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 01 Feb, 2018

RFP No. 04/2017-18 FOR SETTING UP MICROBIOLOGY SECTION AND INSTALLATION OF EQUIPMENTS: CORRIGENDUM

Further to this office Tender Enquiry No. 04/2017-18 dated 03rd January 2018 and Pre-Bid conference held on 12th January 2018.

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

(a) Last Date and Time for Receipt of Tenders: **26 Feb 2018 at 1500hrs**

(b) Date and Time of Opening of Tenders: **26 Feb 2018 at 1530hrs**

(c) Part II- Essential Details of items/services required is **revised** as under:

1. **Schedule of Requirements** – List of items/services required is as follow :-

Sl. No	Items	Qty (Nos)	Purpose
1.	**Modular clean rooms**	**01**	For Bio-burden reduction in working area of microbiology lab.
2.	**Bio-Safety Cabinet (Class II Type A2)**	**02**	For safe handling of pathogens and sample & For handling media and test items
3.	**Vertical Top Loading Autoclave**	**02**	For sterilization of media / glassware
4.	**Laboratory Refrigerator -2°C – 8°C**	**02**	For Storage of reference cultures and Test reagents / Enzymes etc.
5.	**Digital Electronic Precision Balance**	**02**	For weighing at low level
6.	**Circulating water-bath -10°C-100°C, 15 Ltr**	**02**	Tempering of microbial media
7.	**Incubator (Multi chambered)**	**01**	Suitable for conducting independent incubations in four chambers.
8.	**Hot Air Oven**	**01**	For sterilization
9.	**Fumigator / Fogger**	**01**	For room disinfection

Sl. No	Items	Qty (Nos)	Purpose
10.	**Automated pathogen detection and Identification**	**01**	For rapid detection and identification of Pathogens
11.	**Automated Microbial enumeration system**	**01**	For rapid enumeration of Pathogens
12.	**Real Time PCR System**	**01**	Gold Standard for pathogen detection
13.	**Automatic colony counter (bench-top, digital)**	**01**	For microbial enumeration
14.	**Anaerobic Chamber**	**01**	For growing anaerobes with strict gas requirements - Clostridium, Campylobacter, etc.
15.	**Water purification system**	**01**	For generation of laboratory grade water for Microbiological purpose
16.	**Fully Automated Elisa Reader & Washer**	**01**	For analysis of Staphylococcal endotoxin, Mycotoxins
17.	**Temperature data logger**	**06**	For routine temperature calibration checks
18.	**Digital Trinocular Microscope with image processing system and digital camera**	**01**	For direct count of microorganisms and their structural identification
19.	**Automatic Safety Bunsen Burner**	**01**	For streaking of pathogens
20.	**Shaking Incubator**	**01**	For enrichment of bacteria
21.	**Membrane Filtration System**	**01**	For Water microbiology
22.	**Stomacher**	**01**	For sample homogenization
23.	**Air Sampler**	**01**	For routine bio-burden checks of clean-room
24.	**Laboratory glassware washer/dryer**	**01**	For routine glassware cleaning
25.	**Bench top UV-visible spectrophotometer**	**01**	For Water Quality Testing
26.	**Digital Thermohygrometer**	**01**	For Routine monitoring of Room Temp. & Humidity
27.	**pH Meter**	**01**	For pH checks of prepared Media and Sample

Note 1 : The bidders has to quote for all the items mentioned above. In Case bidder fails to quote for all the items mentioned above his bid will not be considered for evaluation. Consortium is allowed as a single entity or a subsidiary.

Note 2 : Necessary Civil/Electrical work required for installation of equipment's mentioned above shall be carried out by the successful bidder.

2. Revised Technical Details:

REVISED *SPECIFICATIONS*

Sl.No	Item	Specifications
1.	**Modular clean rooms ***	**Details of Specifications for Cleanroom, Furniture and Lab lay out – Attached as ANNEXURE - II**
2.	**Bio-Safety Cabinet (Class II Type A2)**	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. External surfaces to be coated with antimicrobial coating to protect against surface contamination and inhibit bacterial growth. 4. Work Table: It should be of IS 304 Grade Stainless Steel with finish 4 polish surface Front door 5 mm thick Toughened glass, vertical sliding, with Feather touch Motorized operation, while opening the door UV Lamp will be cut “OFF” And while closing the door UV Lamp will be “ON” Automatically. 5. Floor standing model with castor wheel and lock 6. System should be class II Type A2 with 70% recirculation and 30% Exhaust using HEPA filter with particle retention better than 99.999% for 0.1- 0.3 micron particles and front accessible for economical and easy replacement 7. It should have Inbuilt fumigation port for decontamination. 8. Germicidal UV lamp - Controlled by automatic UV lamp timer (lamp hours) a) Emission of 254 nm b) Lamp should be positioned away from operator line of sight for safety and proper exposure to interior surfaces. c) UV lamp should be in working zone (40 micro watts/ square cm at 254 nm or better) d) The UV lamp should automatically switch “off” when the front door is opened to avoid accidental exposure of UV rays to the users’. 9. System should have following standard feature a) Nominal inflow velocity of 95 ±10 feet per minute (fpm) (0.5 m/sec) b) Nominal down flow velocity of 55± 5 fpm (0.3 m/sec) 10. Blower system: It should have one set blower system, which consists of dynamically & statically balanced aluminium centrifugal impeller driven by 1/4 HP, single phase,1200- 1400RPM motor, enclosed in an PU coated GI casing suitably suspended in a pair springs & connected to the filter chamber through flexible canvas 11. HEPA filters should have

Sl.No	Item	Specifications
		• Size: 30” x 18” x 3” • Type: Separator less type, Mini-Pleats HEPA Media • Media: Ultra clean glass fiber paper • Retention: 0.3 Micron • Efficiency: 99.997% or better • Initial Pressure: 16 mm WG • Grade : H13 rating 12. **Prefilters:** • Size : 600 x 300 x 65 mm • Media : Synthetic, non-woven polyester • Casing : Epoxy painted GI frame • Retention : 10 Micron & above • Efficiency : 90% • Initial Pressure: 6 mm WG • Grade : F7 rating 13. Interior-mounted, line-of-sight color display Should have LCD information centre display showing the following measured parameters \ • stage velocity, • total using time, • UV lamp on/off, • Differential pressure indicator • “Filter Life Remaining” bar graph, status line for alarm conditions • alerts to warn when filter life diminishes to 20%, 10% and 0% 14. Filter monitoring system consisting of an electronically commutated motor (ECM) that delivers a precise volume of air as required and automatically adjusts as filters load without relying on airflow sensors 15. Cabinet should have 1. Pressure gauge, 2. motor voltage regulator, 3. audible and visual window alarm, 4. main and outlet power circuit breakers, 5. Power switches for exterior mounted fluorescent lights and / or ultraviolet lights, interior outlets, and blower motor etc 6. Lighting: located outside the contaminated work area. • High intensity, low wattage >800 lux • It should be 15 Watts, ,1½ Feet length,- 1 No. each Choke less to withstand larger fluctuations in voltage, • Must be placed in a position to avoid turbulence in working area

Sl.No	Item	Specifications
		7. Touchpad control on right-hand side post for manual activation of blower, light, timer, audible alarm mute and menu selection. 8. Radiuses type 304 stainless steel interior and removable, seamless, dished work surface with lift out knobs 9. Service fixture one no with ball-type valve Epoxy-coated steel exterior 10. Towel catch located under work surface 11. Cleaniliness level: The system should have CLASS 100 (ISO 5 for particle sizes 0.5 µ < 3530 particles/M^3 of air at both at Rest & Operation Condition as per ISO 14644 –1 12. Electrical sockets or Pass Through Ports a) Side mounted switches for minimum three (15/5 amp) electrical sockets for ancillary equipment operation or b) Convenient rear-wall pass through ports for safe routing of instrument cords, cables and leads for 15/5 amps multiple socket with switches on the wall. 13. System should have RS232 port to transmit the data. 14. Curved stainless-steel inlet grille with Reserve-Air Secondary Airflow Slots or Arm Rest type. 15. Other accessories •Two gas outlet in the working area, one on each side wall •Leveling Screws & Castor Wheels •DOP test port •Fitted with UV Germicidal lamp for sterilization. •Pre-installed pressure gauge for Measurement of HEPA Filters Choking system. 16. Alarms: should be Audible or highly visual alarm for filter replacement warning • installed to indicate loss of exhaust flow. • to warn the operator if the window is raised above the recommended height 17. Certificates required • Test Certificate for Mini-Pleat HEPA Filters • Calibration Certificate for Pressure Gauge • Calibration Certificate for Air Velocity Anemometer, 18. System should come along with the entire necessary accessory and should be ready to work. 19. 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.

Sl.No	Item	Specifications
		20. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from 60 days of satisfactory performance as certified by CFL, Kolkata. **21. Buy-back price for old Biosafety Cabinet – 4 ft [Make: Amar Chand & Co., Ambala, India, Year of Installation: 2008] may also be quoted**
3.	**Vertical Top Loading Autoclave - 2 nos (Capacity – 80 lit, 50 lit aprox.)**	1. Design - Vertical, 2. Capacity: 80-100 liters internal chamber volume. 50-55 liters internal chamber 3. Single door high pressure steam sterilizer with double/triple walled, steam jacket and separate boiler. 4. Material of construction: Sterilizer chamber SS 304; Door SS 304; Jacket MS; Loading carriage SS 316; Transfer trolley: MS, painted; Door Gasket: Silicon or better; Insulation: fibre glass resin bonded wool or better; Insulation cover: SS sheets. 5. Operating temperature: • Maximum 123°C • Temperature Accuracy: ± 0.5 °C at 121 ° C • Must have Temperature calibration function 6. Operating pressure • 15 -20 psi • ANALOG PRESSURE GAUGE (0 -400 psi pressure guage) indicating actual pressure 7. Automatic START/STOP timer 8. Unwrapped Cycle Time Cold:55 Mins, Hot:40 Mins approx. 9. Accelerated cooling technology 10. Sterilizer should be provided with steam generator with Built in steam exhaust bottle. 11. Spring loaded safety valves and automatic vacuum breaker for jacket 12. Removable plug screen for chamber drain. 13. SS baffle for even steam distribution in the chamber. 14. Safety valve protection against poor pressure. 15. Safety lock for door: pressure lock safety device. 16. Advanced Microprocessor based Control Panel 17. Should be equipped with following safety alarms a) A cycle cannot start if the Automatic START/STOP timer door is open or not properly locked

Sl.No	Item	Specifications
		b) The door cannot unlock until chamber pressure reaches room pressure c) Over-Temperature Cut-Off with audio visual alarm d) Low Temperature Warning: If the temp. stays below 121°C for more than 5 seconds e) Low Heat Warning: If the temp. does not reach the sterilization temperature during the set periods f) Over-Pressure Cut-Off with audio visual alarm g) Over Current Cut-off with audio visual alarm. h) Low Water Level heater cut-off and ALARMS. 18. Should come with inbuilt printer and option to print after every 1 minutes during operation and also they should provide external temperature sensor. 19. System Configuration Accessories, spares and consumables: a) System as specified b) Should provide available spares and consumables for at least 10 years c) Should provide a sufficient quality of consumable along with the equipment d) Data logger e) Baskets & containers required for holding flasks, tubes etc. – Number – 2 (1 basket made of punched metal & 1 Bucket without holes) Size - 345×181mm (80 lit), 300×182 mm (55 lit) Quality - Stainless Steel 20. Certificate from ISO17025 accredited lab for temperature, pressure gauges & timer. 21. Environmental factors: Shall meet IEC-60601-1-2: 200 (Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. 22. Power Supply: Power input to be 220-240VAC, 50Hz,/440 V 3 Phase as appropriate and fitted with plug compatible with local sockets 23. Warranty: Warranty against all manufacturing defects. Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata. **24. Buy-back price for old Fully Automatic Autoclave – 60 lit [Make: Osworld, Mumbai, India, Year of Installation: 2013] may also be quoted**
4.	**Laboratory Refrigerator - 2°C – 8°C (2 nos.)**	1. Hermetic compressor with Microprocessor Temp. Control (Temp. Range: 2°C to 14°C) 2. Control panel should be at eye level with Digital Temperature display & Alarms 3. Capacity: 300-500 L 4. Fan forced air circulation to ensure stable & uniform preservation environment

Sl.No	Item	Specifications
		5. Should be frost free 6. Should have Easy visibility with 2 sliding glass doors with double paned glass with heat reflective film to block heat/UV rays 7. Should have Door open Alarm, Hi/Lo Temperature alarm (both audible & visual) 8. Should have abnormal Temperature safety device to prevent the contents of refrigerator from freezing or temperature from rising abnormally while alarms are activated 9. Interiors and exteriors should be chemical resistant and rust free 10. Should have Monitoring hole & Interior fluorescent lamp 11. Shelves should be of rigid wire with polyethylene coating 12. Evaporator: Should be Fin & tube; Forced air circulation type & Condenser: Wire & tube 13. Insulation: CFC Free rigid foamed-in-place polyurethane 14. Warranty period: Minimum TWO years warranty period 15. Operator and service manual essential requirement 16. Quality Certification: Only international quality CE certified product
5.	**Digital Electronic Precision Balance – 2 nos.**	1. Type – Top loading Precision Balance 2. Fully automatic time and temperature controlled internal calibration and balance should be capable to adjust itself Auto zero setting. 3. Range (weight) - 0.01gm - 1200gm 4. Accuracy: 0.01gm 5. Readability: 0.001gm 6. Capacity: 1200gm, Covered type - Glass draft shield with sliding door required.. 7. Repeatability: 0.001gm 8. Linearity: 0.002gm 9. Response time: 1.5 s 10. Display: Touch Screen 11. Stabilization Time, 2 Seconds (typically). 12. Calibration certificate from NABL accredited calibration laboratory should be supplied along with the eqp. 13. Warranty: Minimum 12 months warranty against all manufacturing defects. **14. Buy-back price for old Precision Balance [Make: Sartorius, LP1200S Year of Installation: 2007] may also be quoted**
6.	**Circulating Water bath**	1. Internal Bath (volume) Capacity - 15 Ltr. 2. Should be rounded, seamless double walled stainless steel bath to preventing rust, chemical damage and contamination. Powder coating like epoxy coating exterior for easy cleanup

Sl.No	Item	Specifications
		3. Corrosive resistant stainless steel Gabled drip free lid 4. Temperature a) Temperature range 20°C to 99°C b) Temperature Accuracy: ± 0.2 °C at 37.0°C c) Temperature Uniformity: ± 0.5 °C at 37 .0°C d) Digital LED display for operating status of TEMP e) Over-Temperature Cut-Off f) Temperature calibration function 5. Advanced Microprocessor based Control Panel with digital display with an accuracy of ±0.5^{o}C 6. Bath consists of two pilot lamp, temperature control knob and ON/OFF switch to work on 220/230 volts AC supplied with stirring arrangement without racks and thermometer.. 7. Number and types of racks - tube racks for 15ml x 40 and 50ml tubes x 40 – 2 nos each 8. Low level water sensor. Audible warning safety alarms should be there for high/low temperature warnings, and dry running protection. 9. Instrument should have lift up bath cover; Carrier racks should be given for flasks and test tubes racks. 10. A cock should be provided to facilitate draining of bath contents. 11. Water bath protective media should be there to prevent contamination and formation of algae. 12. Heating capacity - 2 KW; should have all the accessories required for the functioning of the equipment. 13. All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment. 14. Warranty: Minimum 24 months warranty against all manufacturing defects.
7.	**Incubator (Multi chambered) – 2 nos**	1. Configuration: Multi-chamber: 4 chambered, floor-standing model with Castor wheels 2. Capacity (Individual Chamber volume) 50-60 L x 4 chambers 3. Independent Temperature Control of Each Chambers 4. A minimum of 2 nos of SS-304 height adjustable racks in each chamber. 5. Temperature range (^{o}C): 25-70 ^{o}C, ± 0.2 ^{o}C accuracy and ±0.5 ^{o}C uniformity with programmable Temperature Control with Illumination 6. Temperature and display of each chamber to be controlled independently). 7. Independent temperature control system for each chamber to provide precise temperature 8. Stainless Steel 304 Inner Chambers

Sl.No	Item	Specifications
		9. Door specification: Solid installed with lock 10. No. of Perforated shelves per chamber minimum 2 Nos 11. Digital PID Controller or Programmable Controller 12. Over Temperature Protection, Over Current Leakage Breaker 13. Adjustable time and interval 14. Magnetic door closure with positive sealing gasket 15. Suitable on - line UPS (5 KVA) to support the instrument. 16. Certification: Traceable Temperature Calibration certificate for each chamber from NABL Accredited laboratory with IQ/OQ/PQ validation 17. Each equipment should be supplied with multi channel data logger for temperature 18. Warranty: Minimum 24 months warranty against all manufacturing defects. **19. Buy-back price for old BOD Incubator (2 nos.) [Make: YOMA, YORKO (Double Door) India, Year of Installation: 2009] may also be quoted**
8.	**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. Temp. Range: Ambient +10°C to +250°C with temperature setting accuracy ±0.5 °C with forced air circulation for temperature uniformity 7. Capacity: 200-300L 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. 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 hot Air Oven. as per specification.

