REQUEST FOR PROPOSAL FOR SETTING UP MICROBIOLOGY SECTION AND INSTALLATION OF EQUIPMENTS BY FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA
(Open Tender enquiry)

Request for Proposal (RFP) No. 04/2017-18

File No. 12015/03/2017-QA(Microbiology)

Food Safety and Standards Authority of India
(A statutory Authority established under the Food Safety and Standards Act, 2006)
FDA Bhawan, Kotla Road, New Delhi-110002

Dated the 03rd January, 2018

The Food Safety and Standards Authority of India (hereinafter called "The Authority" invites tender on Two-Bid system for **SETTING UP MICROBIOLOGY SECTION AND INSTALLATION OF EQUIPMENTS** in Central Food Laboratory, 3, Kyd Street, Kolkata-700016 on turnkey basis.

2. Bids under Two bid system (Technical Bid and Commercial Bid) in sealed covers are invited for **"SETTING UP MICROBIOLOGY SECTION AND INSTALLATION OF EQUIPMENTS By FSSAI"**. Please super scribe the above mentioned title, RFP No. and date of opening of the bids on the sealed covers to avoid the bid being declared invalid. Please also super scribe 'Technical Bid and 'Commercial Bid' on the respective covers:

3. General information about the tender is as follows: -

(a)	Queries to be addressed to	:	nilesh.ojha@nic.in
(b)	Postal Address for sending the Bids	:	Joint Director (Quality Assurance) Food Safety and Standards Authority of India, FDA Bhawan, Kotla Road, New Delhi-110002
(c)	Name/designation of contact person	:	Nilesh Kumar Ojha Asstt. Director (Quality Assurance)
(d)	Telephone No.	:	011- 23237417
(e)	Last Date and Time for Receipt of Tenders	:	**31 Jan 2018 at 1500 Hrs**
(f)	Date and Time of Opening of Tenders	:	**31 Jan 2018 at 1530 Hrs**

4. This RFP is divided into five Parts as follows: --

(a) **Part I** Contains General Information and Instructions for the Bidders about the RFP such as the time, place of submission and opening of tenders, Validity period of tenders, etc.

(b) **Part II** Contains Essential Details of the Items/Services required, such as the Schedule of Requirements (SOR), Technical Details, Delivery Period, Mode of Delivery and Consignee details and Technical Bid Format.

(c) **Part III** Contains Standard Conditions of RFP, which will form part of the Contract with the successful Bidder, besides other conditions contained in this RFP.

(d) **Part IV** Contains Special Conditions of RFP, which will also form part of the Contract with the successful Bidder.

(e) **Part V** Contains Evaluation Criteria and Format for Price Bids/Commercial Bids.

5. **Each page of this tender enquiry should be signed by the bidder or authorised representative and following certificate be given in the offer letter under the seal of the bidder:-**

‘ I/WE HEREBY DECLARE THAT ALL THE TERMS AND CONDITIONS GIVEN IN THE TENDER ENQUIRY ARE ACCEPTED BY ME/US ON BEHALF OF MY/OUR FIRM AS PER **ANNEXURE I**’

6. **This RFP is being issued with no financial commitment and this office reserves the right to change or vary any part thereof at any stage. This office also reserves the right to withdraw the RFP, should it become necessary at any stage.**

-Sd-
(Umesh Kumar Jain)
Jt. Director (Quality Assurance)
Food Safety and Standards
Authority of India, FDA Bhawan,
Kotla Road, New Delhi-110002

PART I – GENERAL INFORMATION AND INSTUTIONS

1. **Last date and time for depositing the Bids:** **31 Jan 2018 by 1500 Hrs.** The sealed quotations under two bid system (i.e. Technical Bid & Commercial Bid) in sealed covers should be deposited/reached by the due date and time. The responsibility to ensure this lies with the Bidder.

2. **Manner of depositing the Bids:** Sealed quotations should be dropped in the Tender Box marked for the said purpose by the due date and time. Late tenders will not be considered. No responsibility will be taken for postal delay or non-delivery/non receipt of Bid documents. Bids sent by FAX or e-mail will not be considered.

