP Meter**	**1**	For pH **/** ORP checks of prepared Media & test Samples	HANNA /HACH /THERMO/BIOBASE

1. SPECIFICATIONS FOR BIO-SAFETY CABINET

Make: LABCONCO/COLE PARMER/ESCO/BAKER/NUAIRE, USA/FASTER AIR
Class II Type A2 Bio-Safety Cabinet system should offer the followings:

Sl. No	Specifications	Requirements
1.	Cabinet: Dimensions	1. System must work on laminar air flow technology Vertical 2. Working area minimum 4 ft (w) x 2 ft (h) x 2ft Interior work area to be from a single piece of IS304 grade stainless-steel with large radius (joint free) corners to simplify cleaning. The cabinet work area must have s no welded joints, which collect contaminants or rust. 3. Cabinet should be balanced with base stand with castor wheel and lock. Stand approx 711 mm height from same company. Single Piece Wall. Single piece work tray. Raised arm rests. Drain Pan / Drain valve or cock for cleaning spills in case work tray is fixed.
	Cabinet construction/ Work Zone	Body M.S with sufficient protective coating. Front Window should be laminated toughened glass>5mm, anti UV
2.	Control system	Microprocessor based
3.	Display	LCD - all information, HEPA Filter life and UV Life indicator displayed
4.	Air Flow pattern (through ULPA/HEPA)	70% of the air re-circulated and 30% of the air exhausted
5.	Class	100
6.	Protection	operator, sample and environment
7.	Average Airflow Velocity	
	Inflow	0.53 m/s (105 fpm)
	Down flow	0.33 to 0.35 m/s (70 fpm)
8.	UV lamp	1. 30 to 40 W x 1 2. UV timer, UV life indicator, Emission of 253.7 nanometers for most efficient decontamination
9.	Fluorescent Lamp	12 to 21 W x 2
10.	Illumination	≥1000 lux
11.	Consumption	760 W
12.	Power Supply	210-240V/50/60 Hz
13.	Sound Emission	62.5 dBA to 65 dBA
14.	Filter specification ply ULPA Filter Typical Efficiency	
	Supply ULPA /HEPA Filter Typical Efficiency	≥99.999% for particle size between 0.1 to 0.3 microns
	Exhaust HEPA Filter Typical Efficiency	≥99.99% at 0.3 microns
15.	Interlock function and alarm	Interlock function for UV lamp and front window. Alarm for any out of range parameters

Sl. No	Specifications	Requirements
16.	Certification	1. NSF 49/EN1249 or Equivalent standard Test Certificate for Mini-Pleat HEPA Filters 2. Calibration Certificate for Pressure Gauge 3. Calibration Certificate for Air Velocity Anemometer
17.	Services Required	System should come along with the entire necessary accessory and should be ready to work. Installation & onsite validation, Calibration certificates Manuals: Operation, maintenance & part list with detailed specifications, Operational & maintenance Training. For validation vendor should having it own capability with their own company trained service engineer to perform Cleanliness level validation. No third part validation will be entertained. One validation at the time of installation should be done by company personnel.
18.	Electrical outlets	Minimum 2 nos. electrical outlets should be provided inside the work space.
19.	Optional	One out of the two Biosafety cabinet systems must be supplied with thimble / canopy attached to air vent
20.	Warranty	Comprehensive warranty should be provided for five year.
21.	***Buy-back price***	***Buy-back price for old Biosafety Cabinet – 4 ft [Make: Amar Chand & Co., Ambala, India, Year of Installation: 2008] may also be quoted***

2. SPECIFICATIONS FOR AUTOCLAVE

Make: TOMY/PANASONIC/HIRAYAMA/TUTTNAUER/ALP, JAPAN/YAMATO/JEIOTECH
Automatic Microprocessor based Portable Autoclave should offer the followings features:

Sl. No	Specifications	Requirements
1.	Operation	Should have following functions & features: 1. Single top automatic vertical opening lid. 2. One-touch automatic lid Open / Close mechanism with Lid opening/closing detection Mechanism. 3. Built in steam Condenser to ensure no steam exhausts into the lab. 4. Exhaust bottle detection mechanism
2.	Chamber capacity (Effective internal volume)	1. ~70 - 75 Liters (1 no.) 2. ~50 Liters (1 no.)
3.	Temperature control	1. Sterilizing temperature is controlled by the microprocessor within ±2°C of the set temperature in the range of 115°C to 135°C with last run memory. 2. Should be able to balance the temperature and pressure deviates during sterilization, fine exhausting automatically in order to adjust the chamber condition. 3. Provided with external temperature PT100-Ohm sensor.
4.	Process mode	4 sterilization modes
5.	Operating temperature range	For sterilizing: 105-135ºC, for heating: 45 -104ºC and for warming: 45 - 95ºC.

Sl. No	Specifications	Requirements
6.	Heat source	2.5-3 kW electric heater
7.	Chamber internal material	SUS304 double/triple walled, steam jacket and separate boiler.
8.	Display	1. Digital, Display range should be 1 to 99hours 2. Should show working status parameters (Time and temperature)
9.	Rapid air cooling function	Should be provided with Built-in Cooling Fan for faster post-sterilization cooling and shorter completion time.
10.	Operating pressure	0.26 Megapascal and analog display range should be 0 - 0.4MPa
11.	Warming	Variable 1 to 99 hours
12.	Safety Device	Water level sensor, current leakage breaker, lid interlock, over heat & pressure Prevention, open temperature sensor detection & safety value.
13.	Printer	Should come with inbuilt printer and option to print after every 1 minutes during operation
14.	Accessories, spares and consumables	1. Stainless Steel Baskets & containers for holding flasks, tubes etc. – 2 / 3 nos. 2. Appropriate built-in process printer for batch documentation 3. Appropriate Voltage stabilizer should also be supplied 4. Dust Cover – for both the systems
15.	Power Supply	Single-Phase 230V AC (50/60 Hz) and fitted with plug compatible with local sockets
16.	Warranty	Comprehensive warranty should be provided for five year.
17.	***Buy-back price***	***Automatic Autoclave – 60 lit [Make: Osworld, Mumbai, India, Year of Installation: 2013] may also be quoted***

3. SPECIFICATIONS FOR LABORATORY REFRIGERATOR - $2^{O}C – 8^{O}C$

Make: ESCO/DAIREI/ PANASONIC/HAIER/BIOBASE/FRIMED/LIEBHERR/JIOTECH
Laboratory Refrigerators should offer the followings features:

Sl. No	Specifications	Requirements
1.	Design	1. Vertical with wheels 2. Frost free, CFC free, Automatic Defrost 3. 4 – 5 Height adjustable shelves 4. Internal LED Lighting 5. Single Triple-Pane/Double Layered Glass Door with ergonomic handle Key Lock 6. Automatic door closing 7. Fan forced air circulation to ensure stable & uniform preservation environment.
2.	Controller	1. Microprocessor Temp. Control Controller with 0.1ºC resolution 2. Controller to Display data about the unit and used to control temperature

		3. Control panel should be at eye level with Digital Temperature display & Alarms
3.	Construction	Electro-galvanized steel with white, oven baked epoxy-polyester, anti-microbial, powder-coated finish with 304 Stainless Steel inner chamber
4.	Capacity	Minimum 350 Liters
5.	Temperature	1. Range: 2□C to 8□C 2. Uniformity: ±3°C
6.	Alarm	Open door, High/Low temperature, Clogged condenser filter
7.	Warranty	Comprehensive warranty should be provided for five year.

4. SPECIFICATIONS FOR DIGITAL BALANCE

Make: METTLER/RADWAG/SARTORIUS/OHAUS
Quantity: 02
Digital Precision Balance along with Standard Weight Box of E2 Class (1 Weight Box) traceable to National / International Standards should offer the followings features:

Sl. No	Specifications	Requirements
1.	Design	Type – Top loading Precision Balance of 1000gm Capacity
2.	Range (weight)	0.02gm - 1000gm
3.	Accuracy	0.01gm
4.	Readability	0.001gm
5.	Repeatability	0.002gm
6.	Linearity	0.003gm
7.	Response time	1.5 s
8.	Calibration	automatic/internal
9.	Display	Touch Screen
10.	Stabilization Time	2 Seconds (typically).
11.	Calibration certificate	From NABL accredited calibration laboratory should be supplied along with the equipment.
12.	Specifications of Weight Box traceable to international standards (1 no)	1. 1 mg - 200 g, E2 2. Accuracy class acc. to OIML R111: E2 3. Nominal mass value: 1mg to 200g. Up to 500 mg as wire weights 4. Susceptibility: 0.002 – 0.004 5. Material: special steel, non-magnetizable, density 8.0 g/cm3, highly corrosion-resistant, knob weights highly polished and laser marked, in wooden case. 6. Dust Cover
13.	Warranty	Comprehensive warranty should be provided for five year.
14.	***Buy-back price***	***Buy-back price for old Precision Balance [Make: Precisa, Model XB 220A] may also be quoted***

5. SPECIFICATIONS FOR CIRCULATING WATER BATH

Make: JULABO/THERMO/LAUDA/JSR/JEIOTECH
Circulating water bath should offer the followings features:

Sl. No	Specifications	Requirements
1.	Temperature Range	Working temperature range from +20°C to+99.9 °C
2.	Diplay	Bright LED-Display with cutting-edge microprocessor technology with PID temperature control
3.	Temperature Range Diplay	Bath volume ~10-12 liters (one)
		Bath volume ~18-20 liters (one)
4.	Power	Power switch integrated in keypad
5.	Temperature Stability / Uniformity @ 37°C	High temperature stability of ±0.2 °C or ±0.02 °C
6.	Adjustable shaking frequencies	Adjustable shaking frequencies from 20 to 200 RPM
7.	Maintenance	Convenient bath drains to easily clean and maintain bath
8.	Top cover	Lift-up bath cover
9.	Accessories	1. Stainless Steel Basket for 20 Bottles 0.25 l / 0.5 l - 2 nos 2. Stainless Steel / Polypropylene Test tube rack, for 15-21 tubes of 23-25 mm, 25 -60 tubes of 12-16 diameter(each) 1nos. 3. All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment. 4. Dust Cover
10.	Alarms	Audible alarms for Dry-running protection and over temperature
11.	Timers	Optimize scheduling with auto-on and auto-off timers
12.	Warranty	Comprehensive warranty should be provided for five year.

6. SPECIFICATIONS FOR INCUBATOR (MULTI CHAMBERED)

Make: JEIOTECH/DAIHAN/JSR/VISION SCIENTIFIC/BINDER
Incubator (multi chambered) should offer the followings features:

Sl. No	Specifications	Requirements
1.	Configuration	Multi-chamber: 4 chambered, floor-standing, mobile - Castor wheel (for mobile incubator)
2.	Capacity (Chamber volume) - (L / cu ft)	1. 60 / 2.1 or more x 4 chambers 2. Independent Temperature Control of each Chamber 3. Provision of minimum 2 nos. of SS-304 height adjustable racks in each chamber.
3.	Temperature range (oC)	+5 to 70 ^{o}C, ± 0.2 ^{o}C accuracy and ±0.5 ^{o}C uniformity with programmable Temperature Control with Illumination (Temperature and illumination of each chamber can be controlled independently). Independent Cooling System for each chamber to provide precise temperature
4.	Inner Chamber	Stainless Steel 304
5.	Door specification	Solid installed with lock
6.	Dimension (W×D×H) minimum	1. Interior (mm) - 400×360×420 x 4 chambers 2. Exterior (mm) - 1170×640×1360 x 4 chambers

Sl. No	Specifications	Requirements
7.	Shelves	No. of wire / Perforated shelves (standard/ max.) 2 / 7 - per chamber
8.	Controller	1. Programmable or Digital PID Controller 2. Adjustable time and interval
9.	Safety	Over Temperature Protection, Over Current Leakage Breaker
10.	Accessories	Each equipment should be supplied with multi channel data logger for temperature Suitable on - line UPS (5 KVA) to support the instrument.
11.	Certification	Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation
12.	Warranty	Comprehensive warranty should be provided for five year.
13.	***Buy-back price***	***Buy-back price for old BOD Incubator (2 nos.) [Make: YOMA, YORKO (Double Door) India, Year of Installation: 2009] may also be quoted***

7. SPECIFICATIONS FOR HOT AIR OVEN

Make: THERMO/COLE PARMER/MRC/JEIOTECH/BIOBASE/BINDER
Hot air oven should offer the followings features:

Sl. No	Specifications	Requirements
1.	External material	304 Grade Stainless Steel body with powder coating.
2.	Interior material	Fully stainless steel.
3.	Inner chamber	Stainless steel structure with adjustable minimum 2 shelves.
4.	Window	Double layer glass observation window in front side.
5.	Type	Bench Top type (Table top model).
6.	Dimension (W×D×H)	1. Interior (mm) 400×360×420 2. Exterior (mm) 577×642×760
7.	Temp. Range	Ambient +10°C to +250°C
8.	Temperature Accuracy	±0.5°C
9.	Temperature Protection	Automatic over temperature alarm based protection system.
10.	Timer function	Choice of time (On/Off condition) for automatic setting.
11.	Temp. Control	Microprocessor control with LCD/ LED display.
12.	Convection system	Gentle drying and heating with superior temperature uniformity.
13.	Certification, Document and Installation	Traceable calibration certificate from NABL accredited calibration lab. Installation has to be carried by the skilled team with IQ, OQ and PQ documents and on site validation to be carried out to ensure proper working of the oven as per specification.
14.	Capacity	60-70 Ltrs.
15.	Warranty	Comprehensive warranty should be provided for five year.

Sl. No	Specifications	Requirements
16.	***Buy-back price***	***Buy-back price for old Oven [Make: Heraeus Instrument, Germany, Model T_6 Year of Installation: 2005] may also be quoted***

8. SPECIFICATIONS FOR FOGGER

Make: IDEALIN NANOFOGGER/VECTORFOG/COLDMIST/AEROJET
Laboratory ultra low volume (ULV) fogger system with ready to use disinfectant should offer the followings features:

Sl. No	Specifications	Requirements
1.	Droplet Size	Consistent sub micron (<1 micron, non-wetting) – 20 micron particle size generation - adjustable
2.	Material of construct	1. Tank, Flow control and Nozzle assembly (non-clogging vortex type) should be of SS316 grade, easy to clean, detachable and non corrosive for chemical 2. Handle and hardware: SS304
3.	Flow rate	1 - 2 liters/hr.
4.	Air Filter	Triple stage air filter for motor protection
5.	Tank Capacity	5-10 liters.
6.	Area Coverage	>10000 Cubic Fts.
7.	Noise leven	<85 db
8.	Motor	CE approved, 22000 RPM
9.	Electrical	200-270V, 50 HZ.
10.	Timer	Digital timer - 1 – 99 min. with inbuilt hour counter
11.	Consumables	Should be compatible with wide range of disinfectant in a closed room. Should be supplied with Spore-Killing Ready-To-Use non-toxic antimicrobial disinfectant solution - 5 liters.
12.	Optional	Rotation stand for uniform dispensing of the droplets
13.	Warranty	Comprehensive warranty should be provided for five years

9. SPECIFICATIONS FOR AUTOMATIC COLONY COUNTER (BENCH-TOP, DIGITAL)

Make: INTERSCIENCE/WHITLEY/SYNBIOSIS/MRC/BIOBASE/SCHUETT-BIOTEC
Automatic colony counter (bench-top, digital) should offer the followings features:

Sl. No	Specifications	Requirements
1.	Camera	CMOS color camera or higher version Digital Zoom Minimum 28X or higher
2.	Resolution	Minimum 1 mega pixels or higher
3.	Color detection	Optional
4.	Counting time	1000 colonies per second or more
5.	Minimum size colony	0.1 mm or less

Sl. No	Specifications	Requirements
6.	Lighting	LED and Automatic
7.	Counting	1. Automatic, with manual control 2. Counting on petri dishes 90mm or higher 3. Counting on pour, Surface plates Yes; Optional – Petrifilms, Chromogenics
8.	Data export	1. PDF, JPEG, BMP, PNG and EXCEL 2. USB Connection should be there
9.	Computer system	Laptop with Windows 10, 3 GB RAM, Graphics Card, i-5 or higher processor. Guarantee 3 years
10.	Good Laboratory Practice	GLP Compliance & full traceability
11.	Validation	vendor should get it done through qualified engineer of OEM at the time of installation and yearly thereafter.
12.	Warranty	Comprehensive warranty should be provided for five years

10. SPECIFICATIONS FOR ANAEROBIC WORK STATION

Make: WHITLEY/SHEL LAB/BAKER
Anaerobic work station should offer the followings features:

Sl. No	Specifications	Requirements
1.	Capacity (Liters)	300-400 approx
2.	Type	Bench top Compact imported Automated Anaerobic workstation with small footprint
3.	Gas Requirement	The workstation required to operate on either one cylinder of conventional anaerobic gas mixture (10% hydrogen, 10% carbon dioxide and 80% nitrogen) or one cylinder of anaerobic gas mixture and a cylinder of nitrogen. The workstation should operate in either mode without any modification.
4.	Alarms	System should have audible and visual system indicators and alarms.
5.	Automated controls	System should have Automated gas control system, low gas pressure indicator/buzzer in case if the pressure of anaerobic gas mixture fed to the workstation falls below the necessary minimum level.
6.	Temperature range	The system should be temperature controlled and set temperature between 5°C above ambient to 45°C for incubation
7.	Gas Control	System must have automatic gas control within the chamber. No manual control required.
8.	Humidity Control	Maintenance-free dehumidification .Fully automatic de-humidity control system for no requirement of any user maintenance
9.	Light	System should have internal spotlight for even the smallest colonies to be examined.
10.	Power Socket	Internal power socket for the use of small laboratory instruments inside the chamber.