Sl.No	Item	Specifications
		14. Certification : Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation 15. Warranty: Minimum 12 months warranty against all manufacturing defects. **16. Buy-back price for old Oven [Make: Heraeus Instrument, Germany, Model T_6 Year of Installation: 2005] may also be quoted**
9.	**Fumigator / Fogger**	1. Body should be compact, durable, leak proof and made of stainless steel /heavy duty plastic 2. Laboratory fumigator dispenser consistent particle size generation of 5-15 µ, better 3. The blower head should be rust proof inert to Formaldehyde, KMnO4, H2O2 and deliver aerosols uniformly 4. Should be compatible with wide range of disinfectant in a closed room. 5. Design- With Wheels, Vortex type. Non rotating and non closing nozzle. 6. Provided with Cable should be at least 5 meters in length, ISI marked 7. Tank Capacity- 5 liters. Easy clean, detachable and non corrosive for chemical 8. The tank capacity, discharge rate and timer on the machine should be so that the disinfectant should be able to disinfect 4000-5000 cubic feet in one cycle of 2 hours (max). 9. ELECTRICAL - 200-270V, 50 HZ. 10. Warranty: Minimum 12 months warranty against all manufacturing defects.
10.	**Automated pathogen detection and determination**	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. All inoculation strips and all reagents required for testing to be provided. 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 of detecting and enumerating: i) Salmonella species

Sl.No	Item	Specifications
		ii) Listeria species *iii)* *E.coli* iv) *S. aureus* enterotoxin v) Campylobacter *vi)* *Shigella* vii) Vibrio sps 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. 9. Negative and Positive reference organisms must be supplied with the kits 10. Detection methods must 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.

Sl.No	Item	Specifications
		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. For validation vender should having it own capability with their own company 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. 26. Suitable UPS system to be provided 27. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata. 28. Kits for pathogen screening and identification for 1000 samples may be quoted
11.	**Automated Microbial enumeration system**	1. System should be able to do microbial enumeration from food samples using protocols in compliance with AOAC/ AFNOR/ ISO methods. 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.

Sl.No	Item	Specifications
		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. For validation vender should having it own capability with their own company 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. 14. Suitable UPS system to be supplied 15. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata. 16. Kits for microbial enumeration may be quoted
12.	**Real Time PCR System**	The system should be an automated system for both Real Time PCR and post pcr analysis HARDWARE: 1. The system should be Peltier based PCR machine supporting all of the following formats: 96-well plate with optical adhesive cover, 96-well plate with optical flats caps, 8-tubes strips with optical flat caps. 2. The normalization of reaction due to non-PCR related fluctuations should be possible by using any passive reference dye is essential. 3. The excitation source should be bright white LED/Laser/halogen and the detection system should be through photodiode/CCD Camera. 4. The built-in emission filters to support a broader range of fluorophores with a higher sensitivity for longer wave length (red

Sl.No	Item	Specifications
		dyes). The system should be configured and calibrated to use any of the following dyes or a combination thereof: FAM™,SYBR® Green, VIC®, JOE ™, HEX, TET, BY®, NED ™, TAMRA ™, Cy3®, JUN®, ROX™, TEXAS RED®, and capability of multiplexing for five targets or better. 5. The hardware must provide Peltier thermal cycling with pre-configured mode for Fast-PCR (40 cycles in less than 35 minutes) as well as Standard-PCR run in the same block. 6. System must have flexibility of running 2-3 different temperatures simultaneously in the same run with different set of annealing temperatures in a single run. 7. The system should have temperature range at least 4 ^{o}C-100 ^{o}C to facilitate incubation of samples at low temperature. 8. The system should have peak block ramp rate for heating and cooling exceeding 4.6 ^{o}C/ second with temperature uniformity of 0.4 ^{o}C or better and 0.25 Temperature Accuracy. Vendor should specify the sample ramp rate and should be more than 3.5°C/sec 9. System should support minimum recommended reaction volume of 10 µL and thermal cycling conditions to eliminate optimization of PCR conditions for running the templates from different sources simultaneously although lower would be preferred to minimize reagent consumption. 10. The instrument should have real time quantitative PCR installation specification which demonstrates the ability to distinguish between 1.5 fold templates copies with a confidence level equal to 99.5% or better to be demonstrated with RNase P instrument verification plate required to be done at the time of installation. 11. The system should have preferably Touch Screen LCD feature with real time visuals of amplification plots etc to avoid dependency on computer for operation with USB port. 12. Computer: A business line computer (either notebook or tower) for system control, operation, analysis, net-working of multiple systems and a USB port for data export to Power point, Excel or JPEG file formats with colored laser printer 13. Latest compatible data workstation with all system software and monitor should be provided with the system. 14. Installation specifications must demonstrate the ability to detect differences as small as 1.5 fold or better in target quantities 15. IQ/OQ should be provided for the instrument 16. A compatible 2 KVA true online UPS with 30 minute backup should be provided along with instrument. 17. Vendor should provide a complete line of reagents including 1)Taq Man universal PCR master mix (500 reactions) 2)SYBR Green master mixes (500 reaction) and disposables including tubes, 96 well plate for use with the system for onsite application training after installation and 3) TAQMAN RNASE P 96-well instrument verification plate. SOFTWARE:

Sl.No	Item	Specifications
		18. Dedicated licensed full version software for primer and probe design must be included in the supply. 19. The instrument should have licenced software that can analyze multiple perspectives in the Multiple Plots view, with side by side views of all data aspects including the amplification plots, standard curve, multi-component data plots, and raw data. 20. The system should also include software to support applications including absolute quantitation, Relative quantitation, multiplex-PCR, allelic discrimination (SNP), high resolution melt curve analysis as well as pathogen detection and plus/minus assay using internal positive control. 21. The instrument software should have a multi-componenting algorithm designed to provide precise deconvolution of multiple dye signals to enable the simultaneous detection of multiple fluorophores, 22. Should be supplied with Software for applications including absolute quantification, relative quantitation /gene expression/ SNP detection analysis. Licensed software should also include and supply statistical analysis tools like Box-Whisker plots to assess Ct distribution, scatter plots and heat maps to assess sample correlation and quality 23. The instrument software should have experimental design wizard and reaction setup information including pipetting protocols. 24. Should support remote monitoring through a web browser-based software for accessing and analysing data anywhere and anytime in the worl 25. The vendor should clearly indicate compliance or deviation vis –a vis the tender specifications and should be highlighted in the literature or manuals. 26. The instrument should be UL approved and manufactured according to ISO 9001 standards. 27. The vendor supplying the instrument should have own application support laboratory in India, preferable in West Bengal for local and efficient after sales service support. 28. Three years warranty with one year spare replacement, if required. 29. Suitable on - line UPS (about 2 KVA) is required to support the instrument.
13.	**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

Sl.No	Item	Specifications
		7. Counting - Automatic, with manual control 8. Counting on petri dishes 90mm or higher 9. Counting on pour, Surface plates Yes; Optional – Petrifilms, Chromogenics 10. Data export PDF, JPEG, BMP, PNG and EXCEL 11. USB Connection should be there 12. Computer system - Laptop with Windows 10, 3 GB RAM, Graphics Card, i-5 or higher processor 14 Guarantee 3 years 13. Compliance GLP (Good Laboratory Practice) & full traceability 17. For validation vender should having it own capability with their own company 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. 18. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata.
14.	**Anaerobic Chamber**	1. Capacity (Litres) 300-400; 2. Capacity (Petri Dishes) 400 or more 3. Port / Airlock Capacity 30 plates or more via airlock 4. Porthole System Manual or Instant Access Ports 5. Gas Supplies ANO2/N2 with gas regulator, gas leak detector 6. Footswitch Preferably Wireless type 7. Airlock Cycle Time Automatic with timer option 8. Automatic Dehumidifier Fitted as standard 9. Desired purity level: H2O< 1 ppm, O2< 1ppm 10. Piping: Copper or stainless steel 11. Electrical power: 230 V/50-60 Hz, 10 A or 115 V / 50-60 Hz, 20 A or 100 V/ 50-60 Hz, 20 12. Glove Ports, Gloves Material: Butyl, thickness 0.4 mm or more 13. Dimensions (w/d/h - mm) 1255 / 720 / 710 14. Weight (lbs/kg) 220 / 100 15. Temperature Range 5°C above ambient up to 45°C 16. Touch screen Control Desirable 17. Circulation Unit: Flow rate of around 20 m3 /h (Working gas Nitrogen) 18. Vacuum pump: < 3X10-2 mbar 19. Sliding Tray: Stainless steel or other corrosion free material

Sl.No	Item	Specifications
15.	**Ultrapure water purification system**	1. Ultra pure water system should take at least 100 Micro Siemens of Water conductivity and should deliver ultra pure product water by point of use dispenser with rocker arm, volumetric dispensing and auto shut off facility having i) Resistivity > 16 Megaohm-cm ii) Conductivity < 0.06 Micro-Siemens iii) TOC level < 10 ppb iv) Flow rate > 1 lit / min 2. Should have separate feed water specific purification cartridge and application specific polishing cartridge 3. Should have a vertically placed dual wavelength (185 & 254nm) hotcathode, UV lamp with ballast and quartz sleeve placed in a electro polished housing. 4. Final filter 0.22 micron PVDF validated membrane. System should have option for producing Pyrogen/Rnase-free water with UF cartridge. 5. Point of use gun with rocker arm and volumetric and fixed volume dispensing (3% accuracy), with a green LED 6. Built in coaxial resistivity meter with a cell constant of 0.01/cm and 0.1degree C accuracy thermistor 7. Maintenance display for sanitization, exchange purification cartridges, activation of fast flush, depressurization, air purge 8. Control display showing product water resistivity / conductivity both compensated and non compensated mode, product water temperature, product water resistivity greater or below set point **9. 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**
16.	**Fully Automated Elisa Reader & Washer**	A PC based fully automated ELISA Plate reader with double beam optics with pre-programmed applications able to support all plate formats U bottom, V bottom and flat bottom 8/12/96-well micro plates and provision for conventional quartz / glass/plastic cuvettes with all the required accessories. 1. Should have inbuilt Shaker with linear/orbital mode 2. Should be automatically programmed with on-board touch screen & soft keys 3. Capable of storing method with analysis:> 100 method programs on the instrument 4. Detector: Silicon Photodiode dual detector/PMT a. Wavelength Selection: Wave length selection should be double monochromatic with 1nm increment b. Temperature control: Up to 60 C or better c. Light Source; Halogen lamp for Visible range

Sl.No	Item	Specifications
		d. Deuterium Lamp for UV range, light source should be auto automatically selected as per wavelength required. e. Scan Ordinate Modes: Absorbance, % Transmittance, % Reflectance f. Resolution: 0.001 A or better. g. Wavelength Range: 300 –750 nm h. Accuracy 1% or ± 0.01 A or better for entire range i. Repeatability: 05 % ± 0.005 A or better j. Photometric Range: Absorbance 0-3.0 Abs k. Photometric Accuracy: I. 1A± 0.015A for single wavelength II. 2A: ± 0.02A for dual/multiple wavelength l. Linearity : ± 2 % from 0 to 3.000 A at 405 nm m. Reproducibility: ± 1 % from 0 to 3.000 A at 405 nm n. Reading time: < 15 secs for 96 wells o. Noise: 0.00005 Abs RMS (500nm) or better p. Stability & Drift: Automatic calibration between each plate reading q. Baseline flatness: ± 0.0005 Abs or better 5. Software Compatible Software should be user friendly & simple for data handling with feature like easy to use report publisher, online help and answer wizard, GLP & audit trail and fully compatible with Windows. System built in features such as real time display of concentration, photometric mode, single /multi-wavelength. System should have capability to do qualitative, quantitative, kinetics with any formulae including validation, transformation, and factors and floating cut off., 6. **The software should be 21CFR part 11 compliant**. 7. Validation Plates for hardware validation of absorbance must be provided 8. Plate Incubator a. Compact Digitally controlled with orbital shaking b. Should hold two 96 well microplates, for mixing and/or incubating. c. Speed 400 to 1200 rpm or better d. Ambient to 40°C with resolution of 0.1°C. e. Digital timer 9. ELISA Microplate Washer: a. Fully automatic. b. Should Wash flat, round, and V-bottom plates and strips c. Automatic calibration, alignment, and last row detection d. Should have 2-4 independent liquid channels e. Wash volume per well should be programmable f. Residual aspiration volume < 2µL

Sl.No	Item	Specifications
		g. Auto-water detection of waste and buffers bottle levels. h. With Audible alarm when waste bottle is full and when buffers are empty 10. ELISA Plates: 96 well ELISA Plates 200 Nos 11. Computer and Printer: Latest configuration factory set branded PC system with 22-23'' Full HD Monitor with printer –B/W – duplex-laser-legal, A4 - 1200dpi-up to 21 ppm –capacity with network card 12. Suitable UPS with 60 mins backup power for washer incubator and reader 13. Certificate from an ISO 17025 accredited calibration lab for spectral calibration 14. Compliance: IQ/OQ/PQ of instrument and Software should be provided along with document 15. Operation and training component: The supplier will have to carry out successful Installation at the laboratory premises and provide on – site comprehensive training to scientific personnel operating the system till customer satisfaction 16. Warranted for 3 years after satisfactory installation and working excluding consumable parts and accessories.
17.	**Temperature data logger**	1. Purpose of Equipment: Functions as portable monitor for use in refrigerators/ Oven/Incubators. 2. It displays 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. Reading software and cable needs to be provided. 12. The equipment quoted should be CE Certified or USFDA approved.
18.	**Digital Trinocular Microscope with image processing system and digital camera**	1. Optical system Infinitely corrected system Focus Vertical stage movement 25mm or more for course stroke vertical stage movement 1micron or less for fine stroke Illuminator Lamp house for 100 watts halogen lamp with DIC upgradable. 2. Revolving nose piece: Reversed sextuple revolving nose piece should be upgradable to DIC in future 3. 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)

Sl.No	Item	Specifications
		4. 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. 5. Condenser Swing out condenser usable for 2X-100X. 6. Camera & software Digital pool CCD camera approx. 3MP/4MP, with 10 bit digitalization, 2048X1500. 7. Software to capture and image processing. 8. Computer system i5 processor, 4GB RAM,500GB HDD, DVR R/ W, TFT 20". Microscope, camera and software should be from same manufacturer. 9. Buy Back Price for Leica DM LM/P/11888500 Bright field Microscope with Image Analyzer, Year of Installation – 2003 may also be quoted
19.	**Automatic Safety Bunsen Burner**	1. Safety Bunsen Burner with flame monitoring and overheating protection for safe operation. 2. The flame can be rapidly ignited by a footswitch or the push button without the need of a lighter or matches. 3. Two adjustment knobs for air and gas to allow easy fine-tuning of flame size and temperature. 4. The Safety Bunsen Burner should be compatible to common gas types such as butane/propane and natural gas and can be connected to either a gas distribution system or to different gas cartridges. 5. For heating applications or to flame-sterilize necks of large Erlenmeyer flasks, the Safety Bunsen Burner should be equipped with a long burner head. The quick coupling of the burner head 6. The smooth, chrome-plated metal housing is easy to clean and both UV- and solvent-resistant.
20.	**Shaking Incubator**	1. Overall internal dimensions (W x D x H): Minimum 62 x 75 x 82 cm 2. Body: Epoxy Powder Coated Steel Chamber made with corrosive resistant stainless steel 3. Temperature Range: +20°C to 99°C 4. Temperature Accuracy: ± 0.2 °C at 37 .0°C 5. Temperature Uniformity: ± 0.5 °C at 37 .0°C 6. Shaking Motion: Linear (Reciprocal) Motion with interchangeable holders for Erlenmeyer flasks (10ml, 25ml, 50ml, 125ml, 250ml, 500ml), test tubes and 1.5-2.0 vials 7. Speed Range: 25 – 400 rpm or better 8. Control: Integrated Microprocessor PID Control Auto STOP 9. Audio and visual alarms for a. Over-Temperature Cut-Off Alarm (more than 1°C from set point)