3. **Location of the Tender Box:** Reception Office, Food Safety and Standards Authority of India, FDA Bhawan, Kotla Road, New Delhi-110002. Only those Bids that are found in the tender box will be opened. Bids dropped in the wrong Tender Box will be rendered invalid.

4. **Time and date for opening of Bids:** The tender box will be opened on **31 Jan 2018 at 1530 hrs**. (If due to any exigency, the due date for opening of the Technical-Bid is declared a closed holiday, then it will be opened on the next working day at the same time or on any other day/time, as intimated by this office).

5. **Place of Opening of the Bids:** Conference Hall of Food Safety and Standards Authority of India, FDA Bhawan, Kotla Road, New Delhi-110002. The Bidders may depute their representatives, duly authorized in writing, to attend the opening of Bids on the due date and time. Rates and important commercial/technical clauses quoted by all Bidders will be read out in the presence of the representatives of all the Bidders. This event will not be postponed due to non-presence of your representative.

6. **Two-Bid System:** In case of the Two-Bid System, only the Technical Bid would be opened on the time and date mentioned above. Date of opening of the Commercial Bid will be intimated after acceptance of the Technical Bids. Commercial Bids of only those firms will be opened, whose Technical Bids are found compliant/suitable after Technical evaluation is done.

7. **Forwarding of Bids:** Bids should be forwarded by Bidders under their original memo/letter pad inter alia furnishing details like PAN, GST number, Bank address with EFT Account, if applicable, etc. and complete postal & e-mail address of their office.

8. **Clarification regarding contents of the RFP:** A prospective bidder who requires clarification regarding the contents of the bidding documents shall notify to the Tender Inviting Authority in writing about the clarifications sought not later than 14 (fourteen) days prior to the date of opening of the Bids. Clarifications to specific requests shall be responded through e-mail and general clarifications, affecting all the bidders shall be published in the official website of the Tender Inviting Authority (www.fssai.gov.in). However it shall be the duty of the prospective bidder to ensure that the clarifications sought for have been properly received in time by the Tender Inviting Authority.

9. **Pre-Bid Conference:** All clarifications are to be resolved in the Pre-Bid Conference on **12 Jan 2018** at **1100hrs** in **Conference Hall of Food Safety and Standards Authority of India, FDA Bhawan, Kotla Road, New Delhi-110002** prior to submission of bids.

10. **Modification and Withdrawal of Bids:** A bidder may modify or withdraw his bid after submission provided that the written notice of modification or withdrawal is received by the Tender Inviting Authority prior to deadline prescribed for submission of bids. No bid shall be modified after the deadline for submission of bids. No bid may be withdrawn in the interval between the deadline for submission of bids and expiration of the period of bid validity specified. Withdrawal of a bid during this period will result in Bidder's forfeiture of EMD.

11. **Clarification regarding contents of the Bids:** During evaluation and comparison of bids, the Tender Inviting Authority may, at its discretion, ask or call the bidder for seeking clarification on his bid. The request for clarification will be given in writing/through email and no change in prices or substance of the bid will be sought, offered or permitted. No post-bid clarification on the initiative of the bidder will be entertained.

12. **Rejection of Bids:** Canvassing by the Bidder in any form, unsolicited letter and post-tender correction may invoke summary rejection with forfeiture of EMD. **Conditional tenders will also be rejected.**

13. **Validity of Bids:** The Bids should remain valid till **06 Months** from the last date of submission of the Bids.