Sl. No	Specifications	Requirements
11.	Vacuum pump	System must be supplied with vacuum pump.
12.	Supporting consumables	Refillable sachets of anaerobic atmospheric detoxifying agent (essential for maintaining ideal internal conditions and removing volatile fatty acids) in case Detox advanced carbon filtration system is not there and catalyst palladium to be included. Petri plate racks should be included.
13.	Accessories	System to be quoted with gas cylinders & gas regulators optionally. Workstation stand and data logging connections.
14.	Plate Capacity	Incubation capacity not less than 400 plates of 90mm
15.	Sleeve Cuffs	Comfortable, sleeve cuffs seal around the operator's arms to permit barehanded manipulation of plates and specimens inside the working chamber.
16.	Electronic Control	Microprocessor Controls Electronic controls to provide the desired chamber atmosphere. Gauges & visual indicators show pressure, temperature, and cycle status.
17.	Foot switch/Peddle	Footswitch Preferably Wireless type
18.	Validation	vendor should get it done through qualified engineer of OEM at the time of installation and yearly thereafter.
19.	Warranty	Comprehensive warranty should be provided for five years

11. SPECIFICATIONS FOR ULTRA PURE WATER PURIFICATION SYSTEM

Make: THERMO/PALL/SARTORIUS/MERCK MILIPORE/CRYSTAL E/BIOBASE/ELGA/ STAKPURE, GERMANY

Ultra pure water purification system should offer the followings features:

Sl. No	Specifications	Requirements
1.	General	1. Compact, Wall mountable system for microbiology / molecular biology grade water applications. 2. Should deliver ultrapure product water by point of use dispenser with rocker arm, volumetric dispensing and auto shut off facility
3.	Quality of water	Should deliver Type I/Ultra – pure as per International specifications as follows: 1. Resistivity > 16 Megaohm-cm 2. Conductivity < 0.06 Micro-Siemens 3. TOC level < 10 ppb 4. Flow rate > 1 lit / min 5. Bacteria <1 CFU/10ml
4.	Volume	10-12 litre/day.
5.	Feed water	Should have separate feed water (Potable tap water) specific purification cartridge and application specific polishing cartridge
6.	Control display	Product water resistivity / conductivity both compensated and non compensated mode, product water temperature, product water resistivity greater or below set point
7.		Maintenance display for sanitization, exchange purification cartridges, activation of fast flush, depressurization, air purge
8.	Accessories	1. UPS/Stabilizer as required for functioning of the equipment

Sl. No	Specifications	Requirements
		2. All cartridges, filters, pump or any such item which is /are essential for Installation and functioning /operating the equipment.
9.	Consumable	Must Quote separately for consumables (cartridges, filters etc.) for ONE YEAR for trouble free working.
10.	Validation	vendor should get it done through qualified engineer of OEM at the time of installation and yearly thereafter.
11.	Warranty	Comprehensive warranty should be provided for five years.
12.	***Buy-back price***	***Buy-back price for old Water Purification System [Make: Millipore, U.S.A ELIX 3, 10 AND MILLI Q Year of Installation: 2007] may also be quoted***

12. SPECIFICATIONS FOR FULLY AUTOMATED ELISA READER & WASHER

Make: PERKIN ELMER/TECAN/BIORAD/AWARENESS TECHNOLOGIES/ MOLECULARDEVICES

Multimode Microplate Reader and washer should offer the followings features:

Sl. No	Specifications	Requirements
ELISA Microplate Reader		
1.	Light Source	Quartz-halogen lamp 6V/10W
2.	Wavelength	Absorbance 230-750nm, Accuracy ±1nm Fluorescence Ex 230 – 850 nm, Em 280 – 850 nm Accuracy < ± 2 nm
3.	Filters	8- position filter wheel, the instrument is delivered with the following standard filters installed: 405nm, 450nm, 620nm and 650nm
4.	Resolution	0.001 Abs
5.	Display	High contrast color display (480 x 272 dots)
6.	Internal Memory	At least up to 99 assay protocols and 100 test results, 96- well plates
7.	Incubator (Optional)	Temperature range from ambient +4^{o} C up to 50^{o} C
8.	Accuracy(405nm)	± 1% (0-3Abs) or ± 0.003 Abs, Whichever is greater
9.	Communication	USB for computer connection USB for memory stick position for data export USB for external printer
10.	Mains Input	100-240V(50/60Hz) With IVD specifications
11.	Capability	Capability to read flat-, U-, or V-bottom microplates, 6 / 12 / 24 / 48 / 96, curettes
12.	Power Supply	210-240V/50-60 Hz
13.	Accessories	Spare Lamps 2 Nos
14.	Detectors	Fluorescence, UV and visible, Luminescence
15.	Temperature control	Ambient +5 °C up to 42 °C
16.	Shaking	Linear, orbital
ELISA Microplate Washer		
1.	Function	Fully automatic plate washer With IVD specifications

Sl. No	Specifications	Requirements
2.	Compatible	With ELISA reader supplied (as per model)
3.	Capability	96 well microplates and strips, with flat, round, or “V” bottom well
4.	Bottle	1. With non-pressurized bottle to maintain biosafety 2. Wash, rinse and waste (volume 4-6 liter)
5.	Residual volume	< 2 µl
6.	Dispensing volume	50-400 µl for 96 well plate
7.	Plate sensor	Should have the provision
8.	Data Transfer	USB Port Number of wash protocols up to 99
9.	Number of Wash buffer bottles	01
10.	Training	The supplier should provide comprehensive training to users on operation of the instrument and application support onsite as per specifications
11.	Accessories	1. Multichannel pipette (2 nos) with pipette tips and calibration certificate should be provided. 2. Branded compatible online UPS with at least 30 minutes backup
12.	Validation	vendor should get it done through qualified engineer of OEM at the time of installation and yearly thereafter.
13.	Warranty	Comprehensive warranty should be provided for five years

13. SPECIFICATIONS FOR TEMPERATURE DATA LOGGER

Make: TESTO/FLUKE/MADGETECH/FISHER SCIENTIFIC
Temperature data logger should offer the followings features:

Sl. No	Specifications	Requirements
1.	Purpose of Equipment	Functions as portable monitor for use in refrigerators/ Oven/Incubators.
2.	Interface	It should display and stores data that can be downloaded to a PC with MS windows supported software.
3.	Temperature range	– 30˚C to 50˚C
4.	Accuracy	0.3˚C
5.	Measuring interval	1-255 mins
6.	Memory Size	2000 to 2500 Measurements.
7.	External Material	Stainless steel/Plastic.
8.	Weight	3 to 5 gm.
9.	Power source	Internal lithium battery.
10.	Battery life available	5+ years or 1 million measurements.
11.	Accessories	Reading software and cable needs to be provided.
12.	Certificates	The equipment quoted should be CE Certified. Calibration certificate traceable to International standards should be provided.

14. SPECIFICATIONS FOR TRINOCULAR MICROSCOPE WITH DIGITAL DISPLAY SYSTEM

Make: LEICA/OLYMPUS/DEWINTER/OPTIKA, ITALY
Digital Trinocular Microscope with image processing system and digital camera should offer the followings features:

Sl. No	Specifications	Requirements
1.	Optical system	Infinitely corrected system stroke
2.	Focus	Vertical stage movement 25mm or more per course vertical stage movement 1micron or less for fine stroke
3.	Illuminator	Lamp house for 100 watts halogen lamp with DIC upgradable.
4.	Revolving nose piece	Reversed sextuple revolving nose piece should be upgradable to DIC in future
5.	Objectives	Plan achromatic 2X N.A 0.06 Plan achromatic 4X N.A 0.10 Plane achromatic 10X N.A 0.25 Plane achromatic 40X N.A 0.65 (spring) Plane achromatic 100X N.A 1.25 (spring & oil)
6.	Observation field	Wide field trinocular eye piece tube with 10X eye pieces of 25mm or more F.O.V
7.	Stage	Ceramic coated surface mechanical stage with right hand low drive controlled with left hand for two specimens.
8.	Condenser	Swing out condenser usable for 2X-100X.
9.	Camera & software	Digital pool CCD camera approx. 3MP/4MP, with 10 bit digitalization, 2048X1500. Software To capture and image processing.
10.	Accessories	1. Additional display-The equipment should be supplied with a 55 inch LED monitor, in addition to TFT screen 2. Dust cover
11.	Computer system	i5 processor, 4GB RAM,500GB HDD, DVR R/ W, TFT 20". Microscope, camera and software should be from same manufacturer.
12.	Warranty	Comprehensive warranty should be provided for five years
13.	***Buy Back Price***	***Buy Back Price for Leica DM LM/P/11888500 Bright field Microscope with Image Analyzer, Year of Installation – 2003 may also be quoted***

15. SPECIFICATIONS FOR AUTOMATIC SAFETY BUNSEN BURNER

Make: INTEGRA/FIREBOY/COLE PARMER/MRC/SCHUETT BIOTEC
Automatic safety Bunsen burner should offer the followings features:

Sl. No	Specifications	Requirements
1.	Basic features	1. Safety Bunsen Burner with flame monitoring, overheating protection and display movement sensor for safe operation. 2. Two adjustment knobs for air and gas to allow easy fine-tuning of flame size and temperature. 3. For heating applications or to flame-sterilize necks of large Erlenmeyer flasks, the Safety Bunsen Burner should be equipped with a long burner head.
2.	Operation modes	Manual by matches, Infrared sensor with the push button without the need of a lighter, Foot switch.

Sl. No	Specifications	Requirements
3.	Material	UV- and solvent-resistant, Smooth, chrome-plated metal housing.
4.	Accessories	1. All accessories for running with natural gas should be supplied 2. Main adapter 3. Adapter for standard gas hose with inner diameter 10 mm.
5.	Warranty	Comprehensive warranty should be provided for five years

16. SPECIFICATIONS FOR SHAKING INCUBATOR (ORBITAL)

Make: EPPENDORF/IKA/THERMO/MRC/ GLF/JEIOTEC/BIOBASE
Bench top microprocessor controlled Refrigerated Incubator Shaker should offer the followings features:

Sl. No	Specifications	Requirements
1.	Shaker requirements	1. Single knob selects all operating conditions and quickly Triple-eccentric counter balanced drive 2. Acceleration circuit to prevent sudden start and stop should be available 3. Programmable controller offering up to 4 modes of timer and parameter control for reduced user intervention. 4. Timer 0.1 to 99.9 hours or continuous mode 5. UV germicidal lights. 6. Noiseless operation
2.	Shaking Speed range	25 to 400 rpm with ± 2 rpm accuracy
3.	Temperature range	20°C below ambient to 80°C with accuracy of ± 0.1°C and stability of ± 0.2°C at 37°C
4.	Shaking orbit	approx. 25 mm
5.	Display	Large, easy to read LCD display screen
6.	Audible and Visible Alarm	Should indicate when speed deviates more than 5 rpm or temperature deviates more than 1°C from set point, and when timer operation has expired.
7.	Overall dimensions (W x D x H)	Minimum 62 x 75.4 x 82 cm
8.	Accessories	1. Universal Platform of at least 45 x 45 cm having capacity to holds assortment of various size of flask sizes upto 2 Ltrs and test tube racks. 2. System should be supplied with 125ml clamps (10 Nos.), 250 ml clamps (5 Nos.), 500 ml clamps (05 Nos.), 1000 ml (02 Nos.) and 2000 ml (01-02Nos) 3. Test tube rack for 20x50ml tube-1 no and test tube rack for 42x15ml tubes-1 4. It should be supplied with compatible stabilizer/servo for smooth operation 5. Dust cover
9.	Warranty	Comprehensive warranty should be provided for five years

17. SPECIFICATIONS FOR VACUUM FILTRATION ASSEMBLY

Make: MILIPORE/PALL/SARTORIUS/ROCKER
The Filtration Assembly intended for microbiological testing with membrane filtration; typically, for water or beverage testing (using 47 mm sterile membrane filters) should offer the followings features:

Sl. No	Specifications	Requirements
Manifold Specifications		
1.	Materials of Construction	1. Handles, valve (trigger and knob): Aluminum 2. Connectors, pipe and valve body: 316L stainless steel 3. Connectors, seals and valve seals: EPDM 4. Filtration O-ring: Silicone 5. With 3-Place Manifold
2.	Funnel	1. Capacity: 250 ml (Minimum) 2. Autoclavable SS body, 47 mm dia
3.	Filtration heads	Filtration heads should be compatible with stainless steel filtration devices, as well as disposable and glass funnels. Each component should be removable and autoclavable.
Pump Specifications		
1.	Materials of Construction	1. The pump should be an oil free pump type. 2. Diaphragm should be made of highly durable chemically resistant material. 3. Vacuum should be adequate for smooth filtration of water.
2.	Flow Rate	Minimum 3.5 L/min
3.	Vacuum	Maximum 700 mbar as per ISO 8199
4.	Accessories	1. Stainless steel funnel 250 mL (47 mm dia), support frit and base, Stainless steel funnel cover – 4 sets 2. Rubber vacuum tubing 8 mm – 2 mtrs 3. stainless steel forceps – 8 nos 4. Sterile Nitrocellulose Gridded Membrane Filters (Pore size: 0.45µm, 47mm diameter) –100 x 4Packs 5. Dust Cover for pump
5.	Warranty	Comprehensive warranty should be provided for five years

18. SPECIFICATIONS FOR BLENDER/HOMOGENIZER

Make: BIOMERIEUX/MERCK MILLIPORE/SEWARD/VWR/INTERSCIENCE
The blender/homogenizer should offer the followings features:

Sl. No	Specifications	Requirements
1.	Time set	30,180,600s or work continuously
2.	Rap speed	3-12/second
3.	Valid capacity	80-40 ml
4.	Material of case	Stainless steel body with powder coating
5.	Power consumption	165W
6.	Electronic motor rate	**500-1500 rpm**

Sl. No	Specifications	Requirements
7.	Display	LCD
8.	Power supply	220v/50 HZ

19. SPECIFICATIONS FOR AIR SAMPLER

Make: MERCK/BIOMERIUX/PBI/LIGHTHOUSE
Air sampler should offer the followings features:

Sl. No	Specifications	Requirements
1.	Material	Anodized aluminum
2.	Dimensions	Height - 25 cm, Diameter - 11 cm
3.	Diameter of Sampling Head	10 cm
4.	Diameter of petri dish	90 mm (3½ inches)
5.	Nominal Airflow	100 liters / min. + 2.5%
6.	Standard Sampling Volumes	50, 100, 250, 500, 1000 liters
7.	Compliance	GLP (Good Laboratory Practice) & full traceability
8.	validation	vendor should get it done through qualified engineer of OEM at the time of installation and yearly thereafter.
9.	Warranty	Comprehensive warranty should be provided for five years

20. SPECIFICATIONS FOR LABORATORY GLASSWARE WASHER/DRYER

Make: LABCONCO/COLE PARMER/VWR/MRC/LANCER/STEELCO/BIOBASE
Glassware washer/dryer should offer the followings features:

Sl. No	Specifications	Requirements
1.	Chamber volume of Washer/ Dryer	Option 1: 150 – 200 liters capacity Option 2: 200 – 275 liter capacity. Please quote for both the above options
2.	Internal chamber type	Inner chamber, washing arms and tank filters made of high quality AISI 316 L stainless steel.
3.	Front Glass Door	Glass Door version – Inside chamber must be visible, while in washing/drying run.
4.	Control System	Soft touch LCD display. Microprocessor controlled.
5.	Cleaning Liquid Dispenser	1. Minimum two automatic internal liquid dispenser 2. Standard pre-programmed cycle 3. At least 10 pre-programmed standard cycles.
6.	Internal wash temperature control	Fully adjustable wash temp. up to 90deg C
7.	External tap water filtering system	Must include all external tap water filtering system, preferably from local supplier
8.	Internal Baskets for placement of glassware inside	Must include basic 3 or 4 multipurpose baskets for storing test tubes, beakers, conical flasks, round bottom flasks, pipettes and petri dishes.

Sl. No	Specifications	Requirements
9.	Built in Dryer Unit	Built in forced air dryer unit for drying entire glassware content after the wash/rinse cycle.
10.	Consumables required for washing/ drying cycle	1. Must provide all necessary washing chemicals for 100 wash run cycle. 2. All quality washing chemicals must be easily available in Indian market at reasonable price (Indian Rupees). 3. Imported washing chemicals/ consumables are discouraged.
11.	Installation and Commissioning	The vendor must carry out the installation and commissioning at site, including the installation of tap water filter system. The tap water inlet and drain will be provided at site.
12.	End User Training at site	Necessary end user training and instructions must be provided to all users at site.
13.	List of present users in India	Must provide the list of users/ customers of this equipment in India.
14.	Desirable Specification:	1. Telescopic bearing railing for loading the basket. 2. Operator and Service manual with all spare parts list.
15.	Availability of spare parts	Availability of all spare parts and service support in India for the next 10 years.
16.	Warranty Period	Comprehensive warranty should be provided for five years

21. SPECIFICATIONS FOR BENCH TOP UV-VISIBLE SPECTROPHOTOMETER

Make: AGILENT/SHIMAZDU/PERKIN ELMER/THERMO FISHER
UV-Visible Spectrophotometer should offer the followings features:

Sl. No	Specifications	Requirements
1.	Wavelength Range (nm)	190-1100
2.	Wavelength Accuracy (nm)	0.8 or better
3.	Light Source	Xenon flash lamp Preferred/Deuterium and Tungsten Halogen lamp
4.	Detector	Photo Multiplier Tube/Silicon Photo Diode
5.	Sample holder	Should have reference and sample curette positions.
6.	Wavelength Repeatability (nm):	0.2 or better
7.	Spectral Bandwidth (nm)	0.5 to 2.0 or better
8.	Photometric Mode	Absorbance, Transmittance (%) , intensity
9.	Detector	Should have reference and sample curette positions.
10.	Scan/Skew Speed	Min 2500 nm/min or better
11.	Photometric Accuracy	± 0.005 Abs at 1 Abs
12.	Interface	USB preferred or LAN
13.	Accessories	1. Curettes: glass 6 nos. and quartz 4 nos. of variable capacities for liquid samples

Sl. No	Specifications	Requirements
		2. Optional: Magnetic stirring controller, stirring head and magnetic stirring bar for 10 mm path length curette stirring capability to single cell and multi cell holders for low viscosity liquids 3. Dust Cover
14.	Computer System	High Speed branded computer system with laser jet printer
15.	Software	Window based complete multitasking software. Compatible software for data acquisition and data analysis in all the spectrophotometric wavelengths and modes 18. Minimum One Years
16.	Warranty	Comprehensive Warranty for Five years (more on lamp) and option for up gradation to be specified
17.	Scope of supply	The instrument should be supplied with Basic instrument, 1 Inch matched Glass sample cell, basic user manual, a multi adapter for round and rectangular vials, CD with manual and procedure manual in .pdf format. Power cords
18.	***Buy-back price***	***Buy-back price for old UV – VIS Spectrophotometer [Make: Varian, Australia CARRY 50 BIO Year of Installation: 1989] may also be quoted***

22. SPECIFICATIONS FOR MULTI-PARAMETER WATER QUALITY METER

Make: HACH/LOVIBOND/MERCK
Multi-parameter Spectrophotometer should offer the followings features:

Sl. No	Specifications	Requirements
1.	General	The spectrophotometer instrument shall be a multiwavelength, UV-Visible, Split Beam / Dual Beam spectrophotometer designed for laboratory analysis of water parameters
2.	Reagents	The Required reagents for the water parameters should be from the same manufacturer.
3.	Display	Backlit Grayscale LCD with/without Touch Screen. The instrument should have User Guidance on Screen. The interface of the instrument shall be graphical with touch screen. The instrument shall provide graphical display and be capable of printing test results.
4.	Wavelength	The instrument, depending on the test selection, shall automatically select the wavelength with automatic calibration. The wavelength range of the instrument should lie between 190 to 1100 nm with accuracy of ±1 nm & resolution of 0.1nm.
5.	Preprogrammed Methods	1. > 200 pre-programmed water analysis methods 2. The instrument shall be equipped with storage capacity from 4000- 5000 data points & more than 100 user-defined calibrations (result, date, time, sample-ID, userID).
6.	Sample Cell Compatibility	1. Rectangular: 10, 20, 30, 50 mm and/or 1 inch(optional);

Sl. No	Specifications	Requirements
		2. round: 13 mm, 16 mm, 1 inch 3. Optional 100 mm rectangular cell with additional adapter
7.	Operating Mode	Transmittance (%), absorbance and concentration (wavelength, time). optional wavelength scan and time course graphs.
8.	Optics	Split Beam / Dual Beam
9.	Source Lamp	Tungsten (visible range), Deuterium/Xenon (UV range)
10.	Photometric Measuring Range	±3 Abs
11.	Photometric Accuracy	2 Abs with neutral glass at 546 nm
12.	Stray Light	KI-solution at 220 nm < 3.3 Abs/< 0.05%
13.	Operating Conditions	10 to 40°C, max. 80% relative humidity (non-condensing)
14.	Interfaces	USB type A (2), USB type B, Ethernet,
15.	Scope of Supply	The vendor should supply with Basic instrument, 1 Inch matched Glass sample cell, basic user manual, a multi adapter for round and rectangular vials, CD with manual and procedure manual in .pdf format. Power cords
16.	Warranty	Comprehensive Warranty for Five years (more on lamp) and option for up gradation to be specified

23. SPECIFICATIONS FOR DIGITAL THERMOHYGROMETER

Make: FLUKE/TESTO/VWR/COLE PARMER
Digital thermohygrometer should offer the followings features:

Sl. No	Specifications	Requirements
1.	Temperature	-20 °C to 60 °C ± 0.5 °C - Readability 0.1 °C
2.	Temperature accuracy	±0.5°C - ±1.0°C
3.	Resolution	0.1°C / 0.1°F
4.	Temperature Update Rate	500 ms
5.	Data storage capacity	99 points
6.	R.H. Range	5 % to 95 % R.H. ± 2.5 % - % R.H readability
7.	Display	Backlit dual display of humidity and temperature

24. SPECIFICATIONS FOR PH / ORP METER

Make: HANNA/HACH/THERMO/ BIOBASE
pH / ORP Meter should offer the followings features:

Sl. No	Specifications	Requirements
1.	Benchtop GLP Model pH cum ORP meter with digital pH electrode having built-in temperature sensor with Clogging Prevention System (CPS) technology, glass body, and spherical tip.	