Sl.No	Item	Specifications
		b. Over RPM cut-off Alarm (more than 5 rpm) c. Over Current Cut-Off Alarm d. Completion of programme 10. Digital LED display for operating status of TEMP and RPM 11. Temperature calibration function 12. Programmable controller offering up to 4 modes of timer and parameter control for reduced user intervention. 13. Timer 0.1 to 99.9 hours or continuous mode 14. UV germicidal lights 15. Convenient bath drains 16. Removable bottom plate and shaking insert 17. Clamps and racks 125ml-10nos, 250ml-10nos, 500ml- 10nos. Test tube rack for 20x50ml tube-1 no and test tube rack for 42x15ml tubes-1 no. should be quoted. **18.** Power requirement: 230V/50-60Hz 16. Suitable Servo Voltage Stabilizer should be quoted 19. Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata.
21.	**Vacuum Pump for Membrane Filtration System**	1. Number of heads / stages 1 / 1 2. Max. pumping speed at 50/60 Hz 0.7 / 0.85 m3/h 3. Max. pumping speed at 50/60 Hz 0.4 / 0.5 cfm 4. Ultimate vacuum (abs.) 100 / 75 mbar/torr 1. Ambient temperature range (operation) 10 – 40 °C 2. Ambient temperature range (storage) -10 – 60 °C 3. Max. back pressure (abs.) 1.1 bar 4. Inlet connection Hose nozzle DN 8-10 mm 5. Outlet connection Hose nozzle DN 8-10 mm 6. Rated motor power0.04 kW 7. Rated motor speed at 50/60 Hz 1500/1800 min-1
22.	**Stomacher/Lab Blender**	1. The unit should have a. Chamber of stainless steel with an opening door b. Should have multi-function digital display Provision of adjustable blending power with on screen indicator. c. Should have provision of removable paddles for cleaning and autoclaving d. Should have facility for side by side paddle stop. e. Provision of fully opening door facility for easy cleaning 2. Disposable bag size: Appropriate to the model & capacity quoted

Sl.No	Item	Specifications
		3. Capacity 50-400 ml 4. Temperature Ambient operating temperature 10-35oC. 5. Humidity range Operating relative humidity range should be 10-89% 6. Adjustable timer settings 1sec-60 mins. 7. Paddle speed Variable speed (4-10 strokes /sec or better 8. Sensor To ensures immediate stop of blending in the event of a leakage 9. Accessories Bags (1000 numbers), Bag clips (50 numbers) Bag storage rack/stand (2 numbers) 10. Bag sealer 11. Operation and training component The supplier will have to carry out successful Installation at the laboratory premises and provide on - site comprehensive training for scientific personnel operating the system till customer satisfaction 12. Warranted for 3 years after satisfactory installation and working excluding consumable parts and accessories
23.	**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 8. For validation vender should having it own capability with their own company 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. 9. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata.
24.	**Laboratory glassware washer/dryer**	1. Chamber volume of Washer/Dryer Option 1: 150 – 200 liters capacity Option 2: 200 – 300 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 with HEPA filtered chamber 3. Front Glass Door Glass Door version – Inside chamber must be visible, while in washing/drying run.

Sl.No	Item	Specifications
		4. Control System Soft touch LCD display. Microprocessor controlled. 5. Cleaning Liquid Dispenser Minimum two automatic internal liquid dispenser 6. Standard pre-programmed cycle a. At least 10 pre-programmed standard cycles. Including Pre-set programs for chemistry glassware, bacteriology (high temperature), stubborn stains (agar) and volumetric glassware (lower temperature). b. Additional programs that can be modified to fit any. c. Water rinses for hot, cold and hot/cold DI water. d. Self-diagnostic software e. Electronic security door lock 7. Internal wash temperature control Fully adjustable wash temp. up to 90deg C 8. External tap water filtering system Must include all external tap water filtering system, preferably from local supplier 9. Rack systems and accessories to accommodate all types of glassware (beaker, flask, pipette, petri dish, burette, measuring cylinder, test tube etc) and laboratory items various configurations of sizes and quantities of jets or baskets to handle all types of glass and lab ware from bottles to pipettes. 10. Racks should be interchangeable between levels. 11. Built in Dryer Unit Built in forced air dryer unit for drying entire glassware content after the wash/rinse cycle. 12. Consumables required for washing/ drying cycle i) Must provide all necessary washing chemicals for 100 wash run cycle. ii) All quality washing chemicals must be easily available in Indian market at reasonable price (Indian Rupees). Imported washing chemicals/ consumables are discouraged. 13. Visual and audible alarms in the event of a malfunction, displaying the error 14. Certificates required a. IQ/OQ compliance b. Calibration certificates for temperature 15. Installation and Commissioning

Sl.No	Item	Specifications
		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. 16. Warranty Period Minimum TWO years full comprehensive warranty must be provided for all parts in this equipment. 17. End User Training at site Necessary end user training and instructions must be provided to all users at site. 18. List of present users in India Must provide the list of users/ customers of this equipment in India. 19. Desirable Specification: i) Telescopic bearing railing for loading the basket. ii) Operator and Service manual with all spare parts list. 20. Availability of all spare parts and service support in India.
25.	**Bench top UV-visible spectrophotometer**	1. System A fully automated spectrophotometer with double beam optics with pre-programmed applications using conventional quartz / glass/plastic cuvettes with all the required accessories. 2. Operation keys Instrument should operate immediately after switch on with no warming up time 3. Should be automatically programmed with on-board touch screen & soft keys 4. Capable to store method with analysis:> 100 method programs on the instrument, > 1000 results with data, evaluation results and used parameters 5. Optical Design Double Beam with sample and reference cuvette positions; Czerny-Turner Monochromatic/Holographic grating with sealed optics 6. Reference Compartment Should accommodate cells up to 10 mm path length as standard feature 7. Light Source a. Halogen lamp for Visible range b. Deuterium Lamp for UV range, light source should be auto automatically selected as per wavelength required. 8. Detector Silicon Photodiode dual detector/PMT 9. Scan Ordinate Modes Absorbance, % Transmittance, % Reflectance 10. Resolution 0.1nm or better. 11. Wavelength Range 180 -1100 nm 12. Wavelength Accuracy ± 0.3nm or better for entire range 13. Wavelength Repeatability ± 0.1nm or better

Sl.No	Item	Specifications
		14. Scanning Speed Selectable Variable wavelength scan rate 10nm/min to 2500 nm/min or 15. Spectral Bandwidth Variable (0.1/0.2/0.5/1/2/5) nm 16. Photometric Range a. Absorbance = -4.5 to 4.5 Abs or better. b. Transmittance & reflectance 0 to 80000 % or better. 17. Photometric Accuracy a. 0.5 A: ± 0.004A; b. 1A: ± 0.006A; c. 2A: ± 0.010A; (440 nm; traceable neutral density filters) 18. Stray Light a. Max. 0.005% (220 nm NaI) or better, b. Max. 0.005% (340,370 nm $NaNO_2$) or better c. Max. 1% (198 nm KCI) or better 19. Noise 0.00005 Abs RMS (500nm) or better 20. Drift < 0.0005 A/hr (500 nm, 1 hour warm-up) 21. Baseline flatness ± 0.0005 Abs or better 22. Application Software Compatible Software should be user friendly & simple for data handling with feature like easy to use report publisher, online help and answer wizard, GLP & audit trail and fully compatible with Windows. 23. System built in features such as real-time display of concentration, time scan, photometric mode, single/multi-wavelength, capability for event recording (e.g., addition of reagents) 24. Software should have built in Methods: a. Absorbance with one or more wavelengths, b. Scans, Nucleic acids, Proteins, OD 600, c. Evaluation: via factor, standard and calibration curve d. Dual wavelength with subtraction and division evaluation e. Method dependent evaluation: f. Absorbance, concentration via factor and standard g. Concentration via standard series using Linear regression, Nonlinear regression with 2nd and 3rd degree polynomials h. Spline analysis, i. Linear interpolation (point to point evaluation) j. Absorbance allocation via subtraction and division k. Ratio 260/280, 260/230, Molar concentration and total yield for nucleic acids. 25. The software should be 21CFR part 11 compliant.

Sl.No	Item	Specifications
		26. Accessories and spares a. One pair each of 0.5, 1 and 3 ml quartz cuvettes 10 mm path length b. One pair each of 0.5, 1, and 3 ml glass cuvettes 10 mm path length c. Cuvette holder d. Deuterium Lamp e. Halogen lamp f. Holmium oxide glass filters for wavelength calibration. g. Didymium glass filter to check wavelength accuracy h. NIST traceable Potassium dichromate 27. Computer and printer Latest configuration factory set branded PC system with 22-23" Full HD Monitor with printer -B/W - duplex-laser-legal,A4 - 1200dpi-up to 21 ppm -capacity with network card 28. UPS Suitable UPS with 60 mins backup power 29. Calibration Certificate from an ISO 17025 accredited lab for spectral calibration. 30. Compliance IQ/OQ/PQ of instrument and Software should be provided along with document 31. Operation and training component The supplier will have to carry out successful Installation at the laboratory premises and provide on - site comprehensive training for scientific personnel operating the system till customer satisfaction 32. Warranty Warranted for 3 years after satisfactory installation and working excluding consumable parts and accessories. **33. Buy-back price for old UV – VIS Spectrophotometer [Make: Varian, Australia CARRY 50 BIO Year of Installation: 1989] may also be quoted**
26.	**Digital Temperature Humidity Meter**	1. Temperature -20 °C to 60 °C ± 0.5 °C - Readability 0.1 °C 2. R.H. 5 % to 95 % R.H. ± 2.5 % - % R.H readability 3. Backlit dual display of humidity and temperature 4. Past record storage capacity 5. Min/Max/Avg data hold 6. Low battery indicator
27.	**pH cum ORP Meter**	1. pH Range -2.000 to 16.000 pH 2. pH Resolution 0.001 pH, 0.01 pH 3. pH Accuracy (@25ºC/77ºF) ±0.01 pH, ±0.002 pH 4. 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

Sl.No	Item	Specifications
		5. pH Temperature Compensation ATC: -5.0 to 100.0ºC; 23.0 to 212.0°F* 6. mV Range ±1000.0 mV; ±2000.0 mV 7. mV Resolution 0.1 mV 8. mV Accuracy ±0.2 mV (±999.9 mV); ±1 mV (±2000 mV) 9. Relative mV Calibration 10. Single point calibration 11. Temperature Specifications: a. Temperature Range -20.0 to 120.0 ºC b. Temperature Resolution 0.1 °C c. Temperature Accuracy ±0.5 °C d. °C/°F Yes 12. pH Electrode Diagnostics Glass and reference junction diagnostics (HI 11311 & HI 12301 only), out of calibration range , probe condition, response time 13. GLP Model 14. 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) 15. Connectivity - 1 micro USB port for charging and PC connectivity, 1 USB port for storage 16. Environment - 0 to 50°C (32 to 122°F), RH max 95% non-condensing 17. Battery Type/Life - Built-in rechargeable battery with up to 8 hours of continuous use 18. Power Supply - 5 VDC adapter 19. Dimensions - 202 x 140 x 12.7mm approx 20. Weight 250 g approx. 21. Warranty: 2 years including probe 6 months

6. Revised Eligibility Criteria for Pre-Qualification of bidders:

(a) Average Annual financial turnover, during the last three years should not be less than Rs. One Crore. Documentary evidence duly attested by a Chartered Accountant/Company Secretary should be submitted alongwith the Technical Bid. Bidders should also enclose notary attested copy of IT returns filed for the last three financial years, notary attested audited copy of audited accounts, balance sheet, annual report etc.

Note : There is no change from para 6(b) to 6(k).

REVISED TECHNICAL BID FORM (B)

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 :

Part A:

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
1.	**Modular clean rooms ***	**Details of Specifications for Cleanroom, Furniture and Lab lay out – Attached as ANNEXURE - II**		

Part B:

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
1.	**Bio-Safety Cabinet** **(Class II Type A2)**	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. External surfaces to be coated with antimicrobial coating to protect against surface contamination and inhibit bacterial growth. 4. Work Table: It should be of IS 304 Grade Stainless Steel with finish 4 polish surface Front door 5 mm thick Toughened glass, vertical sliding, with Feather touch Motorized operation, while opening the door UV Lamp will be cut “OFF” And while		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		closing the door UV Lamp will be "ON" Automatically. 5. Floor standing model with castor wheel and lock 6. System should be class II Type A2 with 70% recirculation and 30% Exhaust using HEPA filter with particle retention better than 99.999% for 0.1- 0.3 micron particles and front accessible for economical and easy replacement 7. It should have Inbuilt fumigation port for decontamination. 8. Germicidal UV lamp - Controlled by automatic UV lamp timer (lamp hours) a) Emission of 254 nm b) Lamp should be positioned away from operator line of sight for safety and proper exposure to interior surfaces. c) UV lamp should be in working zone (40 micro watts/ square cm at 254 nm or better) d) The UV lamp should automatically switch "off" when the front door is opened to avoid accidental exposure of UV rays to the users'. 9. System should have following standard feature a) Nominal inflow velocity of 95 ±10 feet per minute (fpm) (0.5 m/sec) b) Nominal down flow velocity of 55± 5 fpm (0.3 m/sec) 10. Blower system: It should have one set blower system, which consists of dynamically & statically balanced aluminium centrifugal impeller driven by 1/4 HP, single phase,1200-1400RPM motor, enclosed in an PU coated GI casing suitably suspended in a pair springs & connected to the		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		filter chamber through flexible canvas 11. HEPA filters should have • Size: 30” x 18” x 3” • Type: Separator less type, Mini-Pleats HEPA Media • Media: Ultra clean glass fiber paper • Retention: 0.3 Micron • Efficiency: 99.997% or better • Initial Pressure: 16 mm WG • Grade : H13 rating 12. **Prefilters:** • Size : 600 x 300 x 65 mm • Media : Synthetic, non-woven polyester • Casing : Epoxy painted GI frame • Retention : 10 Micron & above • Efficiency : 90% • Initial Pressure: 6 mm WG • Grade : F7 rating 13. Interior-mounted, line-of-sight color display Should have LCD information centre display showing the following measured parameters \ • stage velocity, • total using time, • UV lamp on/off, • Differential pressure indicator • “Filter Life Remaining” bar graph, status line for alarm conditions • alerts to warn when filter life diminishes to 20%, 10% and 0% 14. Filter monitoring system consisting of an electronically commutated motor (ECM) that delivers a precise volume of air as required and automatically adjusts as filters load without relying on airflow sensors		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		15. Cabinet should have 1. Pressure gauge, 2. motor voltage regulator, 3. audible and visual window alarm, 4. main and outlet power circuit breakers, 5. Power switches for exterior mounted fluorescent lights and / or ultraviolet lights, interior outlets, and blower motor etc 16. Lighting: located outside the contaminated work area. • High intensity, low wattage >800 lux • It should be 15 Watts, ,1½ Feet length,- 1 No. each Choke less to withstand larger fluctuations in voltage, • Must be placed in a position to avoid turbulence in working area 17. Touchpad control on right-hand side post for manual activation of blower, light, timer, audible alarm mute and menu selection. 18. Radiuses type 304 stainless steel interior and removable, seamless, dished work surface with lift out knobs 19. Service fixture one no with ball-type valve Epoxy-coated steel exterior 20. Towel catch located under work surface 21. Cleaniliness level: The system should have CLASS 100 (ISO 5 for particle sizes 0.5 µ < 3530 particles/M^3 of air at both at Rest & Operation Condition as per ISO 14644 –1 22. Electrical sockets or Pass Through Ports		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		a) Side mounted switches for minimum three (15/5 amp) electrical sockets for ancillary equipment operation or b) Convenient rear-wall pass through ports for safe routing of instrument cords, cables and leads for 15/5 amps multiple socket with switches on the wall. 23. System should have RS232 port to transmit the data. 24. Curved stainless-steel inlet grille with Reserve-Air Secondary Airflow Slots or Arm Rest type. 25. Other accessories •Two gas outlet in the working area, one on each side wall •Leveling Screws & Castor Wheels •DOP test port •Fitted with UV Germicidal lamp for sterilization. •Pre-installed pressure gauge for Measurement of HEPA Filters Choking system. 26. Alarms: should be Audible or highly visual alarm for filter replacement warning • installed to indicate loss of exhaust flow. • to warn the operator if the window is raised above the recommended height 27. Certificates required • Test Certificate for Mini-Pleat HEPA Filters • Calibration Certificate for Pressure Gauge • Calibration Certificate for Air Velocity Anemometer,		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		28. System should come along with the entire necessary accessory and should be ready to work. 29. 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. 30. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from 60 days of satisfactory performance as certified by CFL, Kolkata.		
2.	**Vertical Top Loading Autoclave - 2 nos (Capacity – 80 lit, 50 lit aprox.)**	1. Design - Vertical, 2. Capacity: 80-100 liters internal chamber volume. 50-55 liters internal chamber 3. Single door high pressure steam sterilizer with double/triple walled, steam jacket and separate boiler. 4. Material of construction: Sterilizer chamber SS 304; Door SS 304; Jacket MS; Loading carriage SS 316; Transfer trolley: MS, painted; Door Gasket: Silicon or better; Insulation: fibre glass resin bonded wool or better; Insulation cover: SS sheets. 5. Operating temperature: • Maximum 123°C • Temperature Accuracy: ± 0.5 °C at 121 ° C • Must have Temperature calibration function 6. Operating pressure		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		• 15 -20 psi • ANALOG PRESSURE GAUGE (0 -400 psi pressure guage) indicating actual pressure 7. Automatic START/STOP timer 8. Unwrapped Cycle Time Cold:55 Mins, Hot:40 Mins approx. 9. Accelerated cooling technology 10. Sterilizer should be provided with steam generator with Built in steam exhaust bottle. 11. Spring loaded safety valves and automatic vacuum breaker for jacket 12. Removable plug screen for chamber drain. 13. SS baffle for even steam distribution in the chamber. 14. Safety valve protection against poor pressure. 15. Safety lock for door: pressure lock safety device. 16. Advanced Microprocessor based Control Panel 17. Should be equipped with following safety alarms a) A cycle cannot start if the Automatic START/STOP timer door is open or not properly locked b) The door cannot unlock until chamber pressure reaches room pressure c) Over-Temperature Cut-Off with audio visual alarm d) Low Temperature Warning: If the temp. stays below 121°C for more than 5 seconds e) Low Heat Warning: If the temp. does not reach the sterilization temperature during the set periods		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		f) Over-Pressure Cut-Off with audio visual alarm g) Over Current Cut-off with audio visual alarm. h) Low Water Level heater cut-off and ALARMS. 18. Should come with inbuilt printer and option to print after every 1 minutes during operation and also they should provide external temperature sensor. 19. System Configuration Accessories, spares and consumables: a) System as specified b) Should provide available spares and consumables for at least 10 years c) Should provide a sufficient quality of consumable along with the equipment d) Data logger e) Baskets & containers required for holding flasks, tubes etc. – Number – 2 (1 basket made of punched metal & 1 Bucket without holes) Size - 345×181mm (80 lit), 300×182 mm (55 lit) Quality - Stainless Steel 20. Certificate from ISO17025 accredited lab for temperature, pressure gauges & timer. 21. Environmental factors: Shall meet IEC-60601-1-2: 200 (Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. 22. Power Supply: Power input to be 220-240VAC, 50Hz,/440 V 3 Phase as appropriate and fitted with plug compatible with local sockets **23.** Warranty: Warranty against all manufacturing defects. Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata.		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
3.	**Laboratory Refrigerator - 2ºC – 8ºC (2 nos.)**	1. Hermetic compressor with Microprocessor Temp. Control (Temp. Range: 2°C to 14°C) 2. Control panel should be at eye level with Digital Temperature display & Alarms 3. Capacity: 300-500 L 4. Fan forced air circulation to ensure stable & uniform preservation environment 5. Should be frost free 6. Should have Easy visibility with 2 sliding glass doors with double paned glass with heat reflective film to block heat/UV rays 7. Should have Door open Alarm, Hi/Lo Temperature alarm (both audible & visual) 8. Should have abnormal Temperature safety device to prevent the contents of refrigerator from freezing or temperature from rising abnormally while alarms are activated 9. Interiors and exteriors should be chemical resistant and rust free 10. Should have Monitoring hole & Interior fluorescent lamp 11. Shelves should be of rigid wire with polyethylene coating 12. Evaporator: Should be Fin & tube; Forced air circulation type & Condenser: Wire & tube 13. Insulation: CFC Free rigid foamed-in-place polyurethane 14. Warranty period: Minimum TWO years warranty period 15. Operator and service manual essential requirement		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		16. Quality Certification: Only international quality CE certified product		
4.	**Digital Electronic Precision Balance**	1. Type – Top loading Precision Balance 2. Fully automatic time and temperature controlled internal calibration and balance should be capable to adjust itself Auto zero setting. 3. Range (weight) - 0.01gm - 1200gm 4. Accuracy: 0.01gm 5. Readability: 0.001gm 6. Capacity: 1200gm, Covered type - Glass draft shield with sliding door required.. 7. Repeatability: 0.001gm 8. Linearity: 0.002gm 9. Response time: 1.5 s 10. Display: Touch Screen 11. Stabilization Time, 2 Seconds (typically). 12. Calibration certificate from NABL accredited calibration laboratory should be supplied along with the eqp. **13.** Warranty: Minimum 12 months warranty against all manufacturing defects.		
5.	**Circulating Water bath**	1. Internal Bath (volume) Capacity - 15 Ltr. 2. Should be rounded, seamless double walled stainless steel bath to preventing rust, chemical damage and contamination. Powder coating like epoxy coating exterior for easy cleanup 3. Corrosive resistant stainless steel Gabled drip free lid 4. Temperature		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		a) Temperature range 20°C to 99°C b) Temperature Accuracy: ± 0.2 °C at 37.0°C c) Temperature Uniformity: ± 0.5 °C at 37 .0°C d) Digital LED display for operating status of TEMP e) Over-Temperature Cut-Off f) Temperature calibration function 5. Advanced Microprocessor based Control Panel with digital display with an accuracy of ±0.5^{o}C 6. Bath consists of two pilot lamp, temperature control knob and ON/OFF switch to work on 220/230 volts AC supplied with stirring arrangement without racks and thermometer.. 7. Number and types of racks - tube racks for 15ml x 40 and 50ml tubes x 40 – 2 nos each 8. Low level water sensor. Audible warning safety alarms should be there for high/low temperature warnings, and dry running protection. 9. Instrument should have lift up bath cover; Carrier racks should be given for flasks and test tubes racks. 10. A cock should be provided to facilitate draining of bath contents. 11. Water bath protective media should be there to prevent contamination and formation of algae. 12. Heating capacity - 2 KW; should have all the accessories required for the functioning of the equipment. 13. All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment.		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		14. Warranty: Minimum 24 months warranty against all manufacturing defects.		
6.	**Incubator (Multi chambered) – 2 nos**	1. Configuration: Multi-chamber: 4 chambered, floor-standing model with Castor wheels 2. Capacity (Individual Chamber volume) 50-60 L x 4 chambers 3. Independent Temperature Control of Each Chambers 4. A minimum of 2 nos of SS-304 height adjustable racks in each chamber. 5. Temperature range (^{o}C): 25-70 ^{o}C, ± 0.2 ^{o}C accuracy and ±0.5 ^{o}C uniformity with programmable Temperature Control with Illumination 6. Temperature and display of each chamber to be controlled independently). 7. Independent temperature control system for each chamber to provide precise temperature 8. Stainless Steel 304 Inner Chambers 9. Door specification: Solid installed with lock 10. No. of Perforated shelves per chamber minimum 2 Nos 11. Digital PID Controller or Programmable Controller 12. Over Temperature Protection, Over Current Leakage Breaker 13. Adjustable time and interval 14. Magnetic door closure with positive sealing gasket 15. Suitable on - line UPS (5 KVA) to support the instrument. 16. Certification: Traceable Temperature Calibration certificate for each		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		chamber from NABL Accredited laboratory with IQ/OQ/PQ validation 17. Each equipment should be supplied with multi channel data logger for temperature **18.** Warranty: Minimum 24 months warranty against all manufacturing defects.		
7.	**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. Temp. Range: Ambient +10°C to +250°C with temperature setting accuracy ±0.5 °C with forced air circulation for temperature uniformity 7. Capacity: 200-300L 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. Document and Installation: Traceable calibration certificate from NABL accredited calibration lab. Installation has to be carried by the		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		skilled team with IQ, OQ and PQ documents and on site validation to be carried out to ensure proper working of hot Air Oven. as per specification. 14. Certification : Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation 15. Warranty: Minimum 12 months warranty against all manufacturing defects.		
8.	**Fumigator / Fogger**	1. Body should be compact, durable, leak proof and made of stainless steel /heavy duty plastic 2. Laboratory fumigator dispenser consistent particle size generation of 5-15 µ, better 3. The blower head should be rust proof inert to Formaldehyde, KMnO4, H2O2 and deliver aerosols uniformly 4. Should be compatible with wide range of disinfectant in a closed room. 5. Design- With Wheels, Vortex type. Non rotating and non closing nozzle. 6. Provided with Cable should be at least 5 meters in length, ISI marked 7. Tank Capacity- 5 liters. Easy clean, detachable and non corrosive for chemical 8. The tank capacity, discharge rate and timer on the machine should be so that the disinfectant should be able to disinfect 4000-5000 cubic feet in one cycle of 2 hours (max). 9. ELECTRICAL - 200-270V, 50 HZ. 10. Warranty: Minimum 12 months warranty against all manufacturing defects.		
9.	**Automated pathogen**	1. System should be a fully automated pathogen screening system from		

	detection and determination	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. All inoculation strips and all reagents required for testing to be provided. 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 of detecting and enumerating: i) Salmonella species ii) Listeria species *iii) E.coli* iv) *S. aureus* enterotoxin v) Campylobacter *vi) Shigella* vii) Vibrio sps 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. 9. Negative and Positive reference organisms must be supplied with the kits 10. Detection methods must 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.		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		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.		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		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. For validation vender should having it own capability with their own company 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. 26. Suitable UPS system to be provided 27. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		installation as per the convenience and agreement with CFL, Kolkata. 28. Kits for pathogen screening and identification for 1000 samples may be quoted		
10.	**Automated Microbial enumeration system**	1. System should be able to do microbial enumeration from food samples using protocols in compliance with AOAC/ AFNOR/ ISO methods. 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.		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		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. For validation vender should having it own capability with their own company 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. 14. Suitable UPS system to be supplied		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		15. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata. 16. Kits for microbial enumeration may be quoted		
11.	**Real Time PCR System**	The system should be an automated system for both Real Time PCR and post pcr analysis HARDWARE: 1. The system should be Peltier based PCR machine supporting all of the following formats: 96-well plate with optical adhesive cover, 96-well plate with optical flats caps, 8-tubes strips with optical flat caps. 2. The normalization of reaction due to non-PCR related fluctuations should be possible by using any passive reference dye is essential. 3. The excitation source should be bright white LED/Laser/halogen and the detection system should be through photodiode/CCD Camera. 4. The built-in emission filters to support a broader range of fluorophores with a higher sensitivity for longer wave length (red dyes). The system should be configured and calibrated to use any of the following dyes or a combination thereof: FAM™,SYBR® Green, VIC®, JOE ™, HEX, TET, BY®, NED ™, TAMRA ™, Cy3®, JUN®, ROX™, TEXAS RED®, and capability of multiplexing for five targets or better. 5. The hardware must provide Peltier thermal cycling with pre-configured mode for Fast-PCR (40 cycles in less than 35 minutes) as well as Standard-PCR run in the same block. 6. System must have flexibility of running 2-3 different temperatures		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		simultaneously in the same run with different set of annealing temperatures in a single run. 7. The system should have temperature range at least 4 ^{o}C-100 ^{o}C to facilitate incubation of samples at low temperature. 8. The system should have peak block ramp rate for heating and cooling exceeding 4.6 ^{o}C/ second with temperature uniformity of 0.4 ^{o}C or better and 0.25 Temperature Accuracy. Vendor should specify the sample ramp rate and should be more than 3.5°C/sec 9. System should support minimum recommended reaction volume of 10 µL and thermal cycling conditions to eliminate optimization of PCR conditions for running the templates from different sources simultaneously although lower would be preferred to minimize reagent consumption. 10. The instrument should have real time quantitative PCR installation specification which demonstrates the ability to distinguish between 1.5 fold templates copies with a confidence level equal to 99.5% or better to be demonstrated with RNase P instrument verification plate required to be done at the time of installation. 11. The system should have preferably Touch Screen LCD feature with real time visuals of amplification plots etc to avoid dependency on computer for operation with USB port. 12. Computer: A business line computer (either notebook or tower) for system control, operation, analysis, net-working of multiple systems and a USB port for data export to Power point, Excel or JPEG file formats with colored laser printer		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		13. Latest compatible data workstation with all system software and monitor should be provided with the system. 14. Installation specifications must demonstrate the ability to detect differences as small as 1.5 fold or better in target quantities 15. IQ/OQ should be provided for the instrument 16. A compatible 2 KVA true online UPS with 30 minute backup should be provided along with instrument. 17. Vendor should provide a complete line of reagents including 1)Taq Man universal PCR master mix (500 reactions) 2)SYBR Green master mixes (500 reaction) and disposables including tubes, 96 well plate for use with the system for onsite application training after installation and 3) TAQMAN RNASE P 96-well instrument verification plate. SOFTWARE: 18. Dedicated licensed full version software for primer and probe design must be included in the supply. 19. The instrument should have licenced software that can analyze multiple perspectives in the Multiple Plots view, with side by side views of all data aspects including the amplification plots, standard curve, multi-component data plots, and raw data. 20. The system should also include software to support applications including absolute quantitation, Relative quantitation, multiplex-PCR, allelic discrimination (SNP), high resolution melt curve analysis as well as pathogen detection and		

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		plus/minus assay using internal positive control. 21. The instrument software should have a multi-componenting algorithm designed to provide precise deconvolution of multiple dye signals to enable the simultaneous detection of multiple fluorophores, 22. Should be supplied with Software for applications including absolute quantification, relative quantitation /gene expression/ SNP detection analysis. Licensed software should also include and supply statistical analysis tools like Box-Whisker plots to assess Ct distribution, scatter plots and heat maps to assess sample correlation and quality 23. The instrument software should have experimental design wizard and reaction setup information including pipetting protocols. 24. Should support remote monitoring through a web browser-based software for accessing and analysing data anywhere and anytime in the worl 25. The vendor should clearly indicate compliance or deviation vis –a vis the tender specifications and should be highlighted in the literature or manuals. 26. The instrument should be UL approved and manufactured according to ISO 9001 standards. 27. The vendor supplying the instrument should have own application support laboratory in India, preferable in West Bengal for local and efficient after sales service support. 28. Three years warranty with one year spare replacement, if required.		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		29. Suitable on - line UPS (about 2 KVA) is required to support the instrument.		
12.	**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 - Automatic, with manual control 8. Counting on petri dishes 90mm or higher 9. Counting on pour, Surface plates Yes; Optional – Petrifilms, Chromogenics 10. Data export PDF, JPEG, BMP, PNG and EXCEL 11. USB Connection should be there 12. Computer system - Laptop with Windows 10, 3 GB RAM, Graphics Card, i-5 or higher processor 14 Guarantee 3 years 13. Compliance GLP (Good Laboratory Practice) & full traceability 14. For validation vender should having it own capability with their own company 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. 15. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of		

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		installation as per the convenience and agreement with CFL, Kolkata.		
13.	**Anaerobic Chamber**	1. Capacity (Litres) 300-400; 2. Capacity (Petri Dishes) 400 or more 3. Port / Airlock Capacity 30 plates or more via airlock 4. Porthole System Manual or Instant Access Ports 5. Gas Supplies ANO2/N2 with gas regulator, gas leak detector 6. Footswitch Preferably Wireless type 7. Airlock Cycle Time Automatic with timer option 8. Automatic Dehumidifier Fitted as standard 9. Desired purity level: H2O< 1 ppm, O2< 1ppm 10. Piping: Copper or stainless steel 11. Electrical power: 230 V/50-60 Hz, 10 A or 115 V / 50-60 Hz, 20 A or 100 V/ 50-60 Hz, 20 12. Glove Ports, Gloves Material: Butyl, thickness 0.4 mm or more 13. Dimensions (w/d/h - mm) 1255 / 720 / 710 14. Weight (lbs/kg) 220 / 100 15. Temperature Range 5°C above ambient up to 45°C 16. Touch screen Control Desirable 17. Circulation Unit: Flow rate of around 20 m3 /h (Working gas Nitrogen) 18. Vacuum pump: < 3X10-2 mbar 19. Sliding Tray: Stainless steel or other corrosion free material		
14.	**Ultrapure water purification system**	1. Ultra pure water system should take at least 100 Micro Siemens of Water conductivity and should deliver ultra pure product water by point of use dispenser with rocker arm,		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		volumetric dispensing and auto shut off facility having i) Resistivity > 16 Megaohm-cm ii) Conductivity < 0.06 Micro-Siemens iii) TOC level < 10 ppb iv) Flow rate > 1 lit / min 2. Should have separate feed water specific purification cartridge and application specific polishing cartridge 3. Should have a vertically placed dual wavelength (185 & 254nm) hotcathode, UV lamp with ballast and quartz sleeve placed in a electro polished housing. 4. Final filter 0.22 micron PVDF validated membrane. System should have option for producing Pyrogen/Rnase-free water with UF cartridge. 5. Point of use gun with rocker arm and volumetric and fixed volume dispensing (3% accuracy), with a green LED 6. Built in coaxial resistivity meter with a cell constant of 0.01/cm and 0.1degree C accuracy thermistor 7. Maintenance display for sanitization, exchange purification cartridges, activation of fast flush, depressurization, air purge **8.** Control display showing product water resistivity / conductivity both compensated and non compensated mode, product water temperature, product water resistivity greater or below set point		
15.	**Fully Automated**	A PC based fully automated ELISA Plate reader with double beam optics with pre-programmed applications able to support all plate formats U bottom, V bottom and		