14. **Earnest Money Deposit**. Bidders are required to submit Earnest Money Deposit (EMD) in favour of **Senior Accounts Officer, FSSAI** for an amount of **6,00,000/- (Rupees Six Lakh only)** along with their bids. The EMD may be submitted in the form of an Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the public sector banks or a private sector bank authorized to conduct government business. EMD is to remain valid for a period of forty-five days beyond the final bid validity period. EMD of the unsuccessful bidders will be returned to them, without any interest whatsoever, at the earliest after expiry of the final bid validity and latest on or before the 30th day after the award of the contract. The Bid Security of the successful bidder would be returned, without any interest whatsoever, after the receipt of Performance Security from them as called for in the contract. EMD is not required to be submitted by those Bidders who are registered with the Central Purchase Organization (e.g. DGS&D) or National Small Industries Corporation (NSIC). The EMD will be forfeited if the bidder withdraws or amends impairs or derogates from the tender in any respect within the validity period of their tender.

PART II – ESSENTIAL DETAILS OF ITEMS/SERVICES REQUIRED

The tenders are invited for setting up of Microbiology section at CFL, Kolkata and installation of equipments as mentioned under schedule of requirements in Part II of RFP. This Tender is a Turnkey Project.

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

Sl.No	Item	Purpose
1.	**Modular clean rooms**	For Bio-burden reduction in working area of microbiology lab.
2.	**Bio-Safety Cabinet (Class II Type A2) – 2 nos**	For safe handling of pathogens and sample & For handling media and test items
3.	**Vertical Top Loading Autoclave - 2 nos**	For sterilization of media / glassware
4.	**Laboratory Refrigerator -2°C – 8°C - 2 nos.**	For Storage of reference cultures and Test reagents / Enzymes etc.
5.	**Digital Electronic Precision Balance – 2 nos.**	For weighing at low level
6.	**Circulating water-bath -10°C-100°C, 15 Ltr - 2 nos**	Tempering of microbial media
7.	**Incubator (Multi chambered)**	Suitable for conducting independent incubations in four chambers.
8.	**Hot Air Oven**	For sterilization
9.	**Fumigator / Fogger**	For room disinfection
10.	**Automated pathogen detection and Identification**	For rapid detection and identification of Pathogens
11.	**Automated Microbial enumeration system**	For rapid enumeration of Pathogens
12.	**Real Time PCR System**	Gold Standard for pathogen detection
13.	**Automatic colony counter (bench-top, digital)**	For microbial enumeration
14.	**Anaerobic Chamber**	For growing anaerobes with strict gas requirements - Clostridium, Campylobacter, etc.
15.	**Water purification system**	For generation of laboratory grade water for Microbiological purpose
16.	**Fully Automated Elisa Reader & Washer**	For analysis of Staphylococcal endotoxin, Mycotoxins
17.	**Temperature data logger – 6 nos**	For routine temperature calibration checks
18.	**Digital Trinocular Microscope with image processing system and digital camera**	For direct count of microorganisms and their structural identification
19.	**Automatic Safety Bunsen Burner**	For streaking of pathogens
20.	**Shaking Incubator**	For enrichment of bacteria

Sl.No	Item	Purpose
21.	**Membrane Filtration System**	For Water microbiology
22.	**Stomacher**	For sample homogenization
23.	**Air Sampler**	For routine bio-burden checks of clean-room
24.	**Laboratory glassware washer/dryer**	For routine glassware cleaning
25.	**Bench top UV-visible spectrophotometer**	For Water Quality Testing
26.	**Digital Thermohygrometer**	For Routine monitoring of Room Temp. & Humidity
27.	**pH Meter**	For pH checks of prepared Media and Sample

2. **Technical Details:**

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. Size: working area minimum 4 ft width 2. System must work on laminar air flow technology Vertical. 3. System should be class II Type A2 with 70% recirculation and 30% Exhaust by HEPA or higher filter with filter monitoring system. 4. System should come with Stand from same company. 5. System should be 99.99% efficient supply and exhaust HEPA filters of industry standard sizes and front accessible for economical and easy replacement. 6. It should have Inbuilt fumigation port for decontamination. 7. System should have 254 nm UV lamps for decontamination of germs. 8. System should have following standard feature: (a) Nominal inflow velocity of 105 feet per minute (fpm) (0.5 m/sec) (b) Nominal down flow velocity of 55 fpm (0.3 m/sec) (c) Approximately 70% air recirculation by HEPA Filter 9. Interior-mounted, line-of-sight color display LCD information center with “Filter Life Remaining” bar graph, status line for alarm conditions and alerts to warn when filter life diminishes to 20%, 10% and 0% 10. 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 11. Built-in interval or elapsed time for experiment monitoring, fluorescent light or UV light control Touchpad control on right-hand side post for manual activation of blower, light, timer, audible alarm mute and menu selection.