Sl. No	Specifications	Requirements
2.	pH Range	-2.000 to 16.000 pH
3.	pH Resolution	0.001 pH, 0.01 pH
4.	pH Accuracy (@25ºC/77ºF)	±0.01 pH, ±0.002 pH
5.	pH Calibration 5 points (Standard mode)	1.68, 4.01 (3.00†), 6.86, 7.01, 9.18, 10.01, 12.45, and two custom buffers; 3 points (Basic mode) 4.01; 6.86; 7.01; 9.18; 10.01
6.	pH Temperature Compensation ATC	-5.0 to 100.0ºC; 23.0 to 212.0°F
7.	mV Range	±1000.0 mV; ±2000.0 mV
8.	mV Resolution	0.1 mV
9.	mV Accuracy	±0.2 mV (±999.9 mV); ±1 mV (±2000 mV)
10.	Temperature Specifications	1. Temperature Range -20.0 to 120.0 ºC 2. Temperature Resolution 0.1 °C 3. Temperature Accuracy ±0.5 °C 4. °C/°F Yes
11.	pH Electrode Diagnostics	Glass and reference junction diagnostics, out of calibration range , probe condition, response time
12.	Logging	up to 1000 records organized in: Manual log-on-demand (Max. 200 logs), Manual log-on-stability (Max. 200 logs), Interval logging (Max. 600 samples; 100 lots)
13.	Connectivity	1 micro USB port for charging and PC connectivity, 1 USB port for storage
14.	Environment	0 to 50°C (32 to 122°F), RH max 95% non-condensing
15.	Battery Type/Life	Built-in rechargeable battery /8 hrs.
16.	Accessories	1. Cradle and Electrode Holder, 2. Compatible pH and ORP electrode with inbuilt temperature sensor 3. Buffer solutions for pH 4, 7 and 10 4. Cleaning solutions, battery Charger 5. Dust Cover
17.	Warranty	Comprehensive warranty should be valid for five years including probe

REVISED TECHNICAL BID FORM (B)

(a) The bids of only the technically qualified bidders will be eligible for consideration for opening of financial bid. The technical bid of the bidders will be evaluated on the basis of specification of the offered model vis-à-vis the prescribed specification given below :

CLEAN ROOM LABORATORY SET UP & FURNITURE

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
1.	**GENERAL:** The microbiology laboratory shall be modular with unidirectional flow with different zones. **The area purposed for the Microbiology Lab is mentioned in Annexure A** to accommodate the area/activities mentioned below. A representative zoning floor plan is shown as **Annexure B** which can be suitably modified by the bidder keeping the flow (personnel and sample) unidirectional and avoiding cross contamination. The modified layout should be submitted to FSSAI for approval along with the BOQ for civil and electrical work as per specifications mentioned. 1. Sample receiving area, a documentation room and office area (Unclassified). 2. Media preparation room (Unclassified) attached to sterilization room and washing (having sufficient space to store dry Media/reagents and Prepared Media in Refrigerators) 3. Sample preparation room (Class B/ISO 7) over pressure 45 pa having LAF 4. Inoculation Room (Class B/ISO 7) over pressure 45 pa 2 nos (One having Biosafety Cabinet and another for automated systems/open lab) 5. Reference culture room (Class B/ISO 7) over pressure 45 pa having Biosafety Cabinet. 6. Clean corridor minimum 6 feet wide. 7. Incubation room and enumeration room (ISO 7) having space to accommodate 4 individual / 2 stackable Incubators. The incubation room should be accessible from separate entry other than clean room such that, the analyst need not enter clean room to observe the results.	--		

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
	8. Small Biochemical identification and staining room attached to Incubator room (ISO 7) 9. De-contamination room (Unclassified) having access to collect material after Incubation room and also from Inoculation /Reference Rooms. 10. Two small inter connected rooms for Molecular Biology Lab set up (Class B/ISO 7) over pressure 45 pa. 11. Entry to clean Room through three air lock rooms; ALI, AL2 (change room) and AL3. Exit from clean room through air lock AL2 and AL1 having different air pressure. The necessary civil and electrical work shall be done as per the specifications. The class validation of 'clean area' shall be done and report should be submitted by the renderer through a third party accredited agency. Equipment used for validation should have valid traceable calibration certificates. The furniture shall be supplied as per the specifications given below.			
2.	**MODULAR PANELLING and FLOORING WORKS** The entire lab as per the layout shall be made with clean room modular partitions as per the following specification. 1. **Wall panels**: Pre-fabricated insulated sandwich panels made up of 0.8 mm GPSP (Galvanized Plain Skin Pass) GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40±2 Kg/m^3. Overall thickness of the panel shall be 80 mm. 2. **Cladding panels**: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40±2 Kg/m^3. Overall thickness of the panel shall be 40mm. 3. **Non Walkable Ceiling panels**: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40±2 Kg/m^3. Overall thickness of the panel shall be 60mm. Panels shall be designed to fit within each other with self-supported system. Load bearing capacity of the panel shall be 150kg/cu.M. Necessary clean room lightings and provision for air conditioning outlets shall be provided. Suitable	--		

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
	factory made cutouts wherever required should be provided in the wall panel as applicable for fan filter units, HEPA filters, light fixture, return air grills, power sockets, cables. Pipes, exhaust ducts, magnahelic gauge, smoke sensors, utilities etc. It should be easily repairable/accessible. 4. **Riser Panels**: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and overall thickness of the panel shall be 80mm with inbuilt riser duct along with perforated grill. 5. Glazed panels flushed view panel with 5mm thick toughened glass of size 900 x 900mm. 6. Aluminium coving: Aluminium coving with radius 50/65 mm with fastening arrangement and aluminium coving corner 3D aluminium coving corner 2D. 7. **Clean Room Doors**: Single Door fit to flush into the wall panels and must open as shown. Shutter sheet thickness will be 0.8mm and frame will be 1.2mm thick made up of GPSP GI sheet with epoxy polyester powder coating. Leaf thickness will be 44mm and infill will be PUF with density 40±2 Kg/m33. Door size shall be as per requirement. Door bottom seal shall be provided. 8. Single Door Accessories: 03 Hinges (Altos), 01 Door Closer (Altos) - 01 Nos. Back to Back Handle 01 Nos. Vision (400 x 600) - , 01 Drop Seal 01 Lock 01 Kick plate 9. **Flooring**: Seamless antistatic PU floor – Laying 4mm (2+2) thick self leveling epoxy floor. 2mm screed + 2mm epoxy floor. The existing floor should be properly cleaned up, surface preparation carried, apply one coat of primer & laid with 2mm thick self-leveling epoxy unpigmented screed floor. And finished with 2mm self-leveling epoxy floor. The floor finish should be 4mm. The self-leveling PU made of MRF / DUPONT or equivalent. The installed floor should display good abrasion			

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
	resistant & monolithic jointless surface. Shall be of stain proof, Scratch resistant, Uniform color and free of joints / undulations / bubbles etc. The floor level shall match with the surrounding area. 10. Wall to Floor Ceiling – The cove shall be made with silica sand and PU with a radius of 60mm or larger, with all wall / floor joints made as merging without any unevenness. 11. The panels shall be made of a durable and uniform material that should be easy to clean and extremely hygienic. 12. Should not have any sharp edges and corners and do not support bacteriological or fungicidal growth and is resistant to most chemicals used in the lab. 13. Gas pipe line shall be provided. The cylinders shall be kept outside conveniently for replacement. 14. Plumbing lines as required shall be provided. Water drain work with SS GMP TRAP & it's Connect with main drain line including all civil work 15. Exhaust line for autoclave, biosafety cabinet, laminar flow and other equipment shall be provided. 16. All temperatures, humidity and pressure should be displayed in the clean corridor. 17. The switch board should not have any sharp edges 18. All doors except the doors in change rooms shall have view panels. 19. Air locking system to maintain different pressure at entry and exist area of clean room as shown in figure. 20. The room and sterile corridor over pressure (high positive pressure) should be as indicated above. 21. Fresh air and exhaust should be provided for wash/sterilization and decontamination area. 22. Application of PU Paint on Ceiling & Walls with acrylic pulley base, & Final Finish with two coats for Media preparation area, sample receipt and decontamination and wash area 23. The bidder should do validation initially while commissioning and 2 more validations in an interval of 6 months in a year in the warranty period.			
3.	**Heating, ventilation and air conditioning (HVAC) System**	--		

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
	1. The following area shall be provided with ISO 7 (Class 10,000) with humidity control HVAC and maintained at 22 ± 3 °C and Relative Humidity 40-60 i. Clean corridor over pressure 60 pa ii. Sample preparation room over pressure 45 pa iii. Inoculation room over pressure 45 pa iv. Reference culture room over pressure 45 pa v. Incubator room over 30pa (class D) vi. Entry and Exist at 15,30,45 pa as shown in figure **The following area shall be provided with unclassified ventilation** i. Media preparation room/sterilization room/office room ii. Sample receipt/storage 2. Overall air quality shall be Class 10000 and should be class 100 at grill level of HEPA filter. (To achieve this air quality, if any additional items are required which are not mentioned in the technical specifications, shall be included in the offer.) i. Validation of HEPA filters by appropriate tests like DOP etc. ii. Air Velocity at outlet of terminal filtration unit / filters. iii. Air Particulate count. iv. Air Change rate calculation. v. Temperature & Humidity test. vi. Pressure differential levels of the Clean room / adjoining areas. vii. Positive pressure in Pascal as indicated for area 3. Supply, delivery, installation, testing and commissioning of **Modular type floor mounted Double Skin Air Handling Unit** of G.S.S. 24 Gauge ducting complete in all respect along with silicon sealant. Duct Sheet make:- **SAIL/Tata/Jindal** 4. Application of **12 mm thick** XPE TOC Slim insulation Cross Linked polyethylene foam with aluminum metalized foil for insulation on Supply duct running inside building area and with UV Foils for insulation for supply Ducts running out side buildingarea i.e. exposed to atmosphere 5. Application of **09 mm thickness**. XPE TOC Slim insulation Cross Linked polyethylene foam with aluminum metalized foil for insulation on Return duct running inside building area and with UV Foils for			

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
	insulation for Return Ducts running out side building area i.e. exposed to atmosphere 6. Installation, Testing & Commissioning of powder coated perforated (65%) supply and Return air grills made out of extruded Aluminum sheets (**Make:- ISI MARK**) 7. Installation, Testing & Commissioning of Powder of suitable numbers and dimensions of coated HEPA Filters (Efficiency, efficiency 99.99% for 0.3 microns with individual test certificates.) housing with PAO & Pascal Pressure Test Point with canvas connection and VCD. 8. Maximum sound limit in the corridor area shall be 50 to 60 db. 9. Installation, Testing & Commissioning of Riser Filters 10. Installation of Magnehelic differential Pressure Gauge Make :- DWYER 11. Supply, Installation of Central Display Station for Magnehelic differential Pressure Gauge with negative or positive pressure pipe with SS base plate suitable for 10 Nos . 12. Temperature and RH sensor to measure the temperature and humidity of each clean room. Accuracy levels: Temperature: ± 0.2 °C or better, RH: ± 1% or better. 13. Motor should be non-flame proof type and fan will be non spark proof type. 14. AHU coil, fan, motor shall be selected for 10% extra capacity. 15. The electrical wiring inside the AHU room and interconnection between AHU and outdoor unit through required protective circuits in all manners including HP, LP with fully automatic control unit shall be provided. 16. All the external ducting shall be made weather proof.			
4.	**OUTDOOR CONDENSING UNITS (Packed ductable split AC)** SITC of air cooled condensing units of following capacities with multiple scroll compressor, condenser fan motor unit etc with R-22 refrigerant and MS mounting stand. The capacity shall be decided as per head load calculation. The offered capacity shall be mentioned in the offer form. The lab will be functioning for i. Supply of R-22 Gas of required quantity.	--		

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
	ii. Supply, installation, testing and commissioning of Vibration Isolators for Condensing Units. iii. Erection, Testing and Commissioning: Ductable Split Unit Installation, iv. Testing and Commissioning of AHU &ODU along with accessories like expansion valve, drier and corded remote PCB for temperature control. v. Suitable UV lamp for the coil disinfection			
5.	**Electrical works comprehensive** 1. The power required for the microbiology lab shall be taken from the main panel of the building. Necessary distribution panels shall be installed by the bidder. a) Adequate lightings shall be provided. b) The electrical inspectorate's approval shall be obtained by the bidder **Wiring and Accessories** 2. Supply & wiring for following points in surface / recessed mounted rigid medium gauge 20mm PVC conduit with all accessories, using 3 runs of 1.5 Sq mm FRLS PVC insulated stranded copper conductor single core wire for phase, neutral & earth, with modular 6A one way switch, modular plate, suitable GI box etc as required: 3. Light point / exhaust fan / turbo ventilator points as required 4. Supply & wiring for circuit / sub main wiring in surface / recessed mounted rigid medium gauge 25mm PVC conduit with all accessories in surface/recess 5. Supply and Fixing the following modular type switches & accessories with modular plates and suitable GI boxes and giving necessary connections as required i.6A SP 5 pin shuttered modular type socket with switch in each switch board ii.2 nos 6 A SP 5 pin shuttered modular type socket with 2 No's modular switch –UPS power. iii.16A 5 pin shuttered modular type socket with switch iv.Provision for shifting existing switch board to a conventional location and giving connections etc.	--		

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
	v. Supply and fixing 20 amps. 240 volts SP industrial type socket outlet (IPP) with 2 poles and earth, metal enclosed plug top including supply and fixing of one number 20 amps (10kA) SP MCB (C-Curve) in sheet steel enclosure on surface or in recess with chained metal cover for the socket outlet and complete with connections testing and commissioning etc. as required. vi. Installation of Clean Room Lights & Fixture with fitting with LED12" x 12 vii. Installation & Testing of a. Modular Switches. b. Modular Sockets for various instruments in each room **MCBs AND MCB DISTRIBUTION BOARDS** i. Supply and installation of sheet steel, phosphatised and painted, dust and vermin proof enclosure of MCB 4 Way double cover Vertical DB – 3 Phase of including copper /brass bus bar, neutral link, earth bus and DIN rail with MCB/isolator/RCCB etc. fixed on wall using suitable anchor bolts or fixed in recess including cutting hole on the wall, making good the damages, colour washing etc. as required. ii. Supply and installation of sheet steel, phosphatised and painted, dust and vermin proof enclosure of UPS DB –6 way single Phase double cover (IP 42/43)230 V of including copper /brass bus bar, neutral link, earth bus and DIN rail with MCB/isolator etc. fixed on wall using suitable anchor bolts or fixed in recess including cutting hole on the wall, making good the damages, colour washing etc. as required **Single line electrical distribution diagram should be submitted by the vendor along with the technical offer.**			
6.	**Wall mounted fans (In unclassified areas)** Supply, conveyance, installation, testing and commissioning of wall mounted fans, as required. Fixing necessary bolt and nuts, making good the damages etc. as required including giving connections with required length of 24/0.20mm PVC insulated and PVC sheathed 3 core round copper conductor flex wire or with extended original wiring etc. and numbers as required.	--		
7.	**Lighting fixtures**	--		

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
	Supply and fixing cast aluminum down light fitting with 11 to 14 W CFL to false ceiling including giving connections with required length of 16/0.20mm PVC insulated and PVC sheathed 3 core round copper conductor flex wire conforming to relevant ISS or extending the original wiring and making good the surface as required (Wipro WCP 27118 SWG or equivalent make)			
8.	**Validation of HVAC after completion** 1) Documentation for DQ, IQ, OQ with certificates of all brought items. 2) Integrity test for HEPA Filter's once. 3) Room Pressure balancing once. 4) velocity 5) Particle count 6) Recovery Test 7) Air Flow Pattern	**--**		
9.	**Fire extinguisher** Supply and installation of ABC type dry powder fire extinguisher of 2 kg. Capacity complete with initial charges and installation brackets	**--**		
10.	15 KVA 3 phase Stand by on-line **UPS** with 60 minutes back up with battery, rack and stand. Essential lights and equipments shall be connected to the UPS.	**--**		
11.	**Air curtain** 1.7m length should be installed wherever required	**--**		
12.	**Hand Sanitizer** (Automatic IPCA dispenser for clean rooms) 1. The hand sanitizer should automatically dispense disinfection (Isopropyl alcohol) on to hands. 2. The sensor should detect the hand and dispense 0.5ml disinfectant solution. 3. Body should be non-corrosive stainless-steel construction. 4. Tank capacity 500ml 5. Volume of spray / cycle : 0.5ml	**6 nos.**		
13.	**Single Biometric Access** control system for restricted entry to the classified area	**1 no.**		
14.	Installation, Testing & Commissioning SS-316 vertical LAF bench for sample preparation room as per Size :-4' X 2.5'	**2 nos.**		

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
	x 2.5' (2 Nos) meeting with minor changes as per area available			
15.	**Static Pass box** Installation, Testing & Commissioning SS-304 static Pass Box fully automatic system, with electromagnetic interlocking system, digital display, UV & fluorescent light alarm system etc. Size :- 1.5' x 1.5' x 1.5'	**1 no.**		
16.	**Dynamic Pass box** Installation, Testing & Commissioning SS-316 DYNAMIC Pass Box fully automatic system, with electromagnetic interlocking system, digital display, HEPA Filters, UV & fluorescent light alarm system etc. Size :- 1.5' x 1.5' x 1.5'	**3 nos.**		
17.	**Cross over Bench at entry and exist of clean room and media room (as per approved layout)** 1. SS 304, 18 & 16G combination, mat finish 2. Bottom side of top provide "C" type stiffner for durability of top 3. Inside horizontal support 4. Bottom both side 30mm color for will be grouting 5. Approx size 1000 mm W x 400 mm D x 600mm H (can be modified to size)	**3 nos.**		
18.	**SS Work Bench/table** Table should be SS 304 without drawers and lockers all exposed surfaces should be 16 gauge SS. Size - 1500 MM x 750 MM (W) x 900 MM (H) (minor deviations acceptable)	**6 nos.**		
19.	**Modular Work bench** Installation & Commissioning SS304 with drawers and lockers Size - 1500 MM x 750 MM (W) x 900 MM (H) (minor deviations acceptable 6 nos of 15/5 amps with 3 pin socket cum Switch with Electrical Panel should be provided. Table top should be provided with (18mm ±1mm) thick well polished Black Granite. Should have reagent storage rack on the top of the table at convenient height across the table top. Should have provision to keep materials on top of the shelf also.	**3 nos.**		

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
20.	**Modular workbench with sink and eyewash** Stainless steel SS304 table of dimension 1800 x750 (W) x 900 mm (H) tabletop height from floor. Minor deviation in measurement is acceptable. Should have under bench drawers and shutters with locking arrangement. 6 nos of 15/5 amps with 3 pin sockets cum Switch with Electrical Panel should be provided. Table top should be provided with (18mm ±1mm) thick well polished Black Granite. Should have covered reagent storage rack with two shelves on the top of the table at convenient height across the table top. Should be supplied with one sink (SS 304)at the right end of size 400 x 300 mm Approx (16x12 inches) sink joints should be continuously welded with two way water tap (hand-free operation) and eyewash. Water connections and plumbing should be provided	**2 nos.**		
21.	**Movable trolley with lockable wheels** SS 304, 18 & 16G combination, mat finish **Size :- 2.5' x 2.5' with two shelf 2nos** **Size :- 2.5' x 2.5' with Three shelf 2Nos**	**2+2= 4 nos.**		
22.	**Bench stool** Installation & Commissioning of SS-304 WORKING STOOL for above bench SS 304, 18 & 16G combination, mat finish. Approximate size 900mm W x 600 mm D x 600mm H	**8 nos.**		
23.	**Sterile garment storage cabinet (in Air Lock 2 of entry to clean room)** Dynamic garment storage cubicle complete SS304 construction. Port for HEPA filter leak testing Prefilter 5 microns for fresh air intake SS rod for hanging folded garments. SS perforated shelves / tray (removable) at bottom for keeping mask and shoe cover etc. Stainless steel back panel with perforation at bottom for exhaust Fully toughened glass door. Differential pressure gauges ON/OFF switch for blower & white lights UV light with fittings & limit switch	**1 no.**		

Sl. No	Specifications	Qty.	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
	Hourmeter for UV Leveling legs. Approx internal dimension : 610(W)x 430(D)x 1335(H)mm with minor modifications as per available area			