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	Elisa Reader & Washer	flat bottom 8/12/96-well micro plates and provision for conventional quartz / glass/plastic cuvettes with all the required accessories. 1. Should have inbuilt Shaker with linear/orbital mode 2. Should be automatically programmed with on-board touch screen & soft keys 3. Capable of storing method with analysis:> 100 method programs on the instrument 4. Detector: Silicon Photodiode dual detector/PMT a. Wavelength Selection: Wave length selection should be double monochromatic with 1nm increment b. Temperature control: Up to 60 C or better c. Light Source; Halogen lamp for Visible range d. Deuterium Lamp for UV range, light source should be auto automatically selected as per wavelength required. e. Scan Ordinate Modes: Absorbance, % Transmittance, % Reflectance f. Resolution: 0.001 A or better. g. Wavelength Range: 300 – 750 nm h. Accuracy 1% or ± 0.01 A or better for entire range i. Repeatability: 05 % ± 0.005 A or better j. Photometric Range: Absorbance 0-3.0 Abs k. Photometric Accuracy:		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		III. 1A± 0.015A for single wavelength IV. 2A: ± 0.02A for dual/multiple wavelength l. Linearity : ± 2 % from 0 to 3.000 A at 405 nm m. Reproducibility: ± 1 % from 0 to 3.000 A at 405 nm n. Reading time: < 15 secs for 96 wells o. Noise: 0.00005 Abs RMS (500nm) or better p. Stability & Drift: Automatic calibration between each plate reading q. Baseline flatness: ± 0.0005 Abs or better 5. Software Compatible Software should be user friendly & simple for data handling with feature like easy to use report publisher, online help and answer wizard, GLP & audit trail and fully compatible with Windows. System built in features such as real time display of concentration, photometric mode, single /multi-wavelength. System should have capability to do qualitative, quantitative, kinetics with any formulae including validation, transformation, and factors and floating cut off., 6. **The software should be 21CFR part 11 compliant**. 7. Validation Plates for hardware validation of absorbance must be provided 8. Plate Incubator a. Compact Digitally controlled with orbital shaking b. Should hold two 96 well microplates, for mixing and/or incubating.		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		c. Speed 400 to 1200 rpm or better d. Ambient to 40°C with resolution of 0.1°C. e. Digital timer 10. ELISA Microplate Washer: a. Fully automatic. b. Should Wash flat, round, and V-bottom plates and strips c. Automatic calibration, alignment, and last row detection d. Should have 2-4 independent liquid channels e. Wash volume per well should be programmable f. Residual aspiration volume < 2µL g. Auto-water detection of waste and buffers bottle levels. h. With Audible alarm when waste bottle is full and when buffers are empty 11. ELISA Plates: 96 well ELISA Plates 200 Nos 12. Computer and Printer: Latest configuration factory set branded PC system with 22-23'' Full HD Monitor with printer –B/W – duplex- laser-legal, A4 - 1200dpi-up to 21 ppm – capacity with network card 13. Suitable UPS with 60 mins backup power for washer incubator and reader 14. Certificate from an ISO 17025 accredited calibration lab for spectral calibration 15. Compliance: IQ/OQ/PQ of instrument and Software should be provided along with document 16. Operation and training component: The supplier will have to carry out successful Installation at the laboratory premises and provide on –		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		site comprehensive training to scientific personnel operating the system till customer satisfaction 17. Warranted for 3 years after satisfactory installation and working excluding consumable parts and accessories.		
16.	**Temperature data logger**	1. Purpose of Equipment: Functions as portable monitor for use in refrigerators/ Oven/Incubators. 2. It displays 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. Reading software and cable needs to be provided. 12. The equipment quoted should be CE Certified or USFDA approved.		
17.	**Digital Trinocular Microscope with image processing system and digital camera**	1. Optical system Infinitely corrected system Focus Vertical stage movement 25mm or more for course stroke vertical stage movement 1micron or less for fine stroke Illuminator Lamp house for 100 watts halogen lamp with DIC upgradable. 2. Revolving nose piece: Reversed sextuple revolving nose piece should be upgradable to DIC in future		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		3. 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) 4. 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. 5. Condenser Swing out condenser usable for 2X-100X. 6. Camera & software Digital pool CCD camera approx. 3MP/4MP, with 10 bit digitalization, 2048X1500. 7. Software to capture and image processing. 8. Computer system i5 processor, 4GB RAM,500GB HDD, DVR R/ W, TFT 20". Microscope, camera and software should be from same manufacturer.		
18.	**Automatic Safety Bunsen Burner**	1. Safety Bunsen Burner with flame monitoring and overheating protection for safe operation. 2. The flame can be rapidly ignited by a footswitch or the push button without the need of a lighter or matches. 3. Two adjustment knobs for air and gas to allow easy fine-tuning of flame size and temperature. 4. The Safety Bunsen Burner should be compatible to common gas types such as butane/propane and natural gas and can be connected to either a gas distribution system or to different gas cartridges. 5. For heating applications or to flame-sterilize necks of large Erlenmeyer		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		flasks, the Safety Bunsen Burner should be equipped with a long burner head. The quick coupling of the burner head 6. The smooth, chrome-plated metal housing is easy to clean and both UV- and solvent-resistant.		
19.	**Shaking Incubator**	1. Overall internal dimensions (W x D x H): Minimum 62 x 75 x 82 cm 2. Body: Epoxy Powder Coated Steel Chamber made with corrosive resistant stainless steel 3. Temperature Range: +20°C to 99°C 4. Temperature Accuracy: ± 0.2 °C at 37 .0°C 5. Temperature Uniformity: ± 0.5 °C at 37 .0°C 6. Shaking Motion: Linear (Reciprocal) Motion with interchangeable holders for Erlenmeyer flasks (10ml, 25ml, 50ml, 125ml, 250ml, 500ml), test tubes and 1.5-2.0 vials 7. Speed Range: 25 – 400 rpm or better 8. Control: Integrated Microprocessor PID Control Auto STOP 9. Audio and visual alarms for a. Over-Temperature Cut-Off Alarm (more than 1°C from set point) b. Over RPM cut-off Alarm (more than 5 rpm) c. Over Current Cut-Off Alarm d. Completion of programme 10. Digital LED display for operating status of TEMP and RPM 11. Temperature calibration function		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		12. Programmable controller offering up to 4 modes of timer and parameter control for reduced user intervention. 13. Timer 0.1 to 99.9 hours or continuous mode 14. UV germicidal lights 15. Convenient bath drains 16. Removable bottom plate and shaking insert 17. Clamps and racks 125ml-10nos, 250ml-10nos, 500ml- 10nos. Test tube rack for 20x50ml tube-1 no and test tube rack for 42x15ml tubes-1 no. should be quoted. **18.** Power requirement: 230V/50-60Hz 16. Suitable Servo Voltage Stabilizer should be quoted 19. Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata.		
20.	**Vacuum Pump for Membrane Filtration System**	1. Number of heads / stages 1 / 1 2. Max. pumping speed at 50/60 Hz 0.7 / 0.85 m3/h 3. Max. pumping speed at 50/60 Hz 0.4 / 0.5 cfm 4. Ultimate vacuum (abs.) 100 / 75 mbar/torr 5. Ambient temperature range (operation) 10 – 40 °C 6. Ambient temperature range (storage) -10 – 60 °C 7. Max. back pressure (abs.) 1.1 bar 8. Inlet connection Hose nozzle DN 8-10 mm 9. Outlet connection Hose nozzle DN 8-10 mm 10. Rated motor power0.04 kW		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		11. Rated motor speed at 50/60 Hz 1500/1800 min-1		
21.	**Stomacher/Lab Blender**	1. The unit should have a. Chamber of stainless steel with an opening door b. Should have multi-function digital display Provision of adjustable blending power with on screen indicator. c. Should have provision of removable paddles for cleaning and autoclaving d. Should have facility for side by side paddle stop. e. Provision of fully opening door facility for easy cleaning 2. Disposable bag size: Appropriate to the model & capacity quoted 3. Capacity 50-400 ml 4. Temperature Ambient operating temperature 10-35oC. 5. Humidity range Operating relative humidity range should be 10-89% 6. Adjustable timer settings 1sec-60 mins. 7. Paddle speed Variable speed (4-10 strokes /sec or better 8. Sensor To ensures immediate stop of blending in the event of a leakage 9. Accessories Bags (1000 numbers), Bag clips (50 numbers) Bag storage rack/stand (2 numbers) 10. Bag sealer 11. Operation and training component The supplier will have to carry out successful Installation at the laboratory premises and provide on -site comprehensive training for		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		scientific personnel operating the system till customer satisfaction 12. Warranted for 3 years after satisfactory installation and working excluding consumable parts and accessories		
22.	**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 8. For validation vender should having it own capability with their own company 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. 9. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata.		
23.	**Laboratory glassware washer/dryer**	1. Chamber volume of Washer/Dryer Option 1: 150 – 200 liters capacity Option 2: 200 – 300 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		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		316 L stainless steel with HEPA filtered chamber 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 Minimum two automatic internal liquid dispenser 6. Standard pre-programmed cycle a. At least 10 pre-programmed standard cycles. Including Pre-set programs for chemistry glassware, bacteriology (high temperature), stubborn stains (agar) and volumetric glassware (lower temperature). b. Additional programs that can be modified to fit any. c. Water rinses for hot, cold and hot/cold DI water. d. Self-diagnostic software e. Electronic security door lock 7. Internal wash temperature control Fully adjustable wash temp. up to 90deg C 8. External tap water filtering system Must include all external tap water filtering system, preferably from local supplier 9. Rack systems and accessories to accommodate all types of glassware (beaker, flask, pipette, petri dish, burette, measuring cylinder, test tube etc) and laboratory items various		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		configurations of sizes and quantities of jets or baskets to handle all types of glass and lab ware from bottles to pipettes. 10. Racks should be interchangeable between levels. 11. Built in Dryer Unit Built in forced air dryer unit for drying entire glassware content after the wash/rinse cycle. 12. Consumables required for washing/ drying cycle i) Must provide all necessary washing chemicals for 100 wash run cycle. ii) All quality washing chemicals must be easily available in Indian market at reasonable price (Indian Rupees). Imported washing chemicals/ consumables are discouraged. 13. Visual and audible alarms in the event of a malfunction, displaying the error 14. Certificates required a. IQ/OQ compliance b. Calibration certificates for temperature 15. 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. 16. Warranty Period Minimum TWO years full comprehensive warranty must be provided for all parts in this equipment.		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		17. End User Training at site Necessary end user training and instructions must be provided to all users at site. 18. List of present users in India Must provide the list of users/ customers of this equipment in India. 19. Desirable Specification: i) Telescopic bearing railing for loading the basket. ii) Operator and Service manual with all spare parts list. 20. Availability of all spare parts and service support in India		
24.	**Bench top UV-visible spectrophotometer**	1. System A fully automated spectrophotometer with double beam optics with pre-programmed applications using conventional quartz / glass/plastic cuvettes with all the required accessories. 2. Operation keys Instrument should operate immediately after switch on with no warming up time 3. Should be automatically programmed with on-board touch screen & soft keys 4. Capable to store method with analysis:> 100 method programs on the instrument, > 1000 results with data, evaluation results and used parameters 5. Optical Design Double Beam with sample and reference cuvette positions; Czerny-Turner Monochromatic/Holographic grating with sealed optics 6. Reference Compartment Should accommodate cells up to 10 mm path length as standard feature 7. Light Source		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		a. Halogen lamp for Visible range b. Deuterium Lamp for UV range, light source should be auto automatically selected as per wavelength required. 8. Detector Silicon Photodiode dual detector/PMT 9. Scan Ordinate Modes Absorbance, % Transmittance, % Reflectance 10. Resolution 0.1nm or better. 11. Wavelength Range 180 -1100 nm 12. Wavelength Accuracy ± 0.3nm or better for entire range 13. Wavelength Repeatability ± 0.1nm or better 14. Scanning Speed Selectable Variable wavelength scan rate 10nm/min to 2500 nm/min or 15. Spectral Bandwidth Variable (0.1/0.2/0.5/1/2/5) nm 16. Photometric Range a. Absorbance = -4.5 to 4.5 Abs or better. b. Transmittance & reflectance 0 to 80000 % or better. 17. Photometric Accuracy a. 0.5 A: ± 0.004A; b. 1A: ± 0.006A; c. 2A: ± 0.010A; (440 nm; traceable neutral density filters) 18. Stray Light a. Max. 0.005% (220 nm NaI) or better,		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		b. Max. 0.005% (340,370 nm NaNO2) or better c. Max. 1% (198 nm KCl) or better 19. Noise 0.00005 Abs RMS (500nm) or better 20. Drift < 0.0005 A/hr (500 nm, 1 hour warm-up) 21. Baseline flatness ± 0.0005 Abs or better 22. Application Software Compatible Software should be user friendly & simple for data handling with feature like easy to use report publisher, online help and answer wizard, GLP & audit trail and fully compatible with Windows. 23. System built in features such as real-time display of concentration, time scan, photometric mode, single/multi-wavelength, capability for event recording (e.g., addition of reagents) 24. Software should have built in Methods: a. Absorbance with one or more wavelengths, b. Scans, Nucleic acids, Proteins, OD 600, c. Evaluation: via factor, standard and calibration curve d. Dual wavelength with subtraction and division evaluation e. Method dependent evaluation: f. Absorbance, concentration via factor and standard		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		g. Concentration via standard series using Linear regression, Nonlinear regression with 2nd and 3rd degree polynomials h. Spline analysis, i. Linear interpolation (point to point evaluation) j. Absorbance allocation via subtraction and division k. Ratio 260/280, 260/230, Molar concentration and total yield for nucleic acids. 25. The software should be 21CFR part 11 compliant. 26. Accessories and spares a. One pair each of 0.5, 1 and 3 ml quartz cuvettes 10 mm path length b. One pair each of 0.5, 1, and 3 ml glass cuvettes 10 mm path length c. Cuvette holder d. Deuterium Lamp e. Halogen lamp f. Holmium oxide glass filters for wavelength calibration. g. Didymium glass filter to check wavelength accuracy h. NIST traceable Potassium dichromate 27. Computer and printer Latest configuration factory set branded PC system with 22-23'' Full HD Monitor with printer -B/W - duplex- laser-legal,A4 - 1200dpi-up to 21 ppm - capacity with network card		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		28. UPS Suitable UPS with 60 mins backup power 29. Calibration Certificate from an ISO 17025 accredited lab for spectral calibration. 30. Compliance IQ/OQ/PQ of instrument and Software should be provided along with document 31. Operation and training component The supplier will have to carry out successful Installation at the laboratory premises and provide on - site comprehensive training for scientific personnel operating the system till customer satisfaction 32. Warranty Warranted for 3 years after satisfactory installation and working excluding consumable parts and accessories.		
25.	**Digital Temperature Humidity Meter**	1. Temperature -20 °C to 60 °C ± 0.5 °C - Readability 0.1 °C 2. R.H. 5 % to 95 % R.H. ± 2.5 % - % R.H readability 3. Backlit dual display of humidity and temperature 4. Past record storage capacity 5. Min/Max/Avg data hold 6. Low battery indicator		
26.	**pH cum ORP Meter**	1. pH Range -2.000 to 16.000 pH 2. pH Resolution 0.001 pH, 0.01 pH 3. pH Accuracy (@25ºC/77ºF) ±0.01 pH, ±0.002 pH 4. 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		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		5. pH Temperature Compensation ATC: -5.0 to 100.0ºC; 23.0 to 212.0°F* 6. mV Range ±1000.0 mV; ±2000.0 mV 7. mV Resolution 0.1 mV 8. mV Accuracy ±0.2 mV (±999.9 mV); ±1 mV (±2000 mV) 9. Relative mV Calibration 10. Single point calibration 11. Temperature Specifications: a. Temperature Range -20.0 to 120.0 ºC b. Temperature Resolution 0.1 °C c. Temperature Accuracy ±0.5 °C d. °C/°F Yes 12. pH Electrode Diagnostics Glass and reference junction diagnostics (HI 11311 & HI 12301 only), out of calibration range , probe condition, response time 13. GLP Model 14. 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) 15. Connectivity - 1 micro USB port for charging and PC connectivity, 1 USB port for storage 16. Environment - 0 to 50°C (32 to 122°F), RH max 95% non-condensing 17. Battery Type/Life - Built-in rechargeable battery with up to 8 hours of continuous use 18. Power Supply - 5 VDC adapter 19. Dimensions - 202 x 140 x 12.7mm approx 20. Weight 250 g approx.		