		12. Radiuses type 304 stainless steel interior and removable, seamless, dished work surface with lift out knobs 13. Service fixture one no with ball-type valve Epoxy-coated steel exterior 14. Towel catch located under work surface 15. Contain-Air Negative Pressure Channel Class 5 conditions per ISO 14644-1 and 2 (formerly Class 100) 16. Supply and exhaust 99.99% efficient HEPA filters. 17. One electrical duplex receptacle, covered by stainless steel splash covers. 18. System should have RS232 port to transmit the data. 19. Fully-closing, clear 1/4" tempered safety glass sash with two sash handles; counterbalanced, anti-racking mechanism; and 10° slope. 8.0 inch working sash opening height. 20. Curved stainless steel inlet grille with Reserve-Air Secondary Airflow Slots or Arm Rest type. 21. Bright, 90-100 foot candle, glare-free fluorescent lighting located outside the contaminated work area. 22. Intrinsically safe negative pressure design System should allows the user to program start up and shut down operations when the sash is raised or lowered 23. System should have the function that idles the blower when the sash is fully closed 24. System should come along with the entire necessary accessory and should be ready to work. 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. Warranty: 05 years comprehensive Warranty. **27. 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, Tetrahedral 2. Capacity: a. Approx. 80 liters or more internal volume. Dimensions (mm) – External - 470W x 528D x 1003Hmm (With protruding:625D), Internal Chamber dimensions- 370 x 774mm. b. Approx. 55 liters External Dimensions – 450 x 640 x 920 mm Internal Dimensions of working chamber – 350 x 550 mm (dia x ht) 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: For sterilizing 105-135ºC, for heating 45 -104ºC and for warming 45 - 95ºC with Last run memory. 6. Unwrapped Cycle Time Cold:55 Mins, Hot:40 Mins approx. 7. Accelerated cooling technology 8. Sterilizer should be provided with steam generator with Built in steam exhaust bottle. 9. Spring loaded safety valves and automatic vacuum breaker for jacket 10. Removable plug screen for chamber drain. 11. SS baffle for even steam distribution in the chamber. 12. Safety valve protection against poor pressure. 13. Safety lock for door: pressure lock safety device.

		14. Advanced Microprocessor based Control Panel 15. Water level sensor, current leakage breaker, lid interlock, over heat & pressure Prevention, open temperature sensor detection & safety value Lid opening/closing detection Mechanism, Exhaust bottle detection mechanism. 16. Should come with inbuilt printer and option to print after every 1 minutes during operation and also they should provide external temperature sensor. 17. 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 18. Environmental factors: Shall meet IEC-60601-1-2: 200 (Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. 19. Power Supply: Power input to be 220-240VAC, 50Hz,/440 V 3 Phase as appropriate and fitted with plug compatible with local sockets 20. Warranty: 05 years comprehensive warranty. **21. 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: 340 L 4. Fan forced air circulation to ensure stable & uniform preservation environment 5. Should have Cycle Defrost Function & evaporator temperature detection system to permit defrosting without increasing temperature inside cabinet 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 with baked on acrylic finish on galvanized zinc plated steel 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: 05 years comprehensive warranty. 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. Range (weight) - 0.01gm - 1200gm 3. Accuracy: 0.01gm 4. Readability: 0.001gm 5. Capacity: 1200gm, Covered type - Glass draft shield with sliding door required. Chamber height – 210 mm approx. 6. Repeatability: 0.001gm 7. Linearity: 0.002gm