MICROBIOLOGY LABORATORY EQUIPMENTS

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
BIO-SAFETY CABINET				
1.	Cabinet: Dimensions	1. System must work on laminar air flow technology Vertical 2. Working area minimum 4 ft (w) x 2 ft (h) x 2ft Interior work area to be from a single piece of IS304 grade stainless-steel with large radius (joint free) corners to simplify cleaning. The cabinet work area must have s no welded joints, which collect contaminants or rust. 3. Cabinet should be balanced with base stand with castor wheel and lock. Stand approx 711 mm height from same company. Single Piece Wall. Single piece work tray. Raised arm rests. Drain Pan / Drain valve or cock for cleaning spills in case work tray is fixed.		
	Cabinet construction/ Work Zone	Body M.S with sufficient protective coating. Front Window should be laminated toughened glass>5mm, anti UV		
2.	Control system	Microprocessor based		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
3.	Display	LCD - all information, HEPA Filter life and UV Life indicator displayed		
4.	Air Flow pattern (through ULPA/HEPA)	70% of the air re-circulated and 30% of the air exhausted		
5.	Class	100		
6.	Protection	operator, sample and environment		
7.	Average Airflow Velocity			
	Inflow	0.53 m/s (105 fpm)		
	Down flow	0.33 to 0.35 m/s (70 fpm)		
8.	UV lamp	1. 30 to 40 W x 1 2. UV timer, UV life indicator, Emission of 253.7 nanometers for most efficient decontamination		
9.	Fluorescent Lamp	12 to 21 W x 2		
10.	Illumination	≥1000 lux		
11.	Consumption	760 W		
12.	Power Supply	210-240V/50/60 Hz		
13.	Sound Emission	62.5 dBA to 65 dBA		
14.	Filter specification ply ULPA Filter Typical Efficiency			
	Supply ULPA /HEPA Filter Typical Efficiency	≥99.999% for particle size between 0.1 to 0.3 microns		
	Exhaust HEPA Filter Typical Efficiency	≥99.99% at 0.3 microns		
15.	Interlock function and alarm	Interlock function for UV lamp and front window. Alarm for any out of range parameters		
16.	Certification	1. NSF 49/EN1249 or Equivalent standard Test Certificate for Mini-Pleat HEPA Filters 2. Calibration Certificate for Pressure Gauge 3. Calibration Certificate for Air Velocity Anemometer		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
17.	Services Required	System should come along with the entire necessary accessory and should be ready to work. Installation & onsite validation, Calibration certificates Manuals : Operation, maintenance & part list with detailed specifications, Operational & maintenance Training. For validation vendor should having it own capability with their own company trained service engineer to perform Cleanliness level validation. No third part validation will be entertained. One validation at the time of installation should be done by company personnel.		
18.	Electrical outlets	Minimum 2 nos. electrical outlets should be provided inside the work space.		
19.	Optional	One out of the two Biosafety cabinet systems must be supplied with thimble / canopy attached to air vent		
20.	Warranty	Comprehensive warranty should be provided for five years		
AUTOCLAVE				
1.	Operation	Should have following functions & features: 1. Single top automatic vertical opening lid. 2. One-touch automatic lid Open / Close mechanism with Lid opening/closing detection Mechanism. 3. Built in steam Condenser to ensure no steam exhausts into the lab. 4. Exhaust bottle detection mechanism		
2.	Chamber capacity (Effective internal volume)	1. ~70 - 75 Liters (1 no.) 2. ~50 Liters (1 no.)		
3.	Temperature control	1. Sterilizing temperature is controlled by the microprocessor within ±2°C of		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
		the set temperature in the range of 115°C to 135°C with last run memory. 2. Should be able to balance the temperature and pressure deviates during sterilization, fine exhausting automatically in order to adjust the chamber condition. 3. Provided with external temperature PT100-Ohm sensor.		
4.	Process mode	4 sterilization modes		
5.	Operating temperature range	For sterilizing: 105-135ºC, for heating: 45 -104ºC and for warming: 45 - 95ºC.		
6.	Heat source	2.5-3 kW electric heater		
7.	Chamber internal material	SUS304 double/triple walled, steam jacket and separate boiler.		
8.	Display	1. Digital, Display range should be 1 to 99hours 2. Should show working status parameters (Time and temperature)		
9.	Rapid air cooling function	Should be provided with Built-in Cooling Fan for faster post-sterilization cooling and shorter completion time.		
10.	Operating pressure	0.26 Megapascal and analog display range should be 0 - 0.4MPa		
11.	Warming	Variable 1 to 99 hours		
12.	Safety Device	Water level sensor, current leakage breaker, lid interlock, over heat & pressure Prevention, open temperature sensor detection & safety value.		
13.	Printer	Should come with inbuilt printer and option to print after every 1 minutes during operation		
14.	Accessories, spares and consumables	1. Stainless Steel Baskets & containers for holding flasks, tubes etc. – 2 / 3 nos.		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
		2. Appropriate built-in process printer for batch documentation 3. Appropriate Voltage stabilizer should also be supplied 4. Dust Cover – for both the systems		
15.	Power Supply	Single-Phase 230V AC (50/60 Hz) and fitted with plug compatible with local sockets		
16.	Warranty	Comprehensive warranty should be provided for five years		
LABORATORY REFRIGERATOR - 2^{O}C – 8^{O}C				
1.	Design	1. Vertical with wheels 2. Frost free, CFC free, Automatic Defrost 3. 4 – 5 Height adjustable shelves 4. Internal LED Lighting 5. Single Triple-Pane/Double Layered Glass Door with ergonomic handle Key Lock 6. Automatic door closing 7. Fan forced air circulation to ensure stable & uniform preservation environment.		
2.	Controller	1. Microprocessor Temp. Control Controller with 0.1ºC resolution 2. Controller to Display data about the unit and used to control temperature 3. Control panel should be at eye level with Digital Temperature display & Alarms		
3.	Construction	Electro-galvanized steel with white, oven baked epoxy-polyester, anti-microbial, powder-coated finish with 304 Stainless Steel inner chamber		
4.	Capacity	Minimum 350 Liters		
5.	Temperature	1. Range: 2□C to 8□C 2. Uniformity: ±3°C		
6.	Alarm	Open door, High/Low temperature, Clogged condenser filter		
7.	Warranty	Comprehensive warranty should be provided for five years		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
DIGITAL BALANCE				
1.	Design	Type – Top loading Precision Balance of 1000gm Capacity		
2.	Range (weight)	0.02gm - 1000gm		
3.	Accuracy	0.01gm		
4.	Readability	0.001gm		
5.	Repeatability	0.002gm		
6.	Linearity	0.003gm		
7.	Response time	1.5 s		
8.	Calibration	automatic/internal		
9.	Display	Touch Screen		
10.	Stabilization Time	2 Seconds (typically).		
11.	Calibration certificate	From NABL accredited calibration laboratory should be supplied along with the eqp.		
12.	Specifications of Weight Box traceable to international standards (1 no)	1. 1 mg - 200 g, E2 2. Accuracy class acc. to OIML R111: E2 3. Nominal mass value: 1mg to 200g. Up to 500 mg as wire weights 4. Susceptibility: 0.002 – 0.004 5. Material: special steel, non-magnetizable, density 8.0 g/cm3, highly corrosion-resistant, knob weights highly polished and laser marked, in wooden case. 6. Dust Cover		
13.	Warranty	Comprehensive warranty should be provided for five years		
CIRCULATING WATER BATH				
1.	Temperature Range	Working temperature range from +20°C to+99.9 °C		
2.	Display	Bright LED-Display with cutting-edge microprocessor technology with PID temperature control		
3.	Temperature Range Display	Bath volume ~10-12 liters (one)		
		Bath volume ~18-20 liters (one)		
4.	Power	Power switch integrated in keypad		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
5.	Temperature Stability / Uniformity @ 37°C	High temperature stability of ±0.2 °C or ±0.02 °C		
6.	Adjustable shaking frequencies	Adjustable shaking frequencies from 20 to 200 RPM		
7.	Maintenance	Convenient bath drains to easily clean and maintain bath		
8.	Top cover	Lift-up bath cover		
9.	Accessories	1. Stainless Steel Basket for 20 Bottles 0.25 l / 0.5 l - 2 nos 2. Stainless Steel / Polypropylene Test tube rack, for 15-21 tubes of 23-25 mm, 25 -60 tubes of 12-16 diameter(each) 1nos. 3. All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment. 4. Dust Cover		
10.	Alarms	Audible alarms for Dry-running protection and over temperature		
11.	Timers	Optimize scheduling with auto-on and auto-off timers		
12.	Warranty	Comprehensive warranty should be provided for five years		
INCUBATOR (MULTI CHAMBERED)				
1.	Configuration	Multi-chamber: 4 chambered, floor-standing, mobile - Castor wheel (for mobile incubator)		
2.	Capacity (Chamber volume) - (L / cu ft)	1. 60 / 2.1 or more x 4 chambers 2. Independent Temperature Control of each Chamber. 3. Provision of minimum 2 nos. of SS-304 height adjustable racks in each chamber.		
3.	Temperature range (oC)	+5 to 70 ^{o}C, ± 0.2 ^{o}C accuracy and ±0.5 ^{o}C uniformity with programmable Temperature Control with Illumination (Temperature and illumination of each chamber can be controlled independently). Independent Cooling System for each chamber to provide precise temperature		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
4.	Inner Chamber	Stainless Steel 304		
5.	Door specification	Solid installed with lock		
6.	Dimension (W×D×H) minimum	1. Interior (mm) - 400×360×420 x 4 chambers 2. Exterior (mm) - 1170×640×1360 x 4 chambers		
7.	Shelves	No. of wire / Perforated shelves (standard/ max.) 2 / 7 - per chamber		
8.	Controller	1. Programmable or Digital PID Controller 2. Adjustable time and interval		
9.	Safety	Over Temperature Protection, Over Current Leakage Breaker		
10.	Accessories	Each equipment should be supplied with multi channel data logger for temperature Suitable on - line UPS (5 KVA) to support the instrument.		
11.	Certification	Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation		
12.	Warranty	Comprehensive warranty should be provided for five years		
HOT AIR OVEN				
1.	External material	304 Grade Stainless Steel body with powder coating.		
2.	Interior material	Fully stainless steel.		
3.	Inner chamber	Stainless steel structure with adjustable minimum 2 shelves.		
4.	Window	Double layer glass observation window in front side.		
5.	Type	Bench Top type (Table top model).		
6.	Dimension (W×D×H)	1. Interior (mm) 400×360×420 2. Exterior (mm) 577×642×760		
7.	Temp. Range	Ambient +10°C to +250°C		
8.	Temperature Accuracy	±0.5°C		
9.	Temperature Protection	Automatic over temperature alarm based protection system.		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
10.	Timer function	Choice of time (On/Off condition) for automatic setting.		
11.	Temp. Control	Microprocessor control with LCD/ LED display.		
12.	Convection system	Gentle drying and heating with superior temperature uniformity.		
13.	Certification, Document and Installation	Traceable calibration certificate from NABL accredited calibration lab. Installation has to be carried by the skilled team with IQ, OQ and PQ documents and on site validation to be carried out to ensure proper working of the oven as per specification.		
14.	Capacity	60-70 Ltrs.		
15.	Warranty	Comprehensive warranty should be provided for five year		
FOGGER				
1.	Droplet Size	Consistent sub micron (<1 micron, non-wetting) – 20 micron particle size generation - adjustable		
2.	Material of construct	1. Tank, Flow control and Nozzle assembly (non-clogging vortex type) should be of SS316 grade, easy to clean, detachable and non corrosive for chemical 2. Handle and hardware: SS304		
3.	Flow rate	1 - 2 liters/hr.		
4.	Air Filter	Triple stage air filter for motor protection		
5.	Tank Capacity	5-10 liters.		
6.	Area Coverage	>10000 Cubic Fts.		
7.	Noise leven	<85 db		
8.	Motor	CE approved, 22000 RPM		
9.	Electrical	200-270V, 50 HZ.		
10.	Timer	Digital timer - 1 – 99 min. with inbuilt hour counter		
11.	Consumables	Should be compatible with wide range of disinfectant in a closed room. Should be supplied with Spore-Killing		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
		Ready-To-Use non-toxic antimicrobial disinfectant solution - 5 liters.		
12.	Optional	Rotation stand for uniform dispensing of the droplets		
13.	Warranty	Comprehensive warranty should be provided for five years		
AUTOMATIC COLONY COUNTER (BENCH-TOP, DIGITAL)				
1.	Camera	CMOS color camera or higher version Digital Zoom Minimum 28X or higher		
2.	Resolution	Minimum 1 mega pixels or higher		
3.	Color detection	Optional		
4.	Counting time	1000 colonies per second or more		
5.	Minimum size colony	0.1 mm or less		
6.	Lighting	LED and Automatic		
7.	Counting	1. Automatic, with manual control 2. Counting on petri dishes 90mm or higher 3. Counting on pour, Surface plates Yes; Optional – Petrifilms, Chromogenics		
8.	Data export	1. PDF, JPEG, BMP, PNG and EXCEL 2. USB Connection should be there		
9.	Computer system	Laptop with Windows 10, 3 GB RAM, Graphics Card, i-5 or higher processor 14 Guarantee 3 years		
10.	Good Laboratory Practice	GLP Compliance & full traceability		
11.	Validation	Vendor should get it done through qualified Engineer of OEM at the time of installation and yearly thereafter.		
12.	Warranty	Comprehensive warranty should be provided for five years		
ANAEROBIC WORK STATION				
1.	Capacity (Liters)	300-400 approx		
2.	Type	Bench top Compact imported Automated Anaerobic workstation with small footprint		
3.	Gas Requirement	The workstation required to operate on either one cylinder of conventional		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
		anaerobic gas mixture (10% hydrogen, 10% carbon dioxide and 80% nitrogen) or one cylinder of anaerobic gas mixture and a cylinder of nitrogen. The workstation should operate in either mode without any modification.		
4.	Alarms	System should have audible and visual system indicators and alarms.		
5.	Automated controls	System should have Automated gas control system, low gas pressure indication/buzzer in case if the pressure of anaerobic gas mixture fed to the workstation falls below the necessary minimum level.		
6.	Temperature range	The system should be temperature controlled and set temperature between 5°C above ambient to 45°C for incubation		
7.	Gas Control	System must have automatic gas control within the chamber. No manual control required.		
8.	Humidity Control	Maintenance-free dehumidification .Fully automatic de-humidity control system for no requirement of any user maintenance		
9.	Light	System should have internal spotlight for even the smallest colonies to be examined.		
10.	Power Socket	Internal power socket for the use of small laboratory instruments inside the chamber.		
11.	Vacuum pump	System must be supplied with vacuum pump.		
12.	Supporting consumables	Refillable sachets of anaerobic atmospheric detoxifying agent (essential for maintaining ideal internal conditions and removing volatile fatty acids) in case Detox advanced carbon filtration system is not there and catalyst palladium to be included. Petri plate racks should be included.		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
13.	Accessories	System to be quoted with gas cylinders & gas regulators optionally. Workstation stand and data logging connections.		
14.	Plate Capacity	Incubation capacity not less than 400 plates of 90mm		
15.	Sleeve Cuffs	Comfortable, sleeve cuffs seal around the operator's arms to permit barehanded manipulation of plates and specimens inside the working chamber.		
16.	Electronic Control	Microprocessor Controls Electronic controls to provide the desired chamber atmosphere. Gauges & visual indicators show pressure, temperature, and cycle status.		
17.	Foot switch/Peddle	Footswitch Preferably Wireless type		
18.	Validation	Vendor should get it done through qualified Engineer of OEM at the time of installation and yearly thereafter.		
19.	Warranty	Comprehensive warranty should be provided for five years		
ULTRA PURE WATER PURIFICATION SYSTEM				
1.	General	1. Compact, Wall mountable system for microbiology / molecular biology grade water applications. 2. Should deliver ultra pure product water by point of use dispenser with rocker arm, volumetric dispensing and auto shut off facility		
2.	Quality of water	Should deliver Type I/Ultra – pure as per International specifications as follows: 1. Resistivity > 16 Megaohm-cm 2. Conductivity < 0.06 Micro-Siemens 3. TOC level < 10 ppb 4. Flow rate > 1 lit / min 5. Bacteria <1 CFU/10ml		
3.	Volume	10-12 litre/day.		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
4.	Feed water	Should have separate feed water (Potable tap water) specific purification cartridge and application specific polishing cartridge		
5.	Control display	Product water resistivity / conductivity both compensated and non compensated mode, product water temperature, product water resistivity greater or below set point		
		Maintenance display for sanitization, exchange purification cartridges, activation of fast flush, depressurization, air purge		
6.	Accessories	1. UPS/Stabilizer as required for functioning of the equipment 2. All cartridges, filters, pump or any such item which is /are essential for Installation and functioning /operating the equipment.		
7.	Consumable	Must Quote separately for consumables (cartridges, filters etc.) for ONE YEAR for trouble free working.		
8.	Validation	Vendor should get it done through qualified Engineer of OEM at the time of installation and yearly thereafter.		
9.	Warranty	Comprehensive warranty should be provided for five years		
FULLY AUTOMATED ELISA READER & WASHER				
1.	Light Source	Quartz-halogen lamp 6V/10W		
2.	Wavelength	Absorbance 230-750nm, Accuracy ±1nm Fluorescence Ex 230 – 850 nm, Em 280 – 850 nm Accuracy < ± 2 nm		
3.	Filters	8- position filter wheel, the instrument is delivered with the following standard filters installed: 405nm, 450nm, 620nm and 650nm		
4.	Resolution	0.001 Abs		
5.	Display	High contrast color display (480 x 272 dots)		
6.	Internal Memory	At least up to 99 assay protocols and 100 test results, 96- well plates		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
7.	Incubator (Optional)	Temperature range from ambient +4^{o} C up to 50^{o} C		
8.	Accuracy(405nm)	± 1% (0-3Abs) or ± 0.003 Abs, Whichever is greater		
9.	Communication	USB for computer connection USB for memory stick position for data export USB for external printer		
10.	Mains Input	100-240V(50/60Hz) With IVD specifications		
11.	Capability	Capability to read flat-, U-, or V-bottom microplates, 6 / 12 / 24 / 48 / 96, curettes		
12.	Power Supply	210-240V/50-60 Hz		
13.	Accessories	Spare Lamps 2 Nos		
14.	Detectors	Fluorescence, UV and visible, Luminescence		
15.	Temperature control	Ambient +5 °C up to 42 °C		
16.	Shaking	Linear, orbital		
ELISA Microplate Washer				
1.	Function	Fully automatic plate washer With IVD specifications		
2.	Compatible	With ELISA reader supplied (as per model)		
3.	Capability	96 well microplates and strips, with flat, round, or “V” bottom well		
4.	Bottle	1. With non-pressurized bottle to maintain biosafety 2. Wash, rinse and waste (volume 4-6 liter)		
5.	Residual volume	< 2 µl		
6.	Dispensing volume	50-400 µl for 96 well plate		
7.	Plate sensor	Should have the provision		
8.	Data Transfer	USB Port Number of wash protocols up to 99		
9.	Number of Wash buffer bottles	01		
10.	Training	The supplier should provide comprehensive training to users on operation of the instrument and application support onsite as per specifications		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
11.	Accessories	1. Multichannel pipette (2 nos) with pipette tips and calibration certificate should be provided. 2. Branded compatible online UPS with at least 30 minutes backup		
12.	Validation	Vendor should get it done through qualified Engineer of OEM at the time of installation and yearly thereafter.		
13.	Warranty	Comprehensive warranty should be provided for five years		
TEMPERATURE DATA LOGGER				
1.	Purpose of Equipment	Functions as portable monitor for use in refrigerators/ Oven/Incubators.		
2.	Interface	It should display and stores data that can be downloaded to a PC with MS windows supported software.		
3.	Temperature range	– 30˚C to 50˚C		
4.	Accuracy	0.3˚C		
5.	Measuring interval	1-255 mins		
6.	Memory Size	2000 to 2500 Measurements.		
7.	External Material	Stainless steel/Plastic.		
8.	Weight	3 to 5 gm.		
9.	Power source	Internal lithium battery.		
10.	Battery life available	5+ years or 1 million measurements.		
11.	Accessories	Reading software and cable needs to be provided.		
12.	Certificates	The equipment quoted should be CE Certified. Calibration certificate traceable to International standards should be provided.		
TRINOCULAR MICROSCOPE WITH DIGITAL DISPLAY SYSTEM				
1.	Optical system	Infinitely corrected system stroke		
2.	Focus	Vertical stage movement 25mm or more per course vertical stage movement 1micron or less for fine stroke		
3.	Illuminator	Lamp house for 100 watts halogen lamp with DIC upgradable.		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
4.	Revolving nose piece	Reversed sextuple revolving nose piece should be upgradable to DIC in future		
5.	Objectives	Plan achromatic 2X N.A 0.06 Plan achromatic 4X N.A 0.10 Plane achromatic 10X N.A 0.25 Plane achromatic 40X N.A 0.65 (spring) Plane achromatic 100X N.A 1.25 (spring & oil)		
6.	Observation field	Wide field trinocular eye piece tube with 10X eye pieces of 25mm or more F.O.V		
7.	Stage	Ceramic coated surface mechanical stage with right hand low drive controlled with left hand for two specimens.		
8.	Condenser	Swing out condenser usable for 2X-100X.		
9.	Camera & software	Digital pool CCD camera approx. 3MP/4MP, with 10 bit digitalization, 2048X1500. Software To capture and image processing.		
10.	Accessories	1. Additional display-The equipment should be supplied with a 55 inch LED monitor, in addition to TFT screen 2. Dust cover		
11.	Computer system	i5 processor, 4GB RAM,500GB HDD, DVR R/ W, TFT 20". Microscope, camera and software should be from same manufacturer.		
12.	Warranty	Comprehensive warranty should be provided for five years		
AUTOMATIC SAFETY BUNSEN BURNER				
1.	Basic features	1. Safety Bunsen Burner with flame monitoring, overheating protection and display movement sensor for safe operation. 2. Two adjustment knobs for air and gas to allow easy fine-tuning of flame size and temperature. 3. For heating applications or to flame-sterilize necks of large		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
		Erlenmeyer flasks, the Safety Bunsen Burner should be equipped with a long burner head.		
2.	Operation modes	Manual by matches, Infrared sensor with the push button without the need of a lighter, Foot switch.		
3.	Material	UV- and solvent-resistant, Smooth, chrome-plated metal housing.		
4.	Accessories	1. All accessories for running with natural gas should be supplied 2. Main adapter 3. Adapter for standard gas hose with inner diameter 10 mm.		
5.	Warranty	Comprehensive warranty should be provided for five years		
SHAKING INCUBATOR (ORBITAL)				
1.	Shaker requirements	1. Single knob selects all operating conditions and quickly Triple-eccentric counter balanced drive 2. Acceleration circuit to prevent sudden start and stop should be available 3. Programmable controller offering up to 4 modes of timer and parameter control for reduced user intervention. 4. Timer 0.1 to 99.9 hours or continuous mode 5. UV germicidal lights. 6. Noiseless operation		
2.	Shaking Speed range	25 to 400 rpm with ± 2 rpm accuracy		
3.	Temperature range	20°C below ambient to 80°C with accuracy of ± 0.1°C and stability of ± 0.2°C at 37°C		
4.	Shaking orbit	approx. 25 mm		
5.	Display	Large, easy to read LCD display screen		
6.	Audible and Visible Alarm	Should indicate when speed deviates more than 5 rpm or temperature deviates more than 1°C from set point, and when timer operation has expired.		
7.	Overall dimensions	Minimum 62 x 75.4 x 82 cm		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
	(W x D x H)			
8.	Accessories	1. Universal Platform of at least 45 x 45 cm having capacity to holds assortment of various size of flask sizes upto 2 Ltrs and test tube racks. 2. System should be supplied with 125ml clamps (10 Nos.), 250 ml clamps (5 Nos.), 500 ml clamps (05 Nos.), 1000 ml (02 Nos.) and 2000 ml (01-02Nos) 3. Test tube rack for 20x50ml tube-1 no and test tube rack for 42x15ml tubes-1 4. It should be supplied with compatible stabilizer/servo for smooth operation 5. Dust cover		
9.	Warranty	Comprehensive warranty should be provided for five years		
VACUUM FILTRATION ASSEMBLY				
1.	Materials of Construction	1. Handles, valve (trigger and knob): Aluminum 2. Connectors, pipe and valve body: 316L stainless steel 3. Connectors, seals and valve seals: EPDM 4. Filtration O-ring: Silicone 5. With 3-Place Manifold		
2.	Funnel	1. Capacity: 250 ml (Minimum) 2. Autoclavable SS body, 47 mm dia		
3.	Filtration heads	Filtration heads should be compatible with stainless steel filtration devices, as well as disposable and glass funnels. Each component should be removable and autoclavable.		
Pump Specifications				
1.	Materials of Construction	1. The pump should be an oil free pump type. 2. Diaphragm should be made of highly durable chemically resistant material.		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
		3. Vacuum should be adequate for smooth filtration of water.		
2.	Flow Rate	Minimum 3.5 L/min		
3.	Vacuum	Maximum 700 mbar as per ISO 8199		
4.	Accessories	1. Stainless steel funnel 250 mL (47 mm dia), support frit and base, Stainless steel funnel cover – 4 sets 2. Rubber vacuum tubing 8 mm – 2 mtrs 3. stainless steel forceps – 8 nos 4. Sterile Nitrocellulose Gridded Membrane Filters (Pore size: 0.45µm, 47mm diameter) –100 x 4Packs 5. Dust Cover for pump		
5.	Warranty	Comprehensive warranty should be provided for five years		
BLENDER/HOMOGENIZER				
1.	Time set	30,180,600s or work continuously		
2.	Rap speed	3-12/second		
3.	Valid capacity	80-40 ml		
4.	Material of case	Stainless steel body with powder coating		
5.	Power consumption	165W		
6.	Electronic motor rate	500-1500 rpm		
7.	Display	LCD		
8.	Power supply	220v/50 HZ		
AIR SAMPLER				
1.	Material	Anodized aluminum		
2.	Dimensions	Height - 25 cm, Diameter - 11 cm		
3.	Diameter of Sampling Head	10 cm		
4.	Diameter of petri dish	90 mm (3½ inches)		
5.	Nominal Airflow	100 liters / min. + 2.5%		
6.	Standard Sampling Volumes	50, 100, 250, 500, 1000 liters		
7.	Compliance	GLP (Good Laboratory Practice) & full traceability		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
8.	validation	Vendor should get it done through qualified Engineer of OEM at the time of installation and yearly thereafter.		
9.	Warranty	Comprehensive warranty should be provided for five years		
LABORATORY GLASSWARE WASHER/DRYER				
1.	Chamber volume of Washer/ Dryer	Option 1: 150 – 200 liters capacity Option 2: 200 – 275 liter capacity. Please quote for both the above options		
2.	Internal chamber type	Inner chamber, washing arms and tank filters made of high quality AISI 316 L stainless steel.		
3.	Front Glass Door	Glass Door version – Inside chamber must be visible, while in washing/drying run.		
4.	Control System	Soft touch LCD display. Microprocessor controlled.		
5.	Cleaning Liquid Dispenser	1. Minimum two automatic internal liquid dispenser 2. Standard pre-programmed cycle 3. At least 10 pre-programmed standard cycles.		
6.	Internal wash temperature control	Fully adjustable wash temp. up to 90deg C		
7.	External tap water filtering system	Must include all external tap water filtering system, preferably from local supplier		
8.	Internal Baskets for placement of glassware inside	Must include basic 3 or 4 multipurpose baskets for storing test tubes, beakers, conical flasks, round bottom flasks, pipettes and petri dishes.		
9.	Built in Dryer Unit	Built in forced air dryer unit for drying entire glassware content after the wash/rinse cycle.		
10.	Consumables required for washing/ drying cycle	1. Must provide all necessary washing chemicals for 100 wash run cycle. 2. All quality washing chemicals must be easily available in Indian market at reasonable price (Indian Rupees).		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
		3. Imported washing chemicals/ consumables are discouraged.		
11.	Installation and Commissioning	The vendor must carry out the installation and commissioning at site, including the installation of tap water filter system. The tap water inlet and drain will be provided at site.		
12.	End User Training at site	Necessary end user training and instructions must be provided to all users at site.		
13.	List of present users in India	Must provide the list of users/ customers of this equipment in India.		
14.	Desirable Specification:	1. Telescopic bearing railing for loading the basket. 2. Operator and Service manual with all spare parts list.		
15.	Availability of spare parts	Availability of all spare parts and service support in India for the next 10 years.		
16.	Warranty Period	Comprehensive warranty should be provided for five years		
BENCH TOP UV-VISIBLE SPECTROPHOTOMETER				
1.	Wavelength Range (nm)	190-1100		
2.	Wavelength Accuracy (nm)	0.8 or better		
3.	Light Source	Xenon flash lamp Preferred/Deuterium and Tungsten Halogen lamp		
4.	Detector	Photo Multiplier Tube/Silicon Photo Diode		
5.	Sample holder	Should have reference and sample curette positions.		
6.	Wavelength Repeatability (nm):	0.2 or better		
7.	Spectral Bandwidth (nm)	0.5 to 2.0 or better		
8.	Photometric Mode	Absorbance, Transmittance (%) , intensity		
9.	Detector	Should have reference and sample curette positions.		
10.	Scan/Skew Speed	Min 2500 nm/min or better		
11.	Photometric Accuracy	± 0.005 Abs at 1 Abs		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
12.	Interface	USB preferred or LAN		
13.	Accessories	1. Curettes: glass 6 nos. and quartz 4 nos. of variable capacities for liquid samples 2. Optional: Magnetic stirring controller, stirring head and magnetic stirring bar for 10 mm path length curette stirring capability to single cell and multi cell holders for low viscosity liquids 3. Dust Cover		
14.	Computer System	High Speed branded computer system with laser jet printer		
15.	Software	Window based complete multitasking software. Compatible software for data acquisition and data analysis in all the spectrophotometric wavelengths and modes 18. Minimum One Years		
16.	Warranty	Comprehensive warranty should be provided for five years		
17.	Scope of supply	The instrument should supply with Basic instrument, 1 Inch matched Glass sample cell, basic user manual, a multi adapter for round and rectangular vials, CD with manual and procedure manual in .pdf format. Power cords		
MULTI-PARAMETER WATER QUALITY METER				
1.	General	The spectrophotometer instrument shall be a multiwavelength, UV-Visible, Split Beam / Dual Beam spectrophotometer designed for laboratory analysis of water parameters		
2.	Reagents	The Required reagents for the water parameters should be from the same manufacturer.		
3.	Display	Backlit Grayscale LCD with/without Touch Screen. The instrument should have User Guidance on Screen. The interface of the instrument shall be		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
		graphical with touch screen. The instrument shall provide graphical display and be capable of printing test results.		
4.	Wavelength	The instrument, depending on the test selection, shall automatically select the wavelength with automatic calibration. The wavelength range of the instrument should lie between 190 to 1100 nm with accuracy of ±1 nm & resolution of 0.1nm.		
5.	Preprogrammed Methods	1. > 200 pre-programmed water analysis methods 2. The instrument shall be equipped with storage capacity from 4000- 5000 data points & more than 100 user-defined calibrations (result, date, time, sample-ID, userID).		
6.	Sample Cell Compatibility	1. Rectangular: 10, 20, 30, 50 mm and/or 1 inch(optional); 2. round: 13 mm, 16 mm, 1 inch & 3. Optional 100 mm rectangular cell with additional adapter		
7.	Operating Mode	Transmittance (%), absorbance and concentration (wavelength, time). optional wavelength scan and time course graphs.		
8.	Optics	Split Beam / Dual Beam		
9.	Source Lamp	Tungsten (visible range), Deuterium/Xenon (UV range)		
10.	Photometric Measuring Range	±3 Abs		
11.	Photometric Accuracy	2 Abs with neutral glass at 546 nm		
12.	Stray Light	KI-solution at 220 nm < 3.3 Abs/< 0.05%		
13.	Operating Conditions	10 to 40°C, max. 80% relative humidity (non-condensing)		
14.	Interfaces	USB type A (2), USB type B, Ethernet,		
15.	Scope of Supply	The vendor should supply with Basic instrument, 1 Inch matched Glass		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
		sample cell , basic user manual, a multi adapter for round and rectangular vials, CD with manual and procedure manual in .pdf format. Power cords		
16.	Warranty	Comprehensive warranty should be provided for five years		
DIGITAL THERMOHYGROMETER				
1.	Temperature	-20 °C to 60 °C ± 0.5 °C - Readability 0.1 °C		
2.	Temperature accuracy	±0.5°C - ±1.0°C		
3.	Resolution	0.1°C / 0.1°F		
4.	Temperature Update Rate	500 ms		
5.	Data storage capacity	99 points		
6.	R.H. Range	5 % to 95 % R.H. ± 2.5 % - % R.H readability		
7.	Display	Backlit dual display of humidity and temperature		
PH / ORP METER				
1.	Benchtop GLP Model pH cum ORP meter with digital pH electrode having built-in temperature sensor with Clogging Prevention System (CPS) technology, glass body, and spherical tip.			
2.	pH Range	-2.000 to 16.000 pH		
3.	pH Resolution	0.001 pH, 0.01 pH		
4.	pH Accuracy (@25ºC/77ºF)	±0.01 pH, ±0.002 pH		
5.	pH Calibration 5 points (Standard mode)	1.68, 4.01 (3.00†), 6.86, 7.01, 9.18, 10.01, 12.45, and two custom buffers; 3 points (Basic mode) 4.01; 6.86; 7.01; 9.18; 10.01		
6.	pH Temperature Compensation ATC	-5.0 to 100.0ºC; 23.0 to 212.0°F		
7.	mV Range	±1000.0 mV; ±2000.0 mV		
8.	mV Resolution	0.1 mV		
9.	mV Accuracy	±0.2 mV (±999.9 mV); ±1 mV (±2000 mV)		
10.	Temperature Specifications	1. Temperature Range -20.0 to 120.0 ºC 2. Temperature Resolution 0.1 °C 3. Temperature Accuracy ±0.5 °C		