Sl.No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Name of the Model and its Specification
		21. Warranty: 2 years including probe 6 months		

Note : 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)

(d) Part IV- Special Conditions of RFP is **revised** as under:

4. **Payment Terms:** The payment will be made as per the following terms on production of the requisite documents:

S.N.	Amount to be paid, INR	Condition(s) for release
Part A		
1.	100% of the total cost of setting up of modular clean room and furniture	On Completion of civil/electrical work and receipt of furniture
Part B		
1	80 % of the cost of equipment	On satisfactory installation and commissioning of the equipments
2	Balance 20% of the cost of equipment	On successful demonstration of the facility, training and validation

Note : LC may be opened on request for equipments.

14 (b) Response time: The response time of the Seller should not exceed 72 hours from the time the breakdown intimation is provided by the Buyer.

(e) Part V- Evaluation Criteria and Price Bid issue is **revised** as under:

2. **Revised Price Bid Format :**The Revised 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 :-

(a) Basic cost of the item/items:

Cost Details

Part A: Basic Cost of Setting up :

Sl.No	Item	Specifications	Cost in INR
1.	**Modular clean rooms ***	**Details of Specifications for Cleanroom, Furniture and Lab lay out – Attached as ANNEXURE - II**	
	Total Cost of (A)		

Part B: Basic Cost of item/items :

Sl.No	Item	Specifications	Cost in INR
1.	**Bio-Safety Cabinet** **(Class II Type A2)**	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. External surfaces to be coated with antimicrobial coating to protect against surface contamination and inhibit bacterial growth. 4. Work Table: It should be of IS 304 Grade Stainless Steel with finish 4 polish surface Front door 5 mm thick Toughened glass, vertical sliding, with Feather touch Motorized operation, while opening the door UV Lamp will be cut “OFF” And while closing the door UV Lamp will be “ON” Automatically. 5. Floor standing model with castor wheel and lock 6. System should be class II Type A2 with 70% recirculation and 30% Exhaust using HEPA filter with particle retention better than 99.999% for 0.1- 0.3 micron particles and front accessible for economical and easy replacement	

Sl.No	Item	Specifications	Cost in INR
		7. It should have Inbuilt fumigation port for decontamination. 8. Germicidal UV lamp - Controlled by automatic UV lamp timer (lamp hours) a) Emission of 254 nm b) Lamp should be positioned away from operator line of sight for safety and proper exposure to interior surfaces. c) UV lamp should be in working zone (40 micro watts/ square cm at 254 nm or better) d) The UV lamp should automatically switch “off” when the front door is opened to avoid accidental exposure of UV rays to the users’. 9. System should have following standard feature a) Nominal inflow velocity of 95 ±10 feet per minute (fpm) (0.5 m/sec) b) Nominal down flow velocity of 55± 5 fpm (0.3 m/sec) 10. Blower system: It should have one set blower system, which consists of dynamically & statically balanced aluminium centrifugal impeller driven by 1/4 HP, single phase,1200-1400RPM motor, enclosed in an PU coated GI casing suitably suspended in a pair springs & connected to the filter chamber through flexible canvas 11. HEPA filters should have • Size: 30” x 18” x 3” • Type: Separator less type, Mini-Pleats HEPA Media • Media: Ultra clean glass fiber paper • Retention: 0.3 Micron • Efficiency: 99.997% or better • Initial Pressure: 16 mm WG • Grade : H13 rating 12. **Prefilters:** • Size : 600 x 300 x 65 mm • Media : Synthetic, non-woven polyester • Casing : Epoxy painted GI frame • Retention : 10 Micron & above • Efficiency : 90% • Initial Pressure: 6 mm WG • Grade : F7 rating 13. Interior-mounted, line-of-sight color display Should have LCD information centre display showing the following measured parameters \	

Sl.No	Item	Specifications	Cost in INR
		• stage velocity, • total using time, • UV lamp on/off, • Differential pressure indicator • “Filter Life Remaining” bar graph, status line for alarm conditions • alerts to warn when filter life diminishes to 20%, 10% and 0% 14. Filter monitoring system consisting of an electronically commutated motor (ECM) that delivers a precise volume of air as required and automatically adjusts as filters load without relying on airflow sensors 15. Cabinet should have 1. Pressure gauge, 2. motor voltage regulator, 3. audible and visual window alarm, 4. main and outlet power circuit breakers, 5. Power switches for exterior mounted fluorescent lights and / or ultraviolet lights, interior outlets, and blower motor etc. 16. Lighting: located outside the contaminated work area. • High intensity, low wattage >800 lux • It should be 15 Watts, ,1½ Feet length,- 1 No. each Choke less to withstand larger fluctuations in voltage, • Must be placed in a position to avoid turbulence in working area 17. Touchpad control on right-hand side post for manual activation of blower, light, timer, audible alarm mute and menu selection. 18. Radiuses type 304 stainless steel interior and removable, seamless, dished work surface with lift out knobs 19. Service fixture one no with ball-type valve Epoxy-coated steel exterior 20. Towel catch located under work surface 21. Cleaniliness level: The system should have CLASS 100 (ISO 5 for particle sizes 0.5 µ < 3530 particles/M^3 of air at both at Rest & Operation Condition as per ISO 14644 –1	

Sl.No	Item	Specifications	Cost in INR
		22. Electrical sockets or Pass Through Ports a) Side mounted switches for minimum three (15/5 amp) electrical sockets for ancillary equipment operation or b) Convenient rear-wall pass through ports for safe routing of instrument cords, cables and leads for 15/5 amps multiple socket with switches on the wall. 23. System should have RS232 port to transmit the data. 24. Curved stainless-steel inlet grille with Reserve-Air Secondary Airflow Slots or Arm Rest type. 25. Other accessories •Two gas outlet in the working area, one on each side wall •Leveling Screws & Castor Wheels •DOP test port •Fitted with UV Germicidal lamp for sterilization. •Pre-installed pressure gauge for Measurement of HEPA Filters Choking system. 26. Alarms: should be Audible or highly visual alarm for filter replacement warning • installed to indicate loss of exhaust flow. • to warn the operator if the window is raised above the recommended height 27. Certificates required • Test Certificate for Mini-Pleat HEPA Filters • Calibration Certificate for Pressure Gauge • Calibration Certificate for Air Velocity Anemometer, 28. System should come along with the entire necessary accessory and should be ready to work. 29. 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. 31. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from	

Sl.No	Item	Specifications	Cost in INR
		60 days of satisfactory performance as certified by CFL, Kolkata.	
2.	**Vertical Top Loading Autoclave - 2 nos (Capacity – 80 lit, 50 lit aprox.)**	1. Design - Vertical, 2. Capacity: 80-100 liters internal chamber volume. 50-55 liters internal chamber 3. Single door high pressure steam sterilizer with double/triple walled, steam jacket and separate boiler. 4. Material of construction: Sterilizer chamber SS 304; Door SS 304; Jacket MS; Loading carriage SS 316; Transfer trolley: MS, painted; Door Gasket: Silicon or better; Insulation: fibre glass resin bonded wool or better; Insulation cover: SS sheets. 5. Operating temperature: • Maximum 123°C • Temperature Accuracy: ± 0.5 °C at 121 ° C • Must have Temperature calibration function 6. Operating pressure • 15 -20 psi • ANALOG PRESSURE GAUGE (0 -400 psi pressure guage) indicating actual pressure 7. Automatic START/STOP timer 8. Unwrapped Cycle Time Cold:55 Mins, Hot:40 Mins approx. 9. Accelerated cooling technology 10. Sterilizer should be provided with steam generator with Built in steam exhaust bottle. 11. Spring loaded safety valves and automatic vacuum breaker for jacket 12. Removable plug screen for chamber drain. 13. SS baffle for even steam distribution in the chamber. 14. Safety valve protection against poor pressure. 15. Safety lock for door: pressure lock safety device. 16. Advanced Microprocessor based Control Panel 17. Should be equipped with following safety alarms	

Sl.No	Item	Specifications	Cost in INR
		a) A cycle cannot start if the Automatic START/STOP timer door is open or not properly locked b) The door cannot unlock until chamber pressure reaches room pressure c) Over-Temperature Cut-Off with audio visual alarm d) Low Temperature Warning: If the temp. stays below 121°C for more than 5 seconds e) Low Heat Warning: If the temp. does not reach the sterilization temperature during the set periods f) Over-Pressure Cut-Off with audio visual alarm g) Over Current Cut-off with audio visual alarm. h) Low Water Level heater cut-off and ALARMS. 18. Should come with inbuilt printer and option to print after every 1 minutes during operation and also they should provide external temperature sensor. 19. System Configuration Accessories, spares and consumables: a) System as specified b) Should provide available spares and consumables for at least 10 years c) Should provide a sufficient quality of consumable along with the equipment d) Data logger e) Baskets & containers required for holding flasks, tubes etc. – Number – 2 (1 basket made of punched metal & 1 Bucket without holes) Size - 345×181mm (80 lit), 300×182 mm (55 lit) Quality - Stainless Steel 20. Certificate from ISO17025 accredited lab for temperature, pressure gauges & timer. 21. Environmental factors: Shall meet IEC-60601-1-2: 200 (Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. 22. Power Supply: Power input to be 220-240VAC, 50Hz,/440 V 3 Phase as appropriate and fitted with plug compatible with local sockets 23. Warranty: Warranty against all manufacturing defects. Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata.	
3.	**Laboratory Refrigerator -**	1. Hermetic compressor with Microprocessor Temp. Control (Temp. Range: 2°C to 14°C)	

Sl.No	Item	Specifications	Cost in INR
	2°C – 8°C (2 nos.)	2. Control panel should be at eye level with Digital Temperature display & Alarms 3. Capacity: 300-500 L 4. Fan forced air circulation to ensure stable & uniform preservation environment 5. Should be frost free 6. Should have Easy visibility with 2 sliding glass doors with double paned glass with heat reflective film to block heat/UV rays 7. Should have Door open Alarm, Hi/Lo Temperature alarm (both audible & visual) 8. Should have abnormal Temperature safety device to prevent the contents of refrigerator from freezing or temperature from rising abnormally while alarms are activated 9. Interiors and exteriors should be chemical resistant and rust free 10. Should have Monitoring hole & Interior fluorescent lamp 11. Shelves should be of rigid wire with polyethylene coating 12. Evaporator: Should be Fin & tube; Forced air circulation type & Condenser: Wire & tube 13. Insulation: CFC Free rigid foamed-in-place polyurethane 14. Warranty period: Minimum TWO years warranty period 15. Operator and service manual essential requirement 16. Quality Certification: Only international quality CE certified product	
4.	**Digital Electronic Precision Balance**	1. Type – Top loading Precision Balance 2. Fully automatic time and temperature controlled internal calibration and balance should be capable to adjust itself Auto zero setting. 3. Range (weight) - 0.01gm - 1200gm 4. Accuracy: 0.01gm 5. Readability: 0.001gm 6. Capacity: 1200gm, Covered type - Glass draft shield with sliding door required.. 7. Repeatability: 0.001gm 8. Linearity: 0.002gm	

Sl.No	Item	Specifications	Cost in INR
		9. Response time: 1.5 s 10. Display: Touch Screen 11. Stabilization Time, 2 Seconds (typically). 12. Calibration certificate from NABL accredited calibration laboratory should be supplied along with the eqp. **13.** Warranty: Minimum 12 months warranty against all manufacturing defects.	
5.	**Circulating Water bath**	1. Internal Bath (volume) Capacity - 15 Ltr. 2. Should be rounded, seamless double walled stainless steel bath to preventing rust, chemical damage and contamination. Powder coating like epoxy coating exterior for easy cleanup 3. Corrosive resistant stainless steel Gabled drip free lid 4. Temperature a) Temperature range 20°C to 99°C b) Temperature Accuracy: ± 0.2 °C at 37.0°C c) Temperature Uniformity: ± 0.5 °C at 37 .0°C d) Digital LED display for operating status of TEMP e) Over-Temperature Cut-Off f) Temperature calibration function 5. Advanced Microprocessor based Control Panel with digital display with an accuracy of ±0.5^{o}C 6. Bath consists of two pilot lamp, temperature control knob and ON/OFF switch to work on 220/230 volts AC supplied with stirring arrangement without racks and thermometer.. 7. Number and types of racks - tube racks for 15ml x 40 and 50ml tubes x 40 – 2 nos each 8. Low level water sensor. Audible warning safety alarms should be there for high/low temperature warnings, and dry running protection. 9. Instrument should have lift up bath cover; Carrier racks should be given for flasks and test tubes racks. 10. A cock should be provided to facilitate draining of bath contents. 11. Water bath protective media should be there to prevent contamination and formation of algae.	

Sl.No	Item	Specifications	Cost in INR
		12. Heating capacity - 2 KW; should have all the accessories required for the functioning of the equipment. 13. All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment. 14. Warranty: Minimum 24 months warranty against all manufacturing defects.	
6.	**Incubator (Multi chambered) – 2 nos**	1. Configuration: Multi-chamber: 4 chambered, floor-standing model with Castor wheels 2. Capacity (Individual Chamber volume) 50-60 L x 4 chambers 3. Independent Temperature Control of Each Chambers 4. A minimum of 2 nos of SS-304 height adjustable racks in each chamber. 5. Temperature range (^{o}C): 25-70 ^{o}C, ± 0.2 ^{o}C accuracy and ±0.5 ^{o}C uniformity with programmable Temperature Control with Illumination 6. Temperature and display of each chamber to be controlled independently). 7. Independent temperature control system for each chamber to provide precise temperature 8. Stainless Steel 304 Inner Chambers 9. Door specification: Solid installed with lock 10. No. of Perforated shelves per chamber minimum 2 Nos 11. Digital PID Controller or Programmable Controller 12. Over Temperature Protection, Over Current Leakage Breaker 13. Adjustable time and interval 14. Magnetic door closure with positive sealing gasket 15. Suitable on - line UPS (5 KVA) to support the instrument. 16. Certification: Traceable Temperature Calibration certificate for each chamber from NABL Accredited laboratory with IQ/OQ/PQ validation 17. Each equipment should be supplied with multi channel data logger for temperature	

Sl.No	Item	Specifications	Cost in INR
		18. Warranty: Minimum 24 months warranty against all manufacturing defects.	
7.	**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. Temp. Range: Ambient +10°C to +250°C with temperature setting accuracy ±0.5 °C with forced air circulation for temperature uniformity 7. Capacity: 200-300L 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. 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 hot Air Oven. as per specification. 14. Certification : Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation 15. Warranty: Minimum 12 months warranty against all manufacturing defects.	
8.	**Fumigator / Fogger**	1. Body should be compact, durable, leak proof and made of stainless steel /heavy duty plastic 2. Laboratory fumigator dispenser consistent particle size generation of 5-15 µ, better 3. The blower head should be rust proof inert to Formaldehyde, KMnO4, H2O2 and deliver aerosols uniformly 4. Should be compatible with wide range of disinfectant in a closed room.	

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		5. Design- With Wheels, Vortex type. Non rotating and non closing nozzle. 6. Provided with Cable should be at least 5 meters in length, ISI marked 7. Tank Capacity- 5 liters. Easy clean, detachable and non corrosive for chemical 8. The tank capacity, discharge rate and timer on the machine should be so that the disinfectant should be able to disinfect 4000-5000 cubic feet in one cycle of 2 hours (max). 9. ELECTRICAL - 200-270V, 50 HZ. 10. Warranty: Minimum 12 months warranty against all manufacturing defects.	
9.	**Automated pathogen detection and determination**	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. All inoculation strips and all reagents required for testing to be provided. 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 of detecting and enumerating: i) Salmonella species ii) Listeria species *iii)* *E.coli* iv) *S. aureus* enterotoxin v) Campylobacter *vi)* *Shigella* vii) Vibrio sps 8. System should be supplied with an accessory system to determine *E.coli*, Shigella species, Vibrio species, anaerobic bacteria (Clostridium	

Sl.No	Item	Specifications	Cost in INR
		species) from food samples based on colorimetric technology. 9. Negative and Positive reference organisms must be supplied with the kits 10. Detection methods must 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.	