		8. Response time: 1.5 s 9. Weighing Pan size: 114mm 10. Calibration: automatic/internal 11. Display: Touch Screen 12. Stabilization Time, 2 Seconds (typically). 13. Calibration certificate from NABL accredited calibration laboratory should be supplied along with the eqp. 14. Warranty: 05 years comprehensive warranty. **15. Buy-back price for old Precision Balance [Make: Sartorius, LP1200S Year of Installation: 2007] may also be quoted**
6.	**Circulating Water bath**	1. Capacity - 15 Ltr. 2. Dimensions - Internal dimensions (w x d x h),mm - 300 x 325 x 200 Overall dimensions (w x d x h), mm - 335 x 408 x 280 3. Temperature range Ambient +5°C to 99.9°C 4. Advanced Microprocessor based Control Panel with digital display with an accuracy of ±0.5^{o}C 5. Double walled inside stainless steel and outside mild steel sheet painted in epoxy powder coating. 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. Lid of water bath is made of stainless steel 304 Qlty. 8. Number and types of racks - tube racks for 15ml x 40 and 50ml tubes x 40 – 2 nos each 9. Low level water sensor. Audible warning safety signals should be there for high/low temperature warnings, and dry running protection. 10. Instrument should have lift up bath cover; Carrier racks should be given for flasks and test tubes racks. 11. A cock should be provided to facilitate draining of bath contents. 12. Water bath protective media should be there to prevent contamination and formation of algae. 13. Heating capacity - 2 KW; should have all the accessories required for the functioning of the equipment. 14. All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment. 15. Warranty: 05 years comprehensive warranty.
7.	**Incubator (Multi chambered) – 2 nos**	1. Configuration: Multi-chamber: 4 chambered, floor-standing, mobile - Castor wheel (for mobile incubator) 2. Capacity (Chamber volume) - (L / cu ft) - 60 / 2.1 x 4 chambers 3. Independent Temperature Control of Each Chambers with provision of minimum 2 nos. of SS-304 height adjustable racks in each chamber. 4. Temperature range (^{o}C): Amb. +5 to 70 ^{o}C, ± 0.2 ^{o}C accuracy and ±0.5 ^{o}C uniformity with programmable Temperature Control with Illumination (Temperature and illumination of each chamber can be controlled independently). Independent Cooling System for each chamber to provide precise temperature 5. Stainless Steel 304 Inner Chamber 6. Door specification: Solid installed with lock 7. Dimension(W×D×H) Interior (mm) - 400×360×420 x 4 chambers Exterior (mm) - 1170×640×1360 8. No. of wire shelf (standard/ max.) 2 / 7 per chamber - Perforated shelves 9. Digital PID Controller or Programmable Controller 10. Over Temperature Protection, Over Current Leakage Breaker

		11. Adjustable time and interval 12. Suitable on - line UPS (5 KVA) to support the instrument. 13. Certification: Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation 14. Each equipment should be supplied with multi channel data logger for temperature 15. Warranty: 05 years comprehensive warranty. **16. 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. Dimension (W×D×H) Interior (mm) 400×360×420 Exterior (mm) 577×642×760 7. Temp. Range: Ambient +10°C to +250°C 8. Temperature Accuracy: ±O.5°C 9. Temperature Protection: Automatic over temperature alarm based protection system. 10. Timer function: Choice of time (On/Off condition) for automatic setting. 11. Temp. Control: Microprocessor control with LCD/ LED display. 12. Convection system: Gentle drying and heating with superior temperature uniformity. 13. 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. Capacity: 60-70 Ltrs. 15. Certification : Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation 16. Warranty: 05 years comprehensive warranty. 17. **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. Laboratory fumigator dispenser consistent particle size generation of 5-15 µ, better 2. Should be compatible with wide range of disinfectant in a closed room. 3. Design- With Wheels, Vortex type. Non rotating and non closing nozzle. 4. Tank Capacity- 2 liters. Easy clean, detachable and non corrosive for chemical 5. ELECTRICAL - 200-270V, 50 HZ. 6. Warranty: 05 years comprehensive warranty.
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. The technology should involve Ag-Ab testing for sample inoculation strips containing all reagents required for testing . 4. The system should involve only adding of pre enriched sample into individual strips containing all other reagents (enzyme conjugate/ wash buffer/ substrate). 5. The instrument shall be a multi parametric system and able to perform more than two parameters in the same run.