Sl. No	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specification of the quoted model/item
		4. °C/°F Yes		
11.	pH Electrode Diagnostics	Glass and reference junction diagnostics, out of calibration range , probe condition, response time		
12.	Logging	up to 1000 records organized in: Manual log-on-demand (Max. 200 logs), Manual log-on-stability (Max. 200 logs), Interval logging (Max. 600 samples; 100 lots)		
13.	Connectivity	1 micro USB port for charging and PC connectivity, 1 USB port for storage		
14.	Environment	0 to 50°C (32 to 122°F), RH max 95% non-condensing		
15.	Battery Type/Life	Built-in rechargeable battery /8 hrs.		
16.	Accessories	1. Cradle and Electrode Holder, 2. Compatible pH and ORP electrode with inbuilt temperature sensor 3. Buffer solutions for pH 4, 7 and 10 4. Cleaning solutions, battery Charger 5. Dust Cover		
17.	Warranty	Comprehensive warranty should be provided for five years including probe		

(b) List of Installations of the quoted Model or a comparable model of equivalent sensitivity preferably in food analysis sector in India (Attach Performance certificate from the organizations where the quoted model or a comparable model of equivalent sensitivity has already been installed)

PART V- EVALUATION CRITERIAL AND FORMAT FOR PRICIE/COMMERCIAL BID

2. **Price Bid Format :** The Price Bid Format is given below and Bidders are required to fill this up correctly with full details, as required under Part-II of RFP :-

Cost Details

PART (A) : CLEAN ROOM LABORATORY SET UP & FURNITURE

Sl. No	Specifications	Qty.	Cost in INR
1.	**GENERAL:** The microbiology laboratory shall be modular with unidirectional flow with different zones. **The area purposed for the Microbiology Lab is mentioned in Annexure A** to accommodate the area/activities mentioned below. A representative zoning floor plan is shown as **Annexure B** which can be suitably modified by the bidder keeping the flow (personnel and sample) unidirectional and avoiding cross contamination. The modified layout should be submitted to FSSAI for approval along with the BOQ for civil and electrical work as per specifications mentioned. 1. Sample receiving area, a documentation room and office area (Unclassified). 2. Media preparation room (Unclassified) attached to sterilization room and washing (having sufficient space to store dry Media/reagents and Prepared Media in Refrigerators) 3. Sample preparation room (Class B/ISO 7) over pressure 45 pa having LAF 4. Inoculation Room (Class B/ISO 7) over pressure 45 pa 2 nos (One having Biosafety Cabinet and another for automated systems/open lab) 5. Reference culture room (Class B/ISO 7) over pressure 45 pa having Biosafety Cabinet. 6. Clean corridor minimum 6 feet wide. 7. Incubation room and enumeration room (ISO 7) having space to accommodate 4 individual / 2 stackable Incubators. The incubation room should be accessible from separate entry other than clean room such that, the analyst need not enter clean room to observe the results. 8. Small Biochemical identification and staining room attached to Incubator room (ISO 7) 9. De-contamination room (Unclassified) having access to collect material after Incubation room and also from Inoculation /Reference Rooms. 10. Two small inter connected rooms for Molecular Biology Lab set up (Class B/ISO 7) over pressure 45 pa. 11. Entry to clean Room through three air lock rooms; ALI, AL2 (change room) and AL3. Exit from clean room through air lock AL2 and AL1 having different air pressure. The necessary civil and electrical work shall be done as per the specifications. The class validation of 'clean area' shall be done and	--	

Sl. No	Specifications	Qty.	Cost in INR
	report should be submitted by the renderer through a third party accredited agency. Equipment used for validation should have valid traceable calibration certificates. The furniture shall be supplied as per the specifications given below.		
2.	**MODULAR PANELLING and FLOORING WORKS** The entire lab as per the layout shall be made with clean room modular partitions as per the following specification. 1. **Wall panels**: Pre-fabricated insulated sandwich panels made up of 0.8 mm GPSP (Galvanized Plain Skin Pass) GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40±2 Kg/m^3. Overall thickness of the panel shall be 80 mm. 2. **Cladding panels**: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40±2 Kg/m^3. Overall thickness of the panel shall be 40mm. 3. **Non Walkable Ceiling panels**: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40±2 Kg/m^3. Overall thickness of the panel shall be 60mm. Panels shall be designed to fit within each other with self-supported system. Load bearing capacity of the panel shall be 150kg/cu.M. Necessary clean room lightings and provision for air conditioning outlets shall be provided. Suitable factory made cutouts wherever required should be provided in the wall panel as applicable for fan filter units, HEPA filters, light fixture, return air grills, power sockets, cables. Pipes, exhaust ducts, magnahelic gauge, smoke sensors, utilities etc. It should be easily repairable/accessible. 4. **Riser Panels**: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and overall thickness of the panel shall be 80mm with inbuilt riser duct along with perforated grill. 5. Glazed panels flushed view panel with 5mm thick toughened glass of size 900 x 900mm. 6. Aluminium coving: Aluminium coving with radius 50/65 mm with fastening arrangement and aluminium coving corner 3D aluminium coving corner 2D. 7. **Clean Room Doors**: Single Door fit to flush into the wall panels and must open as shown. Shutter sheet thickness will be 0.8mm and frame will be 1.2mm thick made up of GPSP GI sheet with epoxy polyester powder coating. Leaf thickness will be 44mm and infill will be PUF with density 40±2 Kg/m33. Door size shall be as per requirement. Door bottom seal shall be provided. 8. Single Door Accessories: 03 Hinges (Altos), 01 Door Closer (Altos) - 01 Nos. Back to Back Handle 01 Nos. Vision (400 x 600) - , 01 Drop Seal	--	

Sl. No	Specifications	Qty.	Cost in INR
	01 Lock 01 Kick plate 9. **Flooring**: Seamless antistatic PU floor – Laying 4mm (2+2) thick self leveling epoxy floor. 2mm screed + 2mm epoxy floor. The existing floor should be properly cleaned up, surface preparation carried, apply one coat of primer & laid with 2mm thick self-leveling epoxy unpigmented screed floor. And finished with 2mm self-leveling epoxy floor. The floor finish should be 4mm. The self-leveling PU made of MRF / DUPONT or equivalent. The installed floor should display good abrasion resistant & monolithic jointless surface. Shall be of stain proof, Scratch resistant, Uniform color and free of joints / undulations / bubbles etc. The floor level shall match with the surrounding area. 10. Wall to Floor Ceiling – The cove shall be made with silica sand and PU with a radius of 60mm or larger, with all wall / floor joints made as merging without any unevenness. 11. The panels shall be made of a durable and uniform material that should be easy to clean and extremely hygienic. 12. Should not have any sharp edges and corners and do not support bacteriological or fungicidal growth and is resistant to most chemicals used in the lab. 13. Gas pipe line shall be provided. The cylinders shall be kept outside conveniently for replacement. 14. Plumbing lines as required shall be provided. Water drain work with SS GMP TRAP & it's Connect with main drain line including all civil work 15. Exhaust line for autoclave, biosafety cabinet, laminar flow and other equipment shall be provided. 16. All temperatures, humidity and pressure should be displayed in the clean corridor. 17. The switch board should not have any sharp edges 18. All doors except the doors in change rooms shall have view panels. 19. Air locking system to maintain different pressure at entry and exist area of clean room as shown in figure. 20. The room and sterile corridor over pressure (high positive pressure) should be as indicated above. 21. Fresh air and exhaust should be provided for wash/sterilization and decontamination area. 22. Application of PU Paint on Ceiling & Walls with acrylic pulley base, & Final Finish with two coats for Media preparation area, sample receipt and decontamination and wash area 23. The bidder should do validation initially while commissioning and 2 more validations in an interval of 6 months in a year in the warranty period.		
3.	**Heating, ventilation and air conditioning (HVAC) System** 1. The following area shall be provided with ISO 7 (Class 10,000) with humidity control HVAC and maintained at 22 ± 3 °C and Relative Humidity 40-60 i. Clean corridor over pressure 60 pa	--	