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		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. For validation vender should having it own capability with their own company 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. 26. Suitable UPS system to be provided 27. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata. 28. Kits for pathogen screening and identification for 1000 samples may be quoted	
10.	**Automated Microbial enumeration system**	1. System should be able to do microbial enumeration from food samples using protocols in compliance with AOAC/ AFNOR/ ISO methods. 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	

Sl.No	Item	Specifications	Cost in INR
		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.	

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		13. For validation vender should having it own capability with their own company 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. 14. Suitable UPS system to be supplied 15. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata. 16. Kits for microbial enumeration may be quoted	
11.	**Real Time PCR System**	The system should be an automated system for both Real Time PCR and post pcr analysis HARDWARE: 1. The system should be Peltier based PCR machine supporting all of the following formats: 96-well plate with optical adhesive cover, 96-well plate with optical flats caps, 8-tubes strips with optical flat caps. 2. The normalization of reaction due to non-PCR related fluctuations should be possible by using any passive reference dye is essential. 3. The excitation source should be bright white LED/Laser/halogen and the detection system should be through photodiode/CCD Camera. 4. The built-in emission filters to support a broader range of fluorophores with a higher sensitivity for longer wave length (red dyes). The system should be configured and calibrated to use any of the following dyes or a combination thereof: FAM™,SYBR® Green, VIC®, JOE ™, HEX, TET, BY®, NED ™, TAMRA ™, Cy3®, JUN®, ROX™, TEXAS RED®, and capability of multiplexing for five targets or better. 5. The hardware must provide Peltier thermal cycling with pre-configured mode for Fast-PCR (40 cycles in less than 35 minutes) as well as Standard-PCR run in the same block. 6. System must have flexibility of running 2-3 different temperatures simultaneously in the same run with different set of annealing temperatures in a single run. 7. The system should have temperature range at least 4 ^{o}C-100 ^{o}C to facilitate incubation of samples at low temperature. 8. The system should have peak block ramp rate for heating and cooling exceeding 4.6 ^{o}C/ second	

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		with temperature uniformity of 0.4 °C or better and 0.25 Temperature Accuracy. Vendor should specify the sample ramp rate and should be more than 3.5°C/sec 9. System should support minimum recommended reaction volume of 10 µL and thermal cycling conditions to eliminate optimization of PCR conditions for running the templates from different sources simultaneously although lower would be preferred to minimize reagent consumption. 10. The instrument should have real time quantitative PCR installation specification which demonstrates the ability to distinguish between 1.5 fold templates copies with a confidence level equal to 99.5% or better to be demonstrated with RNase P instrument verification plate required to be done at the time of installation. 11. The system should have preferably Touch Screen LCD feature with real time visuals of amplification plots etc to avoid dependency on computer for operation with USB port. 12. Computer: A business line computer (either notebook or tower) for system control, operation, analysis, net-working of multiple systems and a USB port for data export to Power point, Excel or JPEG file formats with colored laser printer 13. Latest compatible data workstation with all system software and monitor should be provided with the system. 14. Installation specifications must demonstrate the ability to detect differences as small as 1.5 fold or better in target quantities 15. IQ/OQ should be provided for the instrument 16. A compatible 2 KVA true online UPS with 30 minute backup should be provided along with instrument. 17. Vendor should provide a complete line of reagents including 1)Taq Man universal PCR master mix (500 reactions) 2)SYBR Green master mixes (500 reaction) and disposables including tubes, 96 well plate for use with the system for onsite application training after installation and 3) TAQMAN RNASE P 96-well instrument verification plate. SOFTWARE:	

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		18. Dedicated licensed full version software for primer and probe design must be included in the supply. 19. The instrument should have licenced software that can analyze multiple perspectives in the Multiple Plots view, with side by side views of all data aspects including the amplification plots, standard curve, multi-component data plots, and raw data. 20. The system should also include software to support applications including absolute quantitation, Relative quantitation, multiplex-PCR, allelic discrimination (SNP), high resolution melt curve analysis as well as pathogen detection and plus/minus assay using internal positive control. 21. The instrument software should have a multi-componenting algorithm designed to provide precise deconvolution of multiple dye signals to enable the simultaneous detection of multiple fluorophores, 22. Should be supplied with Software for applications including absolute quantification, relative quantitation /gene expression/ SNP detection analysis. Licensed software should also include and supply statistical analysis tools like Box-Whisker plots to assess Ct distribution, scatter plots and heat maps to assess sample correlation and quality 23. The instrument software should have experimental design wizard and reaction setup information including pipetting protocols. 24. Should support remote monitoring through a web browser-based software for accessing and analysing data anywhere and anytime in the worl 25. The vendor should clearly indicate compliance or deviation vis –a vis the tender specifications and should be highlighted in the literature or manuals. 26. The instrument should be UL approved and manufactured according to ISO 9001 standards. 27. The vendor supplying the instrument should have own application support laboratory in India, preferable in West Bengal for local and efficient after sales service support. 28. Three years warranty with one year spare replacement, if required.	

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		29. Suitable on - line UPS (about 2 KVA) is required to support the instrument.	
12.	**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 - Automatic, with manual control 8. Counting on petri dishes 90mm or higher 9. Counting on pour, Surface plates Yes; Optional – Petrifilms, Chromogenics 10. Data export PDF, JPEG, BMP, PNG and EXCEL 11. USB Connection should be there 12. Computer system - Laptop with Windows 10, 3 GB RAM, Graphics Card, i-5 or higher processor 14 Guarantee 3 years 13. Compliance GLP (Good Laboratory Practice) & full traceability 16. For validation vender should having it own capability with their own company 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. 17. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata.	
13.	**Anaerobic Chamber**	1. Capacity (Litres) 300-400; 2. Capacity (Petri Dishes) 400 or more 3. Port / Airlock Capacity 30 plates or more via airlock 4. Porthole System Manual or Instant Access Ports 5. Gas Supplies ANO2/N2 with gas regulator, gas leak detector 6. Footswitch Preferably Wireless type 7. Airlock Cycle Time Automatic with timer option 8. Automatic Dehumidifier Fitted as standard	

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		9. Desired purity level: H2O< 1 ppm, O2< 1ppm 10. Piping: Copper or stainless steel 11. Electrical power: 230 V/50-60 Hz, 10 A or 115 V / 50-60 Hz, 20 A or 100 V/ 50-60 Hz, 20 12. Glove Ports, Gloves Material: Butyl, thickness 0.4 mm or more 13. Dimensions (w/d/h - mm) 1255 / 720 / 710 14. Weight (lbs/kg) 220 / 100 15. Temperature Range 5°C above ambient up to 45°C 16. Touch screen Control Desirable 17. Circulation Unit: Flow rate of around 20 m3 /h (Working gas Nitrogen) 18. Vacuum pump: < 3X10-2 mbar 19. Sliding Tray: Stainless steel or other corrosion free material	
14.	**Ultrapure water purification system**	1. Ultra pure water system should take at least 100 Micro Siemens of Water conductivity and should deliver ultra pure product water by point of use dispenser with rocker arm, volumetric dispensing and auto shut off facility having i) Resistivity > 16 Megaohm-cm ii) Conductivity < 0.06 Micro-Siemens iii) TOC level < 10 ppb iv) Flow rate > 1 lit / min 2. Should have separate feed water specific purification cartridge and application specific polishing cartridge 3. Should have a vertically placed dual wavelength (185 & 254nm) hotcathode, UV lamp with ballast and quartz sleeve placed in a electro polished housing. 4. Final filter 0.22 micron PVDF validated membrane. System should have option for producing Pyrogen/Rnase-free water with UF cartridge. 5. Point of use gun with rocker arm and volumetric and fixed volume dispensing (3% accuracy), with a green LED 6. Built in coaxial resistivity meter with a cell constant of 0.01/cm and 0.1degree C accuracy thermistor	

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		7. Maintenance display for sanitization, exchange purification cartridges, activation of fast flush, depressurization, air purge **8.** Control display showing product water resistivity / conductivity both compensated and non compensated mode, product water temperature, product water resistivity greater or below set point	
15.	**Fully Automated Elisa Reader & Washer**	A PC based fully automated ELISA Plate reader with double beam optics with pre-programmed applications able to support all plate formats U bottom, V bottom and flat bottom 8/12/96-well micro plates and provision for conventional quartz / glass/plastic cuvettes with all the required accessories. 1. Should have inbuilt Shaker with linear/orbital mode 2. Should be automatically programmed with on-board touch screen & soft keys 3. Capable of storing method with analysis:> 100 method programs on the instrument 4. Detector: Silicon Photodiode dual detector/PMT a. Wavelength Selection: Wave length selection should be double monochromatic with 1nm increment b. Temperature control: Up to 60 C or better c. Light Source; Halogen lamp for Visible range d. Deuterium Lamp for UV range, light source should be auto automatically selected as per wavelength required. e. Scan Ordinate Modes: Absorbance, % Transmittance, % Reflectance f. Resolution: 0.001 A or better. g. Wavelength Range: 300 –750 nm h. Accuracy 1% or ± 0.01 A or better for entire range i. Repeatability: 05 % ± 0.005 A or better j. Photometric Range: Absorbance 0-3.0 Abs k. Photometric Accuracy: i. 1A± 0.015A for single wavelength ii. 2A: ± 0.02A for dual/multiple wavelength	

Sl.No	Item	Specifications	Cost in INR
		l. Linearity : ± 2 % from 0 to 3.000 A at 405 nm m. Reproducibility: ± 1 % from 0 to 3.000 A at 405 nm n. Reading time: < 15 secs for 96 wells o. Noise: 0.00005 Abs RMS (500nm) or better p. Stability & Drift: Automatic calibration between each plate reading q. Baseline flatness: ± 0.0005 Abs or better 5. Software Compatible Software should be user friendly & simple for data handling with feature like easy to use report publisher, online help and answer wizard, GLP & audit trail and fully compatible with Windows. System built in features such as real time display of concentration, photometric mode, single /multi-wavelength. System should have capability to do qualitative, quantitative, kinetics with any formulae including validation, transformation, and factors and floating cut off., 6. **The software should be 21CFR part 11 compliant**. 7. Validation Plates for hardware validation of absorbance must be provided 8. Plate Incubator a. Compact Digitally controlled with orbital shaking b. Should hold two 96 well microplates, for mixing and/or incubating. c. Speed 400 to 1200 rpm or better d. Ambient to 40°C with resolution of 0.1°C. e. Digital timer 11. ELISA Microplate Washer: a. Fully automatic. b. Should Wash flat, round, and V-bottom plates and strips c. Automatic calibration, alignment, and last row detection d. Should have 2-4 independent liquid channels e. Wash volume per well should be programmable f. Residual aspiration volume < 2µL g. Auto-water detection of waste and buffers bottle levels.	

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		h. With Audible alarm when waste bottle is full and when buffers are empty 13. ELISA Plates: 96 well ELISA Plates 200 Nos 14. Computer and Printer: Latest configuration factory set branded PC system with 22-23'' Full HD Monitor with printer –B/W – duplex- laser-legal, A4 - 1200dpi-up to 21 ppm –capacity with network card 15. Suitable UPS with 60 mins backup power for washer incubator and reader 16. Certificate from an ISO 17025 accredited calibration lab for spectral calibration 17. Compliance: IQ/OQ/PQ of instrument and Software should be provided along with document 18. Operation and training component: The supplier will have to carry out successful Installation at the laboratory premises and provide on – site comprehensive training to scientific personnel operating the system till customer satisfaction 19. Warranted for 3 years after satisfactory installation and working excluding consumable parts and accessories.	
16.	**Temperature data logger**	1. Purpose of Equipment: Functions as portable monitor for use in refrigerators/ Oven/Incubators. 2. It displays 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. Reading software and cable needs to be provided. 12. The equipment quoted should be CE Certified or USFDA approved.	
17.	**Digital Trinocular Microscope**	1. Optical system Infinitely corrected system Focus Vertical stage movement 25mm or more for	

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	with image processing system and digital camera	course stroke vertical stage movement 1micron or less for fine stroke Illuminator Lamp house for 100 watts halogen lamp with DIC upgradable. 2. Revolving nose piece: Reversed sextuple revolving nose piece should be upgradable to DIC in future 3. 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) 4. 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. 5. Condenser Swing out condenser usable for 2X-100X. 6. Camera & software Digital pool CCD camera approx. 3MP/4MP, with 10 bit digitalization, 2048X1500. 7. Software to capture and image processing. 8. Computer system i5 processor, 4GB RAM,500GB HDD, DVR R/ W, TFT 20". Microscope, camera and software should be from same manufacturer.	
18.	**Automatic Safety Bunsen Burner**	1. Safety Bunsen Burner with flame monitoring and overheating protection for safe operation. 2. The flame can be rapidly ignited by a footswitch or the push button without the need of a lighter or matches. 3. Two adjustment knobs for air and gas to allow easy fine-tuning of flame size and temperature. 4. The Safety Bunsen Burner should be compatible to common gas types such as butane/propane and natural gas and can be connected to either a gas distribution system or to different gas cartridges. 5. For heating applications or to flame-sterilize necks of large Erlenmeyer flasks, the Safety Bunsen Burner should be equipped with a long burner head. The quick coupling of the burner head 6. The smooth, chrome-plated metal housing is easy to clean and both UV- and solvent-resistant.	

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19.	**Shaking Incubator**	1. Overall internal dimensions (W x D x H): Minimum 62 x 75 x 82 cm 2. Body: Epoxy Powder Coated Steel Chamber made with corrosive resistant stainless steel 3. Temperature Range: +20°C to 99°C 4. Temperature Accuracy: ± 0.2 °C at 37 .0°C 5. Temperature Uniformity: ± 0.5 °C at 37 .0°C 6. Shaking Motion: Linear (Reciprocal) Motion with interchangeable holders for Erlenmeyer flasks (10ml, 25ml, 50ml, 125ml, 250ml, 500ml), test tubes and 1.5-2.0 vials 7. Speed Range: 25 – 400 rpm or better 8. Control: Integrated Microprocessor PID Control Auto STOP 9. Audio and visual alarms for a. Over-Temperature Cut-Off Alarm (more than 1°C from set point) b. Over RPM cut-off Alarm (more than 5 rpm) c. Over Current Cut-Off Alarm d. Completion of programme 10. Digital LED display for operating status of TEMP and RPM 11. Temperature calibration function 12. Programmable controller offering up to 4 modes of timer and parameter control for reduced user intervention. 13. Timer 0.1 to 99.9 hours or continuous mode 14. UV germicidal lights 15. Convenient bath drains 16. Removable bottom plate and shaking insert 17. Clamps and racks 125ml-10nos, 250ml-10nos, 500ml- 10nos. Test tube rack for 20x50ml tube-1 no and test tube rack for 42x15ml tubes-1 no. should be quoted. **18.** Power requirement: 230V/50-60Hz 16. Suitable Servo Voltage Stabilizer should be quoted 19. Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata.	

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20.	**Vacuum Pump for Membrane Filtration System**	1. Number of heads / stages 1 / 1 2. Max. pumping speed at 50/60 Hz 0.7 / 0.85 m3/h 3. Max. pumping speed at 50/60 Hz 0.4 / 0.5 cfm 4. Ultimate vacuum (abs.) 100 / 75 mbar/torr 5. Ambient temperature range (operation) 10 – 40 °C 6. Ambient temperature range (storage) -10 – 60 °C 7. Max. back pressure (abs.) 1.1 bar 8. Inlet connection Hose nozzle DN 8-10 mm 9. Outlet connection Hose nozzle DN 8-10 mm 10. Rated motor power0.04 kW 11. Rated motor speed at 50/60 Hz 1500/1800 min-1	
21.	**Stomacher/Lab Blender**	1. The unit should have a. Chamber of stainless steel with an opening door b. Should have multi-function digital display Provision of adjustable blending power with on screen indicator. c. Should have provision of removable paddles for cleaning and autoclaving d. Should have facility for side by side paddle stop. e. Provision of fully opening door facility for easy cleaning 2. Disposable bag size: Appropriate to the model & capacity quoted 3. Capacity 50-400 ml 4. Temperature Ambient operating temperature 10-35oC. 5. Humidity range Operating relative humidity range should be 10-89% 6. Adjustable timer settings 1sec-60 mins. 7. Paddle speed Variable speed (4-10 strokes /sec or better 8. Sensor To ensures immediate stop of blending in the event of a leakage 9. Accessories Bags (1000 numbers), Bag clips (50 numbers) Bag storage rack/stand (2 numbers) 10. Bag sealer	

Sl.No	Item	Specifications	Cost in INR
		11. Operation and training component The supplier will have to carry out successful Installation at the laboratory premises and provide on - site comprehensive training for scientific personnel operating the system till customer satisfaction 12. Warranted for 3 years after satisfactory installation and working excluding consumable parts and accessories	
22.	**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 8. For validation vender should having it own capability with their own company 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. 9. Warranty: Warranty should include parts and labors for 3-years. Warranty should start from the day of installation as per the convenience and agreement with CFL, Kolkata.	
23.	**Laboratory glassware washer/dryer**	1. Chamber volume of Washer/Dryer Option 1: 150 – 200 liters capacity Option 2: 200 – 300 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 with HEPA filtered chamber 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.	