		6. System should be supplied with an accessory for sample heating device. 7. System should be capable for the detection of : i) Salmonella species ii) Listeria species *iii)* *E.coli* iv) *S.aureus* enterotoxin v) Campylobacter 8. System should be supplied with an accessory system to determine *E.coli*, Shigella species, Vibrio species, anaerobic bacteria (Clostridium species) from food samples based on colorimetric technology. 9. Negative and Positive controls must be supplied with the kits and system should demonstrate them. 10. The accessory system should be based on Biochemical reactions should be available in both kinetic mode and end point mode within a day. 11. The results for the Biochemical reactions should be available on an intuitive software which is 21 CFR part 11 compliant with facility of audit trail and electronic signature. 12. Biochemical profiling should be done using plastic cards impregnated with biochemical substrates specifically for Gram positive cocci, Gram negative cocci, Gram negative rods, Bacillus species, Coryneform species, anaerobic bacteria and yeast species. 13. Biochemical profiling should be done by an automatic analyzer allowing automatic filling of test cards with the test suspension followed by automatic internal barcode reading, sealing and loading of cards in the incubator sections. 14. Analyzer should be connected to a computer with preloaded software capable of kinetic analysis of ongoing reading and producing results in real time. 15. Software should be capable of creating new organism list in the database apart from the existing database . 16. System should be provided with an accessory system to perform automated Gram staining for positive samples to confirm and further testing. 17. System should be provided with a accessory system based on FRET technology (Fluorescence Resonance Energy Transfer) coupled with Melt point peak analysis to detect food borne pathogens. 18. System should be provided with an accessory with specific media to detect anaerobic bacteria from canned food samples / juices using colorimetry technology. 19. All test results should be obtained between 24 – 72 hrs. 20. A remote access software should be provided with the system to help monitoring of the system remotely and for troubleshooting. 21. System should be accompanied with all accessories like computer, printer, barcode scanner. 22. System should be supported with MS windows operated system and all modular hardware units with sample preparation station, reading station computer and accessories with barcode scanner USB, colour printer and provision for integration with LIMS. 23. Software up-gradation should be free of cost for lifetime of system. System should come along with the entire necessary accessory and should be ready to work. Any accessory system(s) other than those mentioned in the technical specifications, that are required for satisfactory installation of the system should be quoted and supplied with the instrument. 24. The system must have no additional reagent costs. If additional reagent

		costs are required please supply details including cost and preparation time. 25. 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. 22. Warranty: 05 years comprehensive warranty. 26. Kits for pathogen screening and identification 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. 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. Warranty: 05 years comprehensive warranty. 15. 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 96-well Peltier based PCR Machine 2. The System must have capacity for minimum multiplexing of four targets in qPCR. 3. The System must have filters to detect these dyes: sybr, fam, hex, cy3 and cy5 4. The excitation source should be multiple LED's and detection should be photodiode. 5. The Hardware must offer Peltier based thermal cycling for fast PCR (40 cycles in 42 minutes) 6. The system should have temperature range of 25-99.9°C with an accuracy of 0.2°C 7. The system should have peak block ramp rate for heating and cooling of 4.5°C or more. 8. The system should support minimum reaction volume of 10µL 9. Optics preferably contained in modular cartridges, for no cross talk and improved data resolution is desired. Scan time for all channels is 2 seconds or less irrespective of plex number/optical channels is preferred 10. The Instrument must offer 10 logs of linear dynamic range. 11. Instrument preferably should have easily changeable optics cartridges 12. The system shall offer options for genotyping via high resolution melting curve analysis