Sl. No	Specifications	Qty.	Cost in INR
	ii. Sample preparation room over pressure 45 pa iii. Inoculation room over pressure 45 pa iv. Reference culture room over pressure 45 pa v. Incubator room over 30pa (class D) vi. Entry and Exist at 15,30,45 pa as shown in figure **The following area shall be provided with unclassified ventilation** i. Media preparation room/sterilization room/office room ii. Sample receipt/storage 2. Overall air quality shall be Class 10000 and should be class 100 at grill level of HEPA filter. (To achieve this air quality, if any additional items are required which are not mentioned in the technical specifications, shall be included in the offer.) i. Validation of HEPA filters by appropriate tests like DOP etc. ii. Air Velocity at outlet of terminal filtration unit / filters. iii. Air Particulate count. iv. Air Change rate calculation. v. Temperature & Humidity test. vi. Pressure differential levels of the Clean room / adjoining areas. vii. Positive pressure in Pascal as indicated for area 3. Supply, delivery, installation, testing and commissioning of **Modular type floor mounted Double Skin Air Handling Unit** of G.S.S. 24 Gauge ducting complete in all respect along with silicon sealant. Duct Sheet make:- **SAIL/Tata/Jindal** 4. Application of **12 mm thick** XPE TOC Slim insulation Cross Linked polyethylene foam with aluminum metalized foil for insulation on Supply duct running inside building area and with UV Foils for insulation for supply Ducts running out side buildingarea i.e. exposed to atmosphere 5. Application of **09 mm thickness**. XPE TOC Slim insulation Cross Linked polyethylene foam with aluminum metalized foil for insulation on Return duct running inside building area and with UV Foils for insulation for Return Ducts running out side building area i.e. exposed to atmosphere 6. Installation, Testing & Commissioning of powder coated perforated (65%) supply and Return air grills made out of extruded Aluminum sheets (**Make:- ISI MARK**) 7. Installation, Testing & Commissioning of Powder of suitable numbers and dimensions of coated HEPA Filters (Efficiency, efficiency 99.99% for 0.3 microns with individual test certificates.) housing with PAO & Pascal Pressure Test Point with canvas connection and VCD. 8. Maximum sound limit in the corridor area shall be 50 to 60 db. 9. Installation, Testing & Commissioning of Riser Filters 10. Installation of Magnehelic differential Pressure Gauge Make :- DWYER 11. Supply, Installation of Central Display Station for Magnehelic differential Pressure Gauge with negative or positive pressure pipe with SS base plate suitable for 10 Nos . 12. Temperature and RH sensor to measure the temperature and humidity of each clean room. Accuracy levels: Temperature: ± 0.2 °C or better, RH: ± 1% or better.		

Sl. No	Specifications	Qty.	Cost in INR
	13. Motor should be non-flame proof type and fan will be non spark proof type. 14. AHU coil, fan, motor shall be selected for 10% extra capacity. 15. The electrical wiring inside the AHU room and interconnection between AHU and outdoor unit through required protective circuits in all manners including HP, LP with fully automatic control unit shall be provided. 16. All the external ducting shall be made weather proof.		
4.	**OUTDOOR CONDENSING UNITS (Packed ductable split AC)** SITC of air cooled condensing units of following capacities with multiple scroll compressor, condenser fan motor unit etc with R-22 refrigerant and MS mounting stand. The capacity shall be decided as per head load calculation. The offered capacity shall be mentioned in the offer form. The lab will be functioning for i. Supply of R-22 Gas of required quantity. ii. Supply, installation, testing and commissioning of Vibration Isolators for Condensing Units. iii. Erection, Testing and Commissioning: Ductable Split Unit Installation, iv. Testing and Commissioning of AHU &ODU along with accessories like expansion valve, drier and corded remote PCB for temperature control. v. Suitable UV lamp for the coil disinfection	--	
5.	**Electrical works comprehensive** 1. The power required for the microbiology lab shall be taken from the main panel of the building. Necessary distribution panels shall be installed by the bidder. a) Adequate lightings shall be provided. b) The electrical inspectorate's approval shall be obtained by the bidder **Wiring and Accessories** 2. Supply & wiring for following points in surface / recessed mounted rigid medium gauge 20mm PVC conduit with all accessories, using 3 runs of 1.5 Sq mm FRLS PVC insulated stranded copper conductor single core wire for phase, neutral & earth, with modular 6A one way switch, modular plate, suitable GI box etc as required: 3. Light point / exhaust fan / turbo ventilator points as required 4. Supply & wiring for circuit / sub main wiring in surface / recessed mounted rigid medium gauge 25mm PVC conduit with all accessories in surface/recess 5. Supply and Fixing the following modular type switches & accessories with modular plates and suitable GI boxes and giving necessary connections as required i. 6A SP 5 pin shuttered modular type socket with switch in each switch board ii. 2 nos 6 A SP 5 pin shuttered modular type socket with 2 No's modular switch –UPS power. iii. 16A 5 pin shuttered modular type socket with switch	--	

Sl. No	Specifications	Qty.	Cost in INR
	iv. Provision for shifting existing switch board to a conventional location and giving connections etc. v. Supply and fixing 20 amps. 240 volts SP industrial type socket outlet (IPP) with 2 poles and earth, metal enclosed plug top including supply and fixing of one number 20 amps (10kA) SP MCB (C-Curve) in sheet steel enclosure on surface or in recess with chained metal cover for the socket outlet and complete with connections testing and commissioning etc. as required. vi. Installation of Clean Room Lights & Fixture with fitting with LED12" x 12 vii. Installation & Testing of a. Modular Switches. b. Modular Sockets for various instruments in each room **MCBs AND MCB DISTRIBUTION BOARDS** i. Supply and installation of sheet steel, phosphatised and painted, dust and vermin proof enclosure of MCB 4 Way double cover Vertical DB – 3 Phase of including copper /brass bus bar, neutral link, earth bus and DIN rail with MCB/isolator/RCCB etc. fixed on wall using suitable anchor bolts or fixed in recess including cutting hole on the wall, making good the damages, colour washing etc. as required. ii. Supply and installation of sheet steel, phosphatised and painted, dust and vermin proof enclosure of UPS DB –6 way single Phase double cover (IP 42/43)230 V of including copper /brass bus bar, neutral link, earth bus and DIN rail with MCB/isolator etc. fixed on wall using suitable anchor bolts or fixed in recess including cutting hole on the wall, making good the damages, colour washing etc. as required **Single line electrical distribution diagram should be submitted by the vendor along with the technical offer.**		
6.	**Wall mounted fans (In unclassified areas)** Supply, conveyance, installation, testing and commissioning of wall mounted fans, as required. Fixing necessary bolt and nuts, making good the damages etc. as required including giving connections with required length of 24/0.20mm PVC insulated and PVC sheathed 3 core round copper conductor flex wire or with extended original wiring etc. and numbers as required.	--	
7.	**Lighting fixtures** Supply and fixing cast aluminum down light fitting with 11 to 14 W CFL to false ceiling including giving connections with required length of 16/0.20mm PVC insulated and PVC sheathed 3 core round copper conductor flex wire conforming to relevant ISS or extending the original wiring and making good the surface as required (Wipro WCP 27118 SWG or equivalent make)	--	
8.	**Validation of HVAC after completion** 1) Documentation for DQ, IQ, OQ with certificates of all brought items. 2) Integrity test for HEPA Filter's once. 3) Room Pressure balancing once.	--	

Sl. No	Specifications	Qty.	Cost in INR
	4) velocity 5) Particle count 6) Recovery Test 7) Air Flow Pattern		
9.	**Fire extinguisher** Supply and installation of ABC type dry powder fire extinguisher of 2 kg. Capacity complete with initial charges and installation brackets	**--**	
10.	15 KVA 3 phase Stand by on-line **UPS** with 60 minutes back up with battery, rack and stand. Essential lights and equipments shall be connected to the UPS.	**--**	
11.	**Air curtain** 1.7m length should be installed wherever required	**--**	
12.	**Hand Sanitizer** (Automatic IPCA dispenser for clean rooms) 1. The hand sanitizer should automatically dispense disinfection (Isopropyl alcohol) on to hands. 2. The sensor should detect the hand and dispense 0.5ml disinfectant solution. 3. Body should be non-corrosive stainless-steel construction. 4. Tank capacity 500ml 5. Volume of spray / cycle : 0.5ml	**6 nos.**	
13.	**Single Biometric Access** control system for restricted entry to the classified area	**1 no.**	
14.	Installation, Testing & Commissioning SS-316 vertical LAF bench for sample preparation room as per Size :-4' X 2.5' x 2.5' (2 Nos) meeting with minor changes as per area available	**2 nos.**	
15.	**Static Pass box** Installation, Testing & Commissioning SS-304 static Pass Box fully automatic system, with electromagnetic interlocking system, digital display, UV & fluorescent light alarm system etc. Size :- 1.5' x 1.5' x 1.5'	**1 no.**	
16.	**Dynamic Pass box** Installation, Testing & Commissioning SS-316 DYNAMIC Pass Box fully automatic system, with electromagnetic interlocking system, digital display, HEPA Filters, UV & fluorescent light alarm system etc. Size :- 1.5' x 1.5' x 1.5'	**3 nos.**	
17.	**Cross over Bench at entry and exist of clean room and media room (as per approved layout)** 1. SS 304, 18 & 16G combination, mat finish 2. Bottom side of top provide "C" type stiffner for durability of top 3. Inside horizontal support 4. Bottom both side 30mm color for will be grouting 5. Approx size 1000 mm W x 400 mm D x 600mm H (can be modified to size)	**3 nos.**	
18.	**SS Work Bench/table** Table should be SS 304 without drawers and lockers all exposed surfaces should be 16 gauge SS. Size - 1500 MM x 750 MM (W) x 900 MM (H) (minor deviations acceptable)	**6 nos.**	

Sl. No	Specifications	Qty.	Cost in INR
19.	**Modular Work bench** Installation & Commissioning SS304 with drawers and lockers Size - 1500 MM x 750 MM (W) x 900 MM (H) (minor deviations acceptable 6 nos of 15/5 amps with 3 pin socket cum Switch with Electrical Panel should be provided. Table top should be provided with (18mm ±1mm) thick well polished Black Granite. Should have reagent storage rack on the top of the table at convenient height across the table top. Should have provision to keep materials on top of the shelf also.	**3 nos.**	
20.	**Modular workbench with sink and eyewash** Stainless steel SS304 table of dimension 1800 x750 (W) x 900 mm (H) tabletop height from floor. Minor deviation in measurement is acceptable. Should have under bench drawers and shutters with locking arrangement. 6 nos of 15/5 amps with 3 pin sockets cum Switch with Electrical Panel should be provided. Table top should be provided with (18mm ±1mm) thick well polished Black Granite. Should have covered reagent storage rack with two shelves on the top of the table at convenient height across the table top. Should be supplied with one sink (SS 304)at the right end of size 400 x 300 mm Approx (16x12 inches) sink joints should be continuously welded with two way water tap (hand-free operation) and eyewash. Water connections and plumbing should be provided	**2 nos.**	
21.	**Movable trolley with lockable wheels** SS 304, 18 & 16G combination, mat finish **Size :- 2.5' x 2.5' with two shelf 2nos** **Size :- 2.5' x 2.5' with Three shelf 2Nos**	**2+2= 4 nos.**	
22.	**Bench stool** Installation & Commissioning of SS-304 WORKING STOOL for above bench SS 304, 18 & 16G combination, mat finish. Approximate size 900mm W x 600 mm D x 600mm H	**8 nos.**	
23.	**Sterile garment storage cabinet (in Air Lock 2 of entry to clean room)** Dynamic garment storage cubicle complete SS304 construction. Port for HEPA filter leak testing Prefilter 5 microns for fresh air intake SS rod for hanging folded garments. SS perforated shelves / tray (removable) at bottom for keeping mask and shoe cover etc. Stainless steel back panel with perforation at bottom for exhaust Fully toughened glass door. Differential pressure gauges ON/OFF switch for blower & white lights UV light with fittings & limit switch Hourmeter for UV	**1 no.**	

Sl. No	Specifications	Qty.	Cost in INR
	Leveling legs. Approx internal dimension : 610(W)x 430(D)x 1335(H)mm with minor modifications as per available area		
	Total Cost (Part A)		

PART (B) : AUTOMATED PATHOGEN DETECTION AND IDENTIFICATION SYSTEM

Sl. No	Specifications	Cost in INR
1.	**Automated pathogen detection with accessories for Identification of bacteria and yeast in food matrices should offer the followings:** 1. System should be a fully automated pathogen screening system from food samples based on the principle of ELFA/ELISA . 2. All protocols for sample testing should be validated as per FDA/AOAC/ AFNOR/ EU/ISO /DIN specifications. 3. The technology should involve Ag-Ab testing for sample inoculation strips containing all reagents required for testing . 4. The system should involve only adding of pre enriched sample into individual strips containing all other reagents (enzyme conjugate/ wash buffer/ substrate). 5. The instrument shall be a multi parametric system and able to perform more than two parameters in the same run. 6. System should be supplied with an accessory for sample heating device. 7. System should be capable for the detection of : i) Salmonella species ii) Listeria species *iii) E.coli* iv) *S.aureus* enterotoxin v) Campylobacter 8. System should be supplied with an **accessory system to determine** *E.coli*, Shigella species, Vibrio species, anaerobic bacteria (Clostridium species) from food samples based on colorimetric technology having FDA/AOAC/ AFNOR/ EU/ISO /DIN specifications.. 9. Negative and Positive controls must be supplied with the kits and system should demonstrate them. 10. The **accessory system should be based on Biochemical reactions** should be available in both kinetic mode and end point mode within a day. 11. The results for the Biochemical reactions should be available on an intuitive software which is 21 CFR part 11 compliant with facility of audit trail and electronic signature. 12. Biochemical profiling should be done using plastic cards impregnated with biochemical substrates specifically for Gram positive cocci, Gram negative cocci, Gram negative rods, Bacillus species, Coryneform species, anaerobic bacteria and yeast species. 13. Biochemical profiling should be done by an automatic analyzer allowing automatic filling of test cards with the test suspension followed by	

	automatic internal barcode reading, sealing and loading of cards in the incubator sections. 14. Analyzer should be connected to a computer with preloaded software capable of kinetic analysis of ongoing reading and producing results in real time. 15. Software should be capable of creating new organism list in the database apart from the existing database. 16. System should be provided with an **accessory system to perform automated Gram staining** for positive samples to confirm and further testing. 17. System should be provided with a **accessory system based on FRET technology** (Fluorescence Resonance Energy Transfer) coupled with Melt point peak analysis to detect food borne pathogens. 18. System should be provided with an **accessory with specific media to detect anaerobic bacteria** from canned food samples / juices using colorimetry technology. 19. All test results should be obtained between 24 – 72 hrs. 20. A remote access software should be provided with the system to help monitoring of the system remotely and for troubleshooting. 21. System should be accompanied with all accessories like computer, printer, barcode scanner. 22. System should be supported with MS windows operated system and all modular hardware units with sample preparation station, reading station computer and accessories with barcode scanner USB, colour printer and provision for integration with LIMS. 23. Software up-gradation should be free of cost for lifetime of system. System should come along with the entire necessary accessory and should be ready to work. Any accessory system(s) other than those mentioned in the technical specifications, that are required for satisfactory installation of the system should be quoted and supplied with the instrument. 24. The system must have no additional reagent costs. If additional reagent costs are required please supply details including cost and preparation time. 25. Validation : Vendor should get it done through qualified Engineer of OEM at the time to installation and yearly thereafter. 26. Warranty: Comprehensive warranty should be provided for five years. 27. Consumables: 1. **Kits for pathogen screening and identification**, 2. Reference Strains - *Aspergillus niger, Escherichia coli, Staphylococcus aureus, Salmonella typhimurium and Clostridium perfringens* sourced from NCTC/NCPF/IMVS/NCIMB/ACM	
	Total Cost (Part B)	

PART (C): AUTOMATED ENUMERATION SYSTEM

Sl. No	Specifications	Cost in INR
1.	**Automated enumeration system with accessories for detection of anae organisms should offer the followings:** 1. System should be able to do microbial enumeration from food samples using protocols in compliance with AOAC/ AFNOR/ ISO methods.	

Sl. No	Specifications	Cost in INR
	2. System should be able to perform automated microbial enumeration in food samples using MPN method in 24 - 48 hrs. 3. System should be able to perform enumeration for the following parameters with a detection limit up to 4,900,000 CFU/ml or CFU/g: i) Aerobic count ii) Total coliforms counts iii) E.coli counts iv) Enterobacteriaceae counts v) S.aureus counts vi) Lactic acid bacteria counts vii) Bacillus cereus counts viii) Yeast & Mould counts. 4. System should be able to do automate sample inoculation. 5. System should be able to do result interpretation automatically. 6. Kits for test provided for testing should contain the culture medium , containing in a barcoded vial, in dehydrated format and contain fluorescent indicator substrate. 7. System should be able to have a throughput of providing test results for 300 - 400 tests in 6 hrs giving results for microbial enumeration. 8. Samples tested on the system should have complete traceability with data integrity for results. 9. System should be supplied with an **accessory system for automatic gravimetric dilution** of sample preparation along with one pump. It should be a self regulating weighing system with drift alarm with accuracy in compliant with ISO 7218 and ISO6887-1. 10. System should be supplied with an **accessory system for homogenization** of sample with flexible speed (slow/normal/fast), blending capacity (80 to 400ml) with adjustable timer (10 secs to 3mins) and removable stainless steel paddles, integrated waste drawer, very low noise level. 11. System should come along with the entire necessary accessory and should be ready to work. Any accessory system(s) other than those mentioned in the technical specifications, that are required for satisfactory installation of the system should be quoted and supplied with the instrument. 12. The system must have no additional reagent costs. If additional reagent costs are required please supply details including cost and preparation time. 13. Validation : Vendor should get it done through qualified Engineer of OEM at the time to installation and yearly thereafter. **14.** Warranty: Comprehensive warranty should be provided for five years. **15.** Consumables: **Kits for microbial enumeration** needs to be quoted.	
	Total Cost (Part C)	

PART (D): MICROBIOLOGY LABORATORY EQUIPMENTS

Sl. No	Specifications	Requirement	Quantity	Cost in INR
1.BIO-SAFETY CABINET			**02**	

Sl. No	Specifications	Requirement	Quantity	Cost in INR
1.	Cabinet: Dimensions	1. System must work on laminar air flow technology Vertical 2. Working area minimum 4 ft (w) x 2 ft (h) x 2ft Interior work area to be from a single piece of IS304 grade stainless-steel with large radius (joint free) corners to simplify cleaning. The cabinet work area must have s no welded joints, which collect contaminants or rust. 3. Cabinet should be balanced with base stand with castor wheel and lock. Stand approx 711 mm height from same company. Single Piece Wall. Single piece work tray. Raised arm rests. Drain Pan / Drain valve or cock for cleaning spills in case work tray is fixed.		
	Cabinet construction/ Work Zone	Body M.S with sufficient protective coating. Front Window should be laminated toughened glass>5mm, anti UV		
2.	Control system	Microprocessor based		
3.	Display	LCD - all information, HEPA Filter life and UV Life indicator displayed		
4.	Air Flow pattern (through ULPA/HEPA)	70% of the air re-circulated and 30% of the air exhausted		
5.	Class	100		
6.	Protection	operator, sample and environment		
7.	Average Airflow Velocity			
	Inflow	0.53 m/s (105 fpm)		
	Down flow	0.33 to 0.35 m/s (70 fpm)		
8.	UV lamp	1. 30 to 40 W x 1 2. UV timer, UV life indicator, Emission of 253.7 nanometers for most efficient decontamination		
9.	Fluorescent Lamp	12 to 21 W x 2		
10.	Illumination	≥1000 lux		
11.	Consumption	760 W		
12.	Power Supply	210-240V/50/60 Hz		
13.	Sound Emission	62.5 dBA to 65 dBA		
14.	Filter specification ply ULPA Filter Typical Efficiency			
	Supply ULPA /HEPA Filter Typical Efficiency	≥99.999% for particle size between 0.1 to 0.3 microns		
	Exhaust HEPA Filter Typical Efficiency	≥99.99% at 0.3 microns		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
15.	Interlock function and alarm	Interlock function for UV lamp and front window. Alarm for any out of range parameters		
16.	Certification	1. NSF 49/EN1249 or Equivalent standard Test Certificate for Mini-Pleat HEPA Filters 2. Calibration Certificate for Pressure Gauge 3. Calibration Certificate for Air Velocity Anemometer		
17.	Services Required	System should come along with the entire necessary accessory and should be ready to work. Installation & onsite validation, Calibration certificates Manuals : Operation, maintenance & part list with detailed specifications, Operational & maintenance Training. For validation vendor should having it own capability with their own company trained service engineer to perform Cleanliness level validation. No third part validation will be entertained. One validation at the time of installation should be done by company personnel.		
18.	Electrical outlets	Minimum 2 nos. electrical outlets should be provided inside the work space.		
19.	Optional	One out of the two Biosafety cabinet systems must be supplied with thimble / canopy attached to air vent		
20.	Warranty	Comprehensive warranty should be provided for five years		
2. VERTICAL TOP LOADING AUTOCLAVE			**02**	
1.	Operation	Should have following functions & features: 1. Single top automatic vertical opening lid. 2. One-touch automatic lid Open / Close mechanism with Lid opening/closing detection Mechanism. 3. Built in steam Condenser to ensure no steam exhausts into the lab. 4. Exhaust bottle detection mechanism		
2.	Chamber capacity	1. ~70 - 75 Liters (1 no.)		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
	(Effective internal volume)	2. ~50 Liters (1 no.)		
3.	Temperature control	1. Sterilizing temperature is controlled by the microprocessor within ±2°C of the set temperature in the range of 115°C to 135°C with last run memory. 2. Should be able to balance the temperature and pressure deviates during sterilization, fine exhausting automatically in order to adjust the chamber condition. 3. Provided with external temperature PT100-Ohm sensor.		
4.	Process mode	4 sterilization modes		
5.	Operating temperature range	For sterilizing: 105-135ºC, for heating: 45 -104ºC and for warming: 45 - 95ºC.		
6.	Heat source	2.5-3 kW electric heater		
7.	Chamber internal material	SUS304 double/triple walled, steam jacket and separate boiler.		
8.	Display	1. Digital, Display range should be 1 to 99hours 2. Should show working status parameters (Time and temperature)		
9.	Rapid air cooling function	Should be provided with Built-in Cooling Fan for faster post-sterilization cooling and shorter completion time.		
10.	Operating pressure	0.26 Megapascal and analog display range should be 0 - 0.4MPa		
11.	Warming	Variable 1 to 99 hours		
12.	Safety Device	Water level sensor, current leakage breaker, lid interlock, over heat & pressure Prevention, open temperature sensor detection & safety value.		
13.	Printer	Should come with inbuilt printer and option to print after every 1 minutes during operation		
14.	Accessories, spares and consumables	1. Stainless Steel Baskets & containers for holding flasks, tubes etc. – 2 / 3 nos. 2. Appropriate built-in process printer for batch documentation		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
		3. Appropriate Voltage stabilizer should also be supplied 4. Dust Cover – for both the systems		
15.	Power Supply	Single-Phase 230V AC (50/60 Hz) and fitted with plug compatible with local sockets		
16.	Warranty	Comprehensive warranty should be provided for five years		
3. LABORATORY REFRIGERATOR - 2°C – 8°C			**03**	
1.	Design	1. Vertical with wheels 2. Frost free, CFC free, Automatic Defrost 3. 4 – 5 Height adjustable shelves 4. Internal LED Lighting 5. Single Triple-Pane/Double Layered Glass Door with ergonomic handle Key Lock 6. Automatic door closing 7. Fan forced air circulation to ensure stable & uniform preservation environment.		
2.	Controller	1. Microprocessor Temp. Control Controller with 0.1ºC resolution 2. Controller to Display data about the unit and used to control temperature 3. Control panel should be at eye level with Digital Temperature display & Alarms		
3.	Construction	Electro-galvanized steel with white, oven baked epoxy-polyester, anti-microbial, powder-coated finish with 304 Stainless Steel inner chamber		
4.	Capacity	Minimum 350 Liters		
5.	Temperature	1. Range: 2□C to 8□C 2. Uniformity: ±3°C		
6.	Alarm	Open door, High/Low temperature, Clogged condenser filter		
7.	Warranty	Comprehensive warranty should be provided for five years		
4.DIGITAL BALANCE			**02**	
1.	Design	Type – Top loading Precision Balance of 1000gm Capacity		
2.	Range (weight)	0.02gm - 1000gm		
3.	Accuracy	0.01gm		
4.	Readability	0.001gm		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
5.	Repeatability	0.002gm		
6.	Linearity	0.003gm		
7.	Response time	1.5 s		
8.	Calibration	automatic/internal		
9.	Display	Touch Screen		
10.	Stabilization Time	2 Seconds (typically).		
11.	Calibration certificate	From NABL accredited calibration laboratory should be supplied along with the eqp.		
12.	Specifications of Weight Box traceable to international standards (1 no)	1. 1 mg - 200 g, E2 2. Accuracy class acc. to OIML R111: E2 3. Nominal mass value: 1mg to 200g. Up to 500 mg as wire weights 4. Susceptibility: 0.002 – 0.004 5. Material: special steel, non-magnetizable, density 8.0 g/cm3, highly corrosion-resistant, knob weights highly polished and laser marked, in wooden case. 6. Dust Cover		
13.	Warranty	Comprehensive warranty should be provided for five year		
5.CIRCULATING WATER BATH			**02**	
1.	Temperature Range	Working temperature range from +20°C to+99.9 °C		
2.	Display	Bright LED-Display with cutting-edge microprocessor technology with PID temperature control		
3.	Temperature Range Display	Bath volume ~10-12 liters (one)		
		Bath volume ~18-20 liters (one)		
4.	Power	Power switch integrated in keypad		
5.	Temperature Stability / Uniformity @ 37°C	High temperature stability of ±0.2 °C or ±0.02 °C		
6.	Adjustable shaking frequencies	Adjustable shaking frequencies from 20 to 200 RPM		
7.	Maintenance	Convenient bath drains to easily clean and maintain bath		
8.	Top cover	Lift-up bath cover		
9.	Accessories	1. Stainless Steel Basket for 20 Bottles 0.25 l / 0.5 l - 2 nos 2. Stainless Steel / Polypropylene Test tube rack, for 15-21 tubes of 23-25 mm, 25 -60 tubes of 12-16 diameter(each) 1nos.		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
		3. All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment. 4. Dust Cover		
10.	Alarms	Audible alarms for Dry-running protection and over temperature		
11.	Timers	Optimize scheduling with auto-on and auto-off timers		
12.	Warranty	Comprehensive warranty should be provided for five year		
6.INCUBATOR (MULTI CHAMBERED)			**02**	
1.	Configuration	Multi-chamber: 4 chambered, floor-standing, mobile - Castor wheel (for mobile incubator)		
2.	Capacity (Chamber volume) - (L / cu ft)	1. 60 / 2.1 or more x 4 chambers 2. Independent Temperature Control of Each Chambers 3. Provision of minimum 2 nos. of SS-304 height adjustable racks in each chamber.		
3.	Temperature range (oC)	+5 to 70 ^{o}C, ± 0.2 ^{o}C accuracy and ±0.5 ^{o}C uniformity with programmable Temperature Control with Illumination (Temperature and illumination of each chamber can be controlled independently). Independent Cooling System for each chamber to provide precise temperature		
4.	Inner Chamber	Stainless Steel 304		
5.	Door specification	Solid installed with lock		
6.	Dimension (W×D×H) minimum	1. Interior (mm) - 400×360×420 x 4 chambers 2. Exterior (mm) - 1170×640×1360 x 4 chambers		
7.	Shelves	No. of wire / Perforated shelves (standard/ max.) 2 / 7 - per chamber		
8.	Controller	1. Programmable or Digital PID Controller 2. Adjustable time and interval		
9.	Safety	Over Temperature Protection, Over Current Leakage Breaker		
10.	Accessories	Each equipment should be supplied with multi channel data logger for temperature Suitable on - line UPS (5 KVA) to support the instrument.		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
11.	Certification	Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation		
12.	Warranty	Comprehensive warranty should be provided for five year		
7.HOT AIR OVEN			**01**	
1.	External material	304 Grade Stainless Steel body with powder coating.		
2.	Interior material	Fully stainless steel.		
3.	Inner chamber	Stainless steel structure with adjustable minimum 2 shelves.		
4.	Window	Double layer glass observation window in front side.		
5.	Type	Bench Top type (Table top model).		
6.	Dimension (W×D×H)	1. Interior (mm) 400×360×420 2. Exterior (mm) 577×642×760		
7.	Temp. Range	Ambient +10°C to +250°C		
8.	Temperature Accuracy	±O.5°C		
9.	Temperature Protection	Automatic over temperature alarm based protection system.		
10.	Timer function	Choice of time (On/Off condition) for automatic setting.		
11.	Temp. Control	Microprocessor control with LCD/ LED display.		
12.	Convection system	Gentle drying and heating with superior temperature uniformity.		
13.	Certification, Document and Installation	Traceable calibration certificate from NABL accredited calibration lab. Installation has to be carried by the skilled team with IQ, OQ and PQ documents and on site validation to be carried out to ensure proper working of the oven as per specification.		
14.	Capacity	60-70 Ltrs.		
15.	Warranty	Comprehensive warranty should be provided for five year		
8.FOGGER				
1.	Droplet Size	Consistent sub micron (<1 micron, non-wetting) – 20 micron particle size generation - adjustable		
2.	Material of construct	1. Tank, Flow control and Nozzle assembly (non-clogging vortex type) should be of SS316 grade, easy to clean, detachable and non corrosive for chemical		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
		2. Handle and hardware: SS304		
3.	Flow rate	1 - 2 liters/hr.		
4.	Air Filter	Triple stage air filter for motor protection		
5.	Tank Capacity	5-10 liters.		
6.	Area Coverage	>10000 Cubic Fts.		
7.	Noise leven	<85 db		
8.	Motor	CE approved, 22000 RPM		
9.	Electrical	200-270V, 50 HZ.		
10.	Timer	Digital timer - 1 – 99 min. with inbuilt hour counter		
11.	Consumables	Should be compatible with wide range of disinfectant in a closed room. Should be supplied with Spore-Killing Ready-To-Use non-toxic antimicrobial disinfectant solution - 5 liters.		
12.	Optional	Rotation stand for uniform dispensing of the droplets		
13.	Warranty	Comprehensive warranty should be provided for five years		
9.AUTOMATIC COLONY COUNTER (BENCH-TOP, DIGITAL)			**01**	
1.	Camera	CMOS color camera or higher version Digital Zoom Minimum 28X or higher		
2.	Resolution	Minimum 1 mega pixels or higher		
3.	Color detection	Optional		
4.	Counting time	1000 colonies per second or more		
5.	Minimum size colony	0.1 mm or less		
6.	Lighting	LED and Automatic		
7.	Counting	1. Automatic, with manual control 2. Counting on petri dishes 90mm or higher 3. Counting on pour, Surface plates Yes; Optional – Petrifilms, Chromogenics		
8.	Data export	1. PDF, JPEG, BMP, PNG and EXCEL 2. USB Connection should be there		
9.	Computer system	Laptop with Windows 10, 3 GB RAM, Graphics Card, i-5 or higher processor 14 Guarantee 3 years		
10.	Good Laboratory Practice	GLP Compliance & full traceability		
11.	Validation	For validation vender should having it own capability with their own company		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
		trained service engineer to perform validation. No third part validation will be entertained. One validation at the time of installation should be done by company personnel.		
12.	Warranty	Comprehensive warranty should be provided for five years		
10.ANAEROBIC WORK STATION			**01**	
1.	Capacity (Liters)	300-400 approx		
2.	Type	Bench top Compact imported Automated Anaerobic workstation with small footprint		
3.	Gas Requirement	The workstation required to operate on either one cylinder of conventional anaerobic gas mixture (10% hydrogen, 10% carbon dioxide and 80% nitrogen) or one cylinder of anaerobic gas mixture and a cylinder of nitrogen. The workstation should operate in either mode without any modification.		
4.	Alarms	System should have audible and visual system indicators and alarms.		
5.	Automated controls	System should have Automated gas control system, low gas pressure indication/buzzer in case if the pressure of anaerobic gas mixture fed to the workstation falls below the necessary minimum level.		
6.	Temperature range	The system should be temperature controlled and set temperature between 5°C above ambient to 45°C for incubation		
7.	Gas Control	System must have automatic gas control within the chamber. No manual control required.		
8.	Humidity Control	Maintenance-free dehumidification .Fully automatic de-humidity control system for no requirement of any user maintenance		
9.	Light	System should have internal spotlight for even the smallest colonies to be examined.		
10.	Power Socket	Internal power socket for the use of small laboratory instruments inside the chamber.		
11.	Vacuum pump	System must be supplied with vacuum pump.		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
12.	Supporting consumables	Refillable sachets of anaerobic atmospheric detoxifying agent (essential for maintaining ideal internal conditions and removing volatile fatty acids) in case Detox advanced carbon filtration system is not there and catalyst palladium to be included. Petri plate racks should be included.		
13.	Accessories	System to be quoted with gas cylinders & gas regulators optionally. Workstation stand and data logging connections.		
14.	Plate Capacity	Incubation capacity not less than 400 plates of 90mm		
15.	Sleeve Cuffs	Comfortable, sleeve cuffs seal around the operator's arms to permit barehanded manipulation of plates and specimens inside the working chamber.		
16.	Electronic Control	Microprocessor Controls Electronic controls to provide the desired chamber atmosphere. Gauges & visual indicators show pressure, temperature, and cycle status.		
17.	Foot switch/Peddle	Footswitch Preferably Wireless type		
18.	Validation	vendor should get it done through qualified engineer of OEM at the time of installation and yearly thereafter.		
19.	Warranty	Comprehensive warranty should be provided for five years		
11.ULTRA PURE WATER PURIFICATION SYSTEM			**01**	
1.	General	1. Compact, Wall mountable system for microbiology / molecular biology grade water applications. 2. Should deliver ultra pure product water by point of use dispenser with rocker arm, volumetric dispensing and auto shut off facility		
2.	Quality of water	Should deliver Type I/Ultra – pure as per International specifications as follows: 1. Resistivity > 16 Megaohm-cm 2. Conductivity < 0.06 Micro-Siemens 3. TOC level < 10 ppb 4. Flow rate > 1 lit / min 5. Bacteria <1 CFU/10ml		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
3.	Volume	10-12 litre/day.		
4.	Feed water	Should have separate feed water (Potable tap water) specific purification cartridge and application specific polishing cartridge		
5.	Control display	Product water resistivity / conductivity both compensated and non compensated mode, product water temperature, product water resistivity greater or below set point		
		Maintenance display for sanitization, exchange purification cartridges, activation of fast flush, depressurization, air purge		
6.	Accessories	1. UPS/Stabilizer as required for functioning of the equipment 2. All cartridges, filters, pump or any such item which is /are essential for Installation and functioning /operating the equipment.		
7.	Consumable	Must Quote separately for consumables (cartridges, filters etc.) for ONE YEAR for trouble free working.		
8.	Validation	vendor should get it done through qualified engineer of OEM at the time of installation and yearly thereafter.		
9.	Warranty	Comprehensive warranty should be provided for five years		
12.FULLY AUTOMATED ELISA READER & WASHER			**01**	
1.	Light Source	Quartz-halogen lamp 6V/10W		
2.	Wavelength	Absorbance 230-750nm, Accuracy ±1nm Fluorescence Ex 230 – 850 nm, Em 280 – 850 nm Accuracy < ± 2 nm		
3.	Filters	8- position filter wheel, the instrument is delivered with the following standard filters installed: 405nm, 450nm, 620nm and 650nm		
4.	Resolution	0.001 Abs		
5.	Display	High contrast color display (480 x 272 dots)		
6.	Internal Memory	At least up to 99 assay protocols and 100 test results, 96- well plates		
7.	Incubator (Optional)	Temperature range from ambient +4^{o} C up to 50^{o} C		
8.	Accuracy(405nm)	± 1% (0-3Abs) or ± 0.003 Abs, Whichever is greater		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
9.	Communication	USB for computer connection USB for memory stick position for data export USB for external printer		
10.	Mains Input	100-240V(50/60Hz) With IVD specifications		
11.	Capability	Capability to read flat-, U-, or V-bottom microplates, 6 / 12 / 24 / 48 / 96, curettes		
12.	Power Supply	210-240V/50-60 Hz		
13.	Accessories	Spare Lamps 2 Nos		
14.	Detectors	Fluorescence, UV and visible, Luminescence		
15.	Temperature control	Ambient +5 °C up to 42 °C		
16.	Shaking	Linear, orbital		
ELISA Microplate Washer				
1.	Function	Fully automatic plate washer With IVD specifications		
2.	Compatible	With ELISA reader supplied (as per model)		
3.	Capability	96 well microplates and strips, with flat, round, or “V” bottom well		
4.	Bottle	1. With non-pressurized bottle to maintain biosafety 2. Wash, rinse and waste (volume 4-6 liter)		
5.	Residual volume	< 2 µl		
6.	Dispensing volume	50-400 µl for 96 well plate		
7.	Plate sensor	Should have the provision		
8.	Data Transfer	USB Port Number of wash protocols up to 99		
9.	Number of Wash buffer bottles	01		
10.	Training	The supplier should provide comprehensive training to users on operation of the instrument and application support onsite as per specifications		
11.	Accessories	1. Multichannel pipette (2 nos) with pipette tips and calibration certificate should be provided. 2. Branded compatible online UPS with at least 30 minutes backup		
12.	Validation	vendor should get it done through qualified engineer of OEM at the time of installation and yearly thereafter.		
13.	Warranty	Comprehensive warranty should be provided for five years		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
13.TEMPERATURE DATA LOGGER			**06**	
1.	Purpose of Equipment	Functions as portable monitor for use in refrigerators/ Oven/Incubators.		
2.	Interface	It should display and stores data that can be downloaded to a PC with MS windows supported software.		
3.	Temperature range	– 30˚C to 50˚C		
4.	Accuracy	0.3˚C		
5.	Measuring interval	1-255 mins		
6.	Memory Size	2000 to 2500 Measurements.		
7.	External Material	Stainless steel/Plastic.		
8.	Weight	3 to 5 gm.		
9.	Power source	Internal lithium battery.		
10.	Battery life available	5+ years or 1 million measurements.		
11.	Accessories	Reading software and cable needs to be provided.		
12.	Certificates	The equipment quoted should be CE Certified. Calibration certificate traceable to International standards should be provided.		
14.TRINOCULAR MICROSCOPE WITH DIGITAL DISPLAY SYSTEM			**01**	
1.	Optical system	Infinitely corrected system stroke		
2.	Focus	Vertical stage movement 25mm or more per course vertical stage movement 1micron or less for fine stroke		
3.	Illuminator	Lamp house for 100 watts halogen lamp with DIC upgradable.		
4.	Revolving nose piece	Reversed sextuple revolving nose piece should be upgradable to DIC in future		
5.	Objectives	Plan achromatic 2X N.A 0.06 Plan achromatic 4X N.A 0.10 Plane achromatic 10X N.A 0.25 Plane achromatic 40X N.A 0.65 (spring) Plane achromatic 100X N.A 1.25 (spring & oil)		
6.	Observation field	Wide field trinocular eye piece tube with 10X eye pieces of 25mm or more F.O.V		
7.	Stage	Ceramic coated surface mechanical stage with right hand low drive controlled with left hand for two specimens.		
8.	Condenser	Swing out condenser usable for 2X-100X.		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
9.	Camera & software	Digital pool CCD camera approx. 3MP/4MP, with 10 bit digitalization, 2048X1500. Software To capture and image processing.		
10.	Accessories	1. Additional display-The equipment should be supplied with a 55 inch LED monitor, in addition to TFT screen 2. Dust cover		
11.	Computer system	i5 processor, 4GB RAM,500GB HDD, DVR R/ W, TFT 20". Microscope, camera and software should be from same manufacturer.		
12.	Warranty	Comprehensive warranty should be provided for five years		
15.AUTOMATIC SAFETY BUNSEN BURNER			**02**	
1.	Basic features	1. Safety Bunsen Burner with flame monitoring, overheating protection and display movement sensor for safe operation. 2. Two adjustment knobs for air and gas to allow easy fine-tuning of flame size and temperature. 3. For heating applications or to flame-sterilize necks of large Erlenmeyer flasks, the Safety Bunsen Burner should be equipped with a long burner head.		
2.	Operation modes	Manual by matches, Infrared sensor with the push button without the need of a lighter, Foot switch.		
3.	Material	UV- and solvent-resistant, Smooth, chrome-plated metal housing.		
4.	Accessories	1. All accessories for running with natural gas should be supplied 2. Main adapter 3. Adapter for standard gas hose with inner diameter 10 mm.		
5.	Warranty	Comprehensive warranty should be provided for five years		
16.SHAKING INCUBATOR (ORBITAL)			**02**	
1.	Shaker requirements	1. Single knob selects all operating conditions and quickly Triple-eccentric counter balanced drive 2. Acceleration circuit to prevent sudden start and stop should be available		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
		3. Programmable controller offering up to 4 modes of timer and parameter control for reduced user intervention. 4. Timer 0.1 to 99.9 hours or continuous mode 5. UV germicidal lights. 6. Noiseless operation		
2.	Shaking Speed range	25 to 400 rpm with ± 2 rpm accuracy		
3.	Temperature range	20°C below ambient to 80°C with accuracy of ± 0.1°C and stability of ± 0.2°C at 37°C		
4.	Shaking orbit	approx. 25 mm		
5.	Display	Large, easy to read LCD display screen		
6.	Audible and Visible Alarm	Should indicate when speed deviates more than 5 rpm or temperature deviates more than 1°C from set point, and when timer operation has expired.		
7.	Overall dimensions (W x D x H)	Minimum 62 x 75.4 x 82 cm		
8.	Accessories	1. Universal Platform of at least 45 x 45 cm having capacity to holds assortment of various size of flask sizes upto 2 Ltrs and test tube racks. 2. System should be supplied with 125ml clamps (10 Nos.), 250 ml clamps (5 Nos.), 500 ml clamps (05 Nos.), 1000 ml (02 Nos.) and 2000 ml (01-02Nos) 3. Test tube rack for 20x50ml tube-1 no and test tube rack for 42x15ml tubes-1 4. It should be supplied with compatible stabilizer/servo for smooth operation 5. Dust cover		
9.	Warranty	Comprehensive warranty should be provided for five years		
17.VACUUM FILTRATION ASSEMBLY			**01**	
1.	Materials of Construction	1. Handles, valve (trigger and knob): Aluminum 2. Connectors, pipe and valve body: 316L stainless steel 3. Connectors, seals and valve seals: EPDM 4. Filtration O-ring: Silicone 5. With 3-Place Manifold		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
2.	Funnel	1. Capacity: 250 ml (Minimum) 2. Autoclavable SS body, 47 mm dia		
3.	Filtration heads	Filtration heads should be compatible with stainless steel filtration devices, as well as disposable and glass funnels. Each component should be removable and autoclavable.		
Pump Specifications				
6.	Materials of Construction	1. The pump should be an oil free pump type. 2. Diaphragm should be made of highly durable chemically resistant material. 3. Vacuum should be adequate for smooth filtration of water.		
7.	Flow Rate	Minimum 3.5 L/min		
8.	Vacuum	Maximum 700 mbar as per ISO 8199		
9.	Accessories	1. Stainless steel funnel 250 mL (47 mm dia), support frit and base, Stainless steel funnel cover – 4 sets 2. Rubber vacuum tubing 8 mm – 2 mtrs 3. stainless steel forceps – 8 nos 4. Sterile Nitrocellulose Gridded Membrane Filters (Pore size: 0.45µm, 47mm diameter) –100 x 4Packs 5. Dust Cover for pump		
10.	Warranty	Comprehensive warranty should be provided for five years		
18.BLENDER/HOMOGENIZER			**01**	
1.	Time set	30,180,600s or work continuously		
2.	Rap speed	3-12/second		
3.	Valid capacity	80-40 ml		
4.	Material of case	Stainless steel body with powder coating		
5.	Power consumption	165W		
6.	Electronic motor rate	500-1500 rpm		
7.	Display	LCD		
8.	Power supply	220v/50 HZ		
19.AIR SAMPLER			**01**	
1.	Material	Anodized aluminum		
2.	Dimensions	Height - 25 cm, Diameter - 11 cm		
3.	Diameter of Sampling Head	10 cm		
4.	Diameter of petri dish	90 mm (3½ inches)		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
5.	Nominal Airflow	100 liters / min. + 2.5%		
6.	Standard Sampling Volumes	50, 100, 250, 500, 1000 liters		
7.	Compliance	GLP (Good Laboratory Practice) & full traceability		
8.	validation	vendor should get it done through qualified engineer of OEM at the time of installation and yearly thereafter.		
9.	Warranty	Comprehensive warranty should be provided for five years		
20.LABORATORY GLASSWARE WASHER/DRYER			**01**	
1.	Chamber volume of Washer/ Dryer	Option 1: 150 – 200 liters capacity Option 2: 200 – 275 liter capacity. Please quote for both the above options		
2.	Internal chamber type	Inner chamber, washing arms and tank filters made of high quality AISI 316 L stainless steel.		
3.	Front Glass Door	Glass Door version – Inside chamber must be visible, while in washing/drying run.		
4.	Control System	Soft touch LCD display. Microprocessor controlled.		
5.	Cleaning Liquid Dispenser	1. Minimum two automatic internal liquid dispenser 2. Standard pre-programmed cycle 3. At least 10 pre-programmed standard cycles.		
6.	Internal wash temperature control	Fully adjustable wash temp. up to 90deg C		
7.	External tap water filtering system	Must include all external tap water filtering system, preferably from local supplier		
8.	Internal Baskets for placement of glassware inside	Must include basic 3 or 4 multipurpose baskets for storing test tubes, beakers, conical flasks, round bottom flasks, pipettes and petri dishes.		
9.	Built in Dryer Unit	Built in forced air dryer unit for drying entire glassware content after the wash/rinse cycle.		
10.	Consumables required for washing/ drying cycle	1. Must provide all necessary washing chemicals for 100 wash run cycle. 2. All quality washing chemicals must be easily available in Indian market at reasonable price (Indian Rupees).		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
		3. Imported washing chemicals/ consumables are discouraged.		
11.	Installation and Commissioning	The vendor must carry out the installation and commissioning at site, including the installation of tap water filter system. The tap water inlet and drain will be provided at site.		
12.	End User Training at site	Necessary end user training and instructions must be provided to all users at site.		
13.	List of present users in India	Must provide the list of users/ customers of this equipment in India.		
14.	Desirable Specification:	1. Telescopic bearing railing for loading the basket. 2. Operator and Service manual with all spare parts list.		
15.	Availability of spare parts	Availability of all spare parts and service support in India for the next 10 years.		
16.	Warranty Period	Comprehensive warranty should be provided for five years		
21.BENCH TOP UV-VISIBLE SPECTROPHOTOMETER			**01**	
1.	Wavelength Range (nm)	190-1100		
2.	Wavelength Accuracy (nm)	0.8 or better		
3.	Light Source	Xenon flash lamp Preferred/Deuterium and Tungsten Halogen lamp		
4.	Detector	Photo Multiplier Tube/Silicon Photo Diode		
5.	Sample holder	Should have reference and sample curette positions.		
6.	Wavelength Repeatability (nm):	0.2 or better		
7.	Spectral Bandwidth (nm)	0.5 to 2.0 or better		
8.	Photometric Mode	Absorbance, Transmittance (%) , intensity		
9.	Detector	Should have reference and sample curette positions.		
10.	Scan/Skew Speed	Min 2500 nm/min or better		
11.	Photometric Accuracy	± 0.005 Abs at 1 Abs		
12.	Interface	USB preferred or LAN		
13.	Accessories	1. Curettes: glass 6 nos. and quartz 4 nos. of variable capacities for liquid samples 2. Optional: Magnetic stirring controller, stirring head and		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
		magnetic stirring bar for 10 mm path length curette stirring capability to single cell and multi cell holders for low viscosity liquids 3. Dust Cover		
14.	Computer System	High Speed branded computer system with laser jet printer		
15.	Software	Window based complete multitasking software. Compatible software for data acquisition and data analysis in all the spectrophotometric wavelengths and modes 18. Minimum One Years		
16.	Warranty	Comprehensive Warranty for Five years (more on lamp) and option for up gradation to be specified		
17.	Scope of supply	The instrument should supply with Basic instrument, 1 Inch matched Glass sample cell, basic user manual, a multi adapter for round and rectangular vials, CD with manual and procedure manual in .pdf format. Power cords		
22.MULTI-PARAMETER WATER QUALITY METER			**01**	
1.	General	The spectrophotometer instrument shall be a multiwavelength, UV-Visible, Split Beam / Dual Beam spectrophotometer designed for laboratory analysis of water parameters		
2.	Reagents	The Required reagents for the water parameters should be from the same manufacturer.		
3.	Display	Backlit Grayscale LCD with/without Touch Screen. The instrument should have User Guidance on Screen. The interface of the instrument shall be graphical with touch screen. The instrument shall provide graphical display and be capable of printing test results.		
4.	Wavelength	The instrument, depending on the test selection, shall automatically select the wavelength with automatic calibration. The wavelength range of the instrument should lie between 190 to		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
		1100 nm with accuracy of ±1 nm & resolution of 0.1nm.		
5.	Preprogrammed Methods	1. > 200 pre-programmed water analysis methods 2. The instrument shall be equipped with storage capacity from 4000- 5000 data points & more than 100 user-defined calibrations (result, date, time, sample-ID, userID).		
6.	Sample Cell Compatibility	1. Rectangular: 10, 20, 30, 50 mm and/or 1 inch(optional); 2. round: 13 mm, 16 mm, 1 inch & 3. Optional 100 mm rectangular cell with additional adapter		
7.	Operating Mode	Transmittance (%), absorbance and concentration (wavelength, time). optional wavelength scan and time course graphs.		
8.	Optics	Split Beam / Dual Beam		
9.	Source Lamp	Tungsten (visible range), Deuterium/Xenon (UV range)		
10.	Photometric Measuring Range	±3 Abs		
11.	Photometric Accuracy	2 Abs with neutral glass at 546 nm		
12.	Stray Light	KI-solution at 220 nm < 3.3 Abs/< 0.05%		
13.	Operating Conditions	10 to 40°C, max. 80% relative humidity (non-condensing)		
14.	Interfaces	USB type A (2), USB type B, Ethernet,		
15.	Scope of Supply	The vendor should supply with Basic instrument, 1 Inch matched Glass sample cell , basic user manual, a multi adapter for round and rectangular vials, CD with manual and procedure manual in .pdf format. Power cords		
16.	Warranty	Comprehensive Warranty for Five years (more on lamp) and option for up gradation to be specified		
23.DIGITAL THERMOHYGROMETER			**01**	
1.	Temperature	-20 °C to 60 °C ± 0.5 °C - Readability 0.1 °C		
2.	Temperature accuracy	±0.5°C - ±1.0°C		
3.	Resolution	0.1°C / 0.1°F		
4.	Temperature Update Rate	500 ms		
5.	Data storage capacity	99 points		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
6.	R.H. Range	5 % to 95 % R.H. ± 2.5 % - % R.H readability		
7.	Display	Backlit dual display of humidity and temperature		
24.PH / ORP METER			**01**	
1.	Benchtop GLP Model pH cum ORP meter with digital pH electrode having built-in temperature sensor with Clogging Prevention System (CPS) technology, glass body, and spherical tip.			
2.	pH Range	-2.000 to 16.000 pH		
3.	pH Resolution	0.001 pH, 0.01 pH		
4.	pH Accuracy (@25ºC/77ºF)	±0.01 pH, ±0.002 pH		
5.	pH Calibration 5 points (Standard mode)	1.68, 4.01 (3.00†), 6.86, 7.01, 9.18, 10.01, 12.45, and two custom buffers; 3 points (Basic mode) 4.01; 6.86; 7.01; 9.18; 10.01		
6.	pH Temperature Compensation ATC	-5.0 to 100.0ºC; 23.0 to 212.0°F		
7.	mV Range	±1000.0 mV; ±2000.0 mV		
8.	mV Resolution	0.1 mV		
9.	mV Accuracy	±0.2 mV (±999.9 mV); ±1 mV (±2000 mV)		
10.	Temperature Specifications	1. Temperature Range -20.0 to 120.0 ºC 2. Temperature Resolution 0.1 °C 3. Temperature Accuracy ±0.5 °C 4. °C/°F Yes		
11.	pH Electrode Diagnostics	Glass and reference junction diagnostics, out of calibration range , probe condition, response time		
12.	Logging	up to 1000 records organized in: Manual log-on-demand (Max. 200 logs), Manual log-on-stability (Max. 200 logs), Interval logging (Max. 600 samples; 100 lots)		
13.	Connectivity	1 micro USB port for charging and PC connectivity, 1 USB port for storage		
14.	Environment	0 to 50°C (32 to 122°F), RH max 95% non-condensing		
15.	Battery Type/Life	Built-in rechargeable battery /8 hrs.		
16.	Accessories	1. Cradle and Electrode Holder, 2. Compatible pH and ORP electrode with inbuilt temperature sensor 3. Buffer solutions for pH 4, 7 and 10 4. Cleaning solutions, battery Charger		

Sl. No	Specifications	Requirement	Quantity	Cost in INR
		5. Dust Cover		
17.	Warranty	Comprehensive warranty should be provided for five years including probe		
	Total Cost (Part D)			
PART E : BUY BACK				
1.	Buy-back price for old Biosafety Cabinet – 4 ft [Make: Amar Chand & Co., Ambala, India, Year of Installation: 2008]			
2.	Buy-back price for old Fully Automatic Autoclave – 60 lit [Make: Osworld, Mumbai, India, Year of Installation: 2013]			
3.	Buy-back price for old Precision Balance [Make: Precisa, Model XB220A]			
4.	Buy-back price for old BOD Incubator (2 nos.) [Make: YOMA, YORKO (Double Door) India, Year of Installation: 2009]			
5.	Buy-back price for old Oven [Make: Heraeus Instrument, Germany, Model T_6 Year of Installation: 2005]			
6.	Buy-back price for old Water Purification System [Make: Millipore, U.S.A ELIX 3, 10 AND MILLI Q Year of Installation: 2007]			
7.	Buy-back price for old UV – VIS Spectrophotometer [Make: Varian, Australia CARRY 50 BIO Year of Installation: 1989]			
	Buy Back Total (Part E)			
	Net Amount(Part(A)+Part(B)+Part(C)+Part(D)-Part(E))			

Note1:

(a) The financial bid has to be filled necessarily in the format given above and has to be signed by the authorized representative of the bidder with full name designation and seal on each page. The above quote should include Clearing and Transportation charges and cost of necessary civil/electrical work required for installation of equipments to be carried out by the successful bidder.

(b) **This project is a turnkey project.** The bidder has to quote price for all the items mentioned above. In case bidder fails to quote price for all the items his bid will not be considered for evaluation. Consortium is allowed as a single entity or a subsidiary.

(c) Price quoted should be valid for minimum 06 months from the last date of submission of the bids.

(d) Explanatory notes, if so desired, can be separately submitted along with the financial bid but financial bid in the above format is required to be submitted.

(e) Setting up of Microbiology section, supply and installation of equipment time should be completed within **120 days** from the date of issue of Supply order.

(f) Please indicate separately any duties, taxes.

Note 2 : The rate may be quoted in foreign currency and/or in Indian currency, however, for comparison/evaluation purpose the bills selling market rate of exchange established by RBI for

similar transaction as on date of opening of price bid shall be used to convert foreign currencies to the Indian rupees.

Note 3 : Determination of L-1 will be done based on Net amount (not including levies, taxes and duties levied by Central/State/Local governments such as excise duty, GST, Octroi/entry tax, etc. on final product) of all items/requirements as mentioned above.

Signature of tenderer_____
Name in Block letter _____
Date _____
Capacity in which Signed_____

Sd/-

(Umesh Kumar Jain)
Joint Director(QA)

Annexure: II

CERTIFICATE OF GUARANTEE/WARRANTY

i. I/We certify that the standard guarantee/warranty shall be for the period of 05 years starting from the date of satisfactory installation, commissioning and handing over of the equipment and of the works conducted therewith covered under the Supply order in working order. During the guarantee/warranty period. I/we shall provide free "after sale service" and the replacement of any part(s) of the equipment or rectification of defects of work of the equipment will be free of cost. The replacement of the parts shall be arranged by us, at our own cost and responsibility. We undertake that the above guarantee/warranty shall begin only from the date of satisfactory and faultless functioning of the equipment for 60 days at **CFL, Kolkata** premises. The benefit of change in dates of the guarantee/warranty period shall be in the interest of the user/your organization.

ii. During the warranty period, we shall provide at least **02 preventive maintenance service per year**.

iii. Uptime Guarantee: During the guarantee/warranty period, we will be responsible to maintain the equipment in good working conditions for a period 328 days (i.e. 90**% uptime**) in a block of 365 days.

   a. All the complaints will be attended by us within 02 working days of receipt of the complaint in our office.
   b. In case there is delay of more than 02 days in attending to a complaint from our side then you can count the number of days in excess of the permissible response time in the downtime. The above said response time of 2 days for attending to a complaint by us will not be counted in the downtime.
   c. **Penalty**: We shall pay a penalty equivalent to **0.5 %** of the order value of the equipment for every week or part thereof delay in rectifying the defect.

Note: The right to accept the reason (s) for delay and consider reduction or waive off the penalty for the same shall be at the sole discretion of FSSAI/Director, CFL, Kolkata

iv. We undertake that all the spares/consumables related to equipment & exclusively supplied by manufacturer/supplier of the equipment shall be covered under warranty. Nothing shall be payable on account of these items during warranty by the Buyer.

v. We certify that the equipment being/quoted is the latest model and that spares for the equipment will be available for a period of at least 10 years and we also guarantee that we will keep the organization informed of any up date of the equipment over the period mentioned against each equipment.

vi. We guarantee that in case we fail to carry out the maintenance within the stipulated period, **Director**, **CFL, Kolkata** reserves the right to get the maintenance work carried out at our risk, cost and responsibility. All the expenses including excess payment for repairs/maintenance shall be adjusted against the Performance Bank Guarantee. In case the expenses exceed the amount of Performance Bank Guarantee, the same shall be recoverable from us with/without interest in accordance with the circumstances.

vii. We shall try to repair the equipment at **CFL, Kolkata** premises itself. However, the equipment will be taken to our site on our own expenses in case it is not possible to repair the same at **CFL, Kolkata**. We shall take the entire responsibility for the safe custody and transportation of the equipment taken out for repairs till the equipment is rehabilitated to the **CFL, Kolkata** after repairs Any loss of equipment or its accessories under its charge on account of theft, fire or any other reasons shall be at our sole risk and responsibility which will be compensated to the Buyer for such losses at the order value for the damaged/lost equipment/part, including accessories.

viii. We undertake to perform Quality check after every major repair/breakdown/taking the equipment for repair out of **CFL, Kolkata** premises.

ix. In case of extended guarantee/warrantee, we undertake to carry out annual calibration/IPV of the equipment.

x. We guarantee that we will supply spare parts if and when required on agreed basis for an agreed price. The agreed basis could be an agreed discount on the published catalogue price.

xi. We guarantee to the effect that before going out of production of spare parts, we will give adequate advance notice to you so that you may undertake to procure the balance of the life time requirements of spare parts.

xii. We guarantee the entire unit against defects of manufacture, workmanship and poor quality of components.

xiii. We undertake to provide PM kit as per requirement to meet uptime guarantee condition.

1. Authorized signatory
(with seal)

Date

Place

2. Authorized signatory

NOTE:

1. This should be submitted on the letter head of the bidder company/firm.