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		5. Cleaning Liquid Dispenser Minimum two automatic internal liquid dispenser 6. Standard pre-programmed cycle a. At least 10 pre-programmed standard cycles. Including Pre-set programs for chemistry glassware, bacteriology (high temperature), stubborn stains (agar) and volumetric glassware (lower temperature). b. Additional programs that can be modified to fit any. c. Water rinses for hot, cold and hot/cold DI water. d. Self-diagnostic software e. Electronic security door lock 7. Internal wash temperature control Fully adjustable wash temp. up to 90deg C 8. External tap water filtering system Must include all external tap water filtering system, preferably from local supplier 9. Rack systems and accessories to accommodate all types of glassware (beaker, flask, pipette, petri dish, burette, measuring cylinder, test tube etc) and laboratory items various configurations of sizes and quantities of jets or baskets to handle all types of glass and lab ware from bottles to pipettes. 10. Racks should be interchangeable between levels. 11. Built in Dryer Unit Built in forced air dryer unit for drying entire glassware content after the wash/rinse cycle. 12. Consumables required for washing/ drying cycle iii) Must provide all necessary washing chemicals for 100 wash run cycle. iv) All quality washing chemicals must be easily available in Indian market at reasonable price (Indian Rupees). Imported washing chemicals/ consumables are discouraged. 13. Visual and audible alarms in the event of a malfunction, displaying the error 14. Certificates required	

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		a. IQ/OQ compliance b. Calibration certificates for temperature 15. 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. 16. Warranty Period Minimum TWO years full comprehensive warranty must be provided for all parts in this equipment. 17. End User Training at site Necessary end user training and instructions must be provided to all users at site. 18. List of present users in India Must provide the list of users/ customers of this equipment in India. 19. Desirable Specification: iii) Telescopic bearing railing for loading the basket. iv) Operator and Service manual with all spare parts list. 20. Availability of all spare parts and service support in India	
24.	**Bench top UV-visible spectrophotometer**	1. System A fully automated spectrophotometer with double beam optics with pre-programmed applications using conventional quartz / glass/plastic cuvettes with all the required accessories. 2. Operation keys Instrument should operate immediately after switch on with no warming up time 3. Should be automatically programmed with on-board touch screen & soft keys 4. Capable to store method with analysis:> 100 method programs on the instrument, > 1000 results with data, evaluation results and used parameters 5. Optical Design Double Beam with sample and reference cuvette positions; Czerny-Turner Monochromatic/Holographic grating with sealed optics	

Sl.No	Item	Specifications	Cost in INR
		6. Reference Compartment Should accommodate cells up to 10 mm path length as standard feature 7. Light Source a. Halogen lamp for Visible range b. Deuterium Lamp for UV range, light source should be auto automatically selected as per wavelength required. 8. Detector Silicon Photodiode dual detector/PMT 9. Scan Ordinate Modes Absorbance, % Transmittance, % Reflectance 10. Resolution 0.1nm or better. 11. Wavelength Range 180 -1100 nm 12. Wavelength Accuracy ± 0.3nm or better for entire range 13. Wavelength Repeatability ± 0.1nm or better 14. Scanning Speed Selectable Variable wavelength scan rate 10nm/min to 2500 nm/min or 15. Spectral Bandwidth Variable (0.1/0.2/0.5/1/2/5) nm 16. Photometric Range a. Absorbance = -4.5 to 4.5 Abs or better. b. Transmittance & reflectance 0 to 80000 % or better. 17. Photometric Accuracy a. 0.5 A: ± 0.004A; b. 1A: ± 0.006A; c. 2A: ± 0.010A; (440 nm; traceable neutral density filters) 18. Stray Light a. Max. 0.005% (220 nm NaI) or better, b. Max. 0.005% (340,370 nm $NaNO_2$) or better c. Max. 1% (198 nm KCl) or better 19. Noise 0.00005 Abs RMS (500nm) or better 20. Drift < 0.0005 A/hr (500 nm, 1 hour warm-up) 21. Baseline flatness ± 0.0005 Abs or better 22. Application Software Compatible Software should be user friendly & simple for data handling	

Sl.No	Item	Specifications	Cost in INR
		with feature like easy to use report publisher, online help and answer wizard, GLP & audit trail and fully compatible with Windows. 23. System built in features such as real-time display of concentration, time scan, photometric mode, single/multi-wavelength, capability for event recording (e.g., addition of reagents) 24. Software should have built in Methods: a. Absorbance with one or more wavelengths, b. Scans, Nucleic acids, Proteins, OD 600, c. Evaluation: via factor, standard and calibration curve d. Dual wavelength with subtraction and division evaluation e. Method dependent evaluation: f. Absorbance, concentration via factor and standard g. Concentration via standard series using Linear regression, Nonlinear regression with 2nd and 3rd degree polynomials h. Spline analysis, i. Linear interpolation (point to point evaluation) j. Absorbance allocation via subtraction and division k. Ratio 260/280, 260/230, Molar concentration and total yield for nucleic acids. 25. The software should be 21CFR part 11 compliant. 26. Accessories and spares a. One pair each of 0.5, 1 and 3 ml quartz cuvettes 10 mm path length b. One pair each of 0.5, 1, and 3 ml glass cuvettes 10 mm path length c. Cuvette holder d. Deuterium Lamp e. Halogen lamp f. Holmium oxide glass filters for wavelength calibration.	

Sl.No	Item	Specifications	Cost in INR
		g. Didymium glass filter to check wavelength accuracy h. NIST traceable Potassium dichromate 27. Computer and printer Latest configuration factory set branded PC system with 22-23" Full HD Monitor with printer -B/W - duplex- laser-legal,A4 - 1200dpi-up to 21 ppm -capacity with network card 28. UPS Suitable UPS with 60 mins backup power 29. Calibration Certificate from an ISO 17025 accredited lab for spectral calibration. 30. Compliance IQ/OQ/PQ of instrument and Software should be provided along with document 31. Operation and training component The supplier will have to carry out successful Installation at the laboratory premises and provide on - site comprehensive training for scientific personnel operating the system till customer satisfaction 32. Warranty Warranted for 3 years after satisfactory installation and working excluding consumable parts and accessories.	
25.	**Digital Temperature Humidity Meter**	1. Temperature -20 °C to 60 °C ± 0.5 °C - Readability 0.1 °C 2. R.H. 5 % to 95 % R.H. ± 2.5 % - % R.H readability 3. Backlit dual display of humidity and temperature 4. Past record storage capacity 5. Min/Max/Avg data hold 6. Low battery indicator	
26.	**pH cum ORP Meter**	1. pH Range -2.000 to 16.000 pH 2. pH Resolution 0.001 pH, 0.01 pH 3. pH Accuracy (@25ºC/77ºF) ±0.01 pH, ±0.002 pH 4. 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 5. pH Temperature Compensation ATC: -5.0 to 100.0ºC; 23.0 to 212.0°F* 6. mV Range ±1000.0 mV; ±2000.0 mV 7. mV Resolution 0.1 mV	

Sl.No	Item	Specifications	Cost in INR
		8. mV Accuracy ±0.2 mV (±999.9 mV); ±1 mV (±2000 mV) 9. Relative mV Calibration 10. Single point calibration 11. Temperature Specifications: a. Temperature Range -20.0 to 120.0 ºC b. Temperature Resolution 0.1 °C c. Temperature Accuracy ±0.5 °C d. °C/°F Yes 12. pH Electrode Diagnostics Glass and reference junction diagnostics (HI 11311 & HI 12301 only), out of calibration range , probe condition, response time 13. GLP Model 14. 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) 15. Connectivity - 1 micro USB port for charging and PC connectivity, 1 USB port for storage 16. Environment - 0 to 50°C (32 to 122°F), RH max 95% non-condensing 17. Battery Type/Life - Built-in rechargeable battery with up to 8 hours of continuous use 18. Power Supply - 5 VDC adapter 19. Dimensions - 202 x 140 x 12.7mm approx 20. Weight 250 g approx. 21. Warranty: 2 years including probe 6 months	
	Total cost of (B)		

	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: Sartorius, LP1200S Year of Installation: 2007]	
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]	

Sl.No	Item	Specifications	Cost in INR
7.	Buy-back price for old UV – VIS Spectrophotometer [Make: Varian, Australia CARRY 50 BIO Year of Installation: 1989]		
	Buy Back Total (C)		
	Net Amount (A+B-C)		

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 will be **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)

Revised Annexure: II

Technical specification for a Turnkey solution for clean room laboratory Set up & furniture

No	Specification	Quantity
I	**GENERAL:** The microbiology laboratory shall be modular with unidirectional flow with different zones. A representative zoning floor plan is shown which can be suitably modified by the bidder keeping the flow (personnel and sample) unidirectional and avoiding cross contamination. 1. Dress change room (Class D, ISO 8 & < 200 cfu/sq m) over pressure 15 pa 2. Clean corridor (Class B, ISO 7 (turbulent) & < 50 cfu/sq m) over pressure 60 pa 3. Sample receiving area (Unclassified) 4. Media preparation room (Unclassified) 5. Sample preparation room (Class B/ISO 7 & < 50 cfu/sq m) over pressure 45 pa 6. Inoculation room (Class B, ISO 7 & < 50 cfu/sq m) over pressure 45 pa 7. Reference culture room (Class B/ISO 7 & < 50 cfu/sq m) over pressure 45 pa 8. Incubator and enumeration room (Class D/ISO 8 & < 200 cfu/sq m) 9. De-contamination and washing (Unclassified) The necessary civil and electrical shall be done as per the specifications. The class validation of 'clean area' shall be done and report 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	
	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 (Galvanised Plain Skin Pass) GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40±2 Kg/m3. 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/m3. Overall thickness of the panel shall be 40mm. 3. 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/m3. 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. 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/m3. Door size shall be as per requirement. Door bottom seal shall be provided.
8. <u>Single Door Accessories:</u>
   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 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.

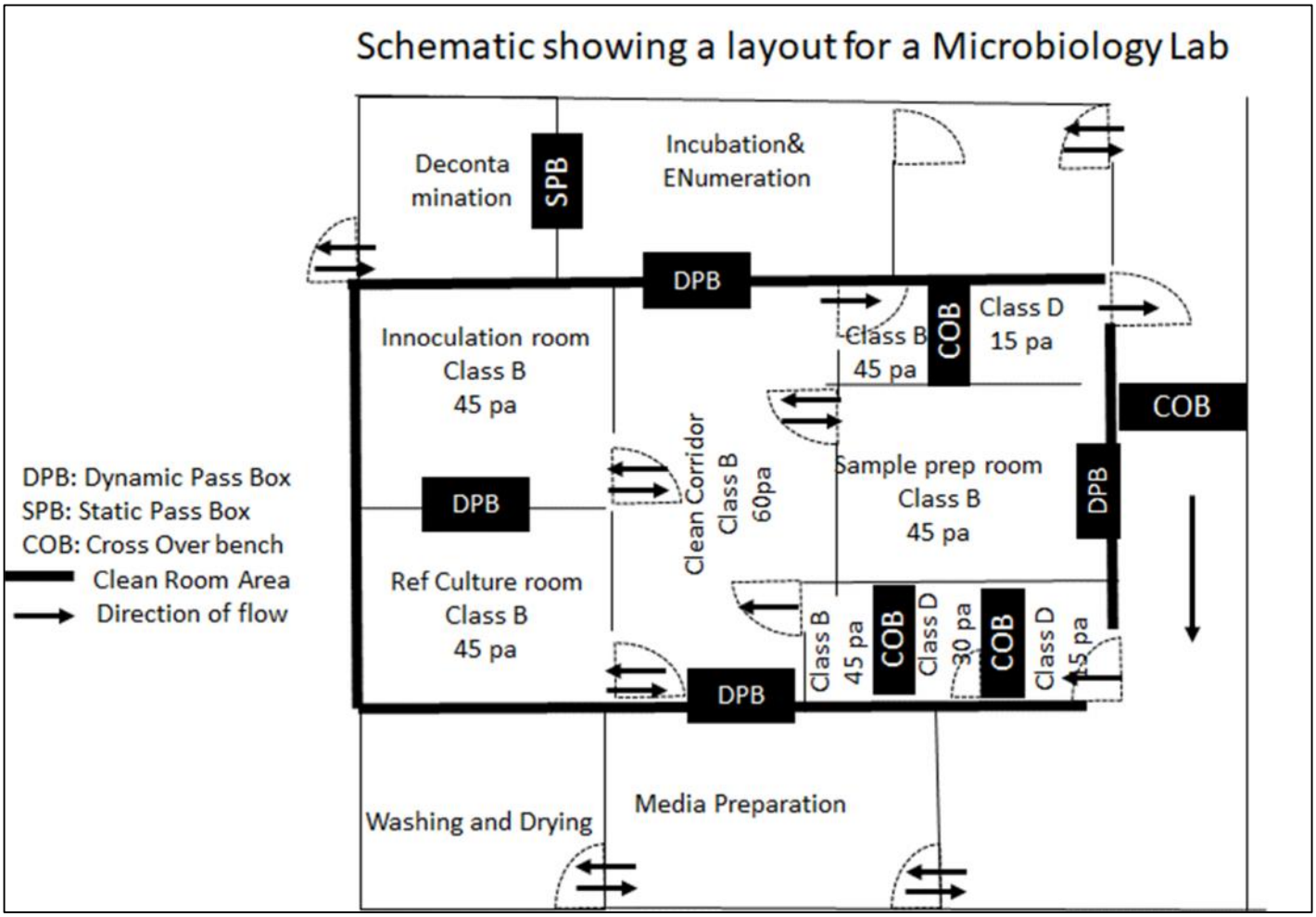
	19. Cross over bench shall be provided wherever shown in place of door. 20. The room and sterile corridor over pressure (high positive pressure) should be as indicated above. 21. Fresh air and exhaust should be provided for wash and decontaminated area. 22. Application of PU Paint on Ceiling & Walls 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.	
	High vacuum system (HVAC) System **1.The following area shall be provided with ISO 7 (Class 10,000) with humidity control HVAC and maintained at 25 ±2 °C** 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 **The following area shall be provided with unclassified ventilation** i. Media preparation room ii. Sample receipt/storage iii. Incubation and enumeration room iv. Entry and air shower v. Dress change vi. Exit 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 OT wrt ambient / 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. 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.	
	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	
	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** 1. 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: 2. Light point / exhaust fan / turbo ventilator points as required 3. Supply & wiring for circuit / sub main wiring in surface / recessed mounted rigid medium gauge 25mm PVC conduit with all accessories in surface/recess 4. 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. 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 LED 12" 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	
	Wall mounted fans 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.	
	Lighting fixtures	

	Supply and fixing cast aluminium 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)	
	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	
	Fire extinguisher Supply and installation of ABC type dry powder fire extinguisher of 2 kg. Capacity complete with initial charges and installation brackets	
	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.	
	Air curtain 1.7m length should be installed wherever required	
	Hand Sanitiser (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	3 Nos
	Single Biometric Access control system for restricted entry to the classified area	1No
	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	2 Nos
	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 Nos
	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'	4 Nos
	Cross over Bench 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)	4 Nos

	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
	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. 7. Should be supplied with one sink at the right end of size 300 x 254 mm (12x10 inches) with two way water tap (hand-free operation) and eyewash. Water connections and plumbing should be provided	2
	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**	
	Bench stool Installation & Commissioning SS-304 WORKING STOOL for above bench SS 304, 18 & 16G combination, mat finish 2Approximate size 900mm W x 600 mm D x 600mm H	6
	Sterile garment storage cabinet Dynamic garment storage cubicle complete SS304 construction. One pass through (no recirculation) MINIPLEAT HEPA filters efficiency 99.999% for 0.3 micron 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 Hour meter for UV Leveling legs. Approx internal dimension : 610(W)x 430(D)x 1335(H)mm	1


Schematic showing a layout for a Microbiology Lab
Deconta mination
SPB
Incubation& ENumeration
DPB
Innoculation room Class B 45 pa
Class B 45 pa
COB
Class D 15 pa
COB
Clean Corridor Class B 60pa
Sample prep room Class B 45 pa
DPB
DPB
Ref Culture room Class B 45 pa
Class B 45 pa
COB
Class D 30 pa
COB
Class D 15 pa
DPB
Washing and Drying
Media Preparation
DPB: Dynamic Pass Box
SPB: Static Pass Box
COB: Cross Over bench
Clean Room Area
Direction of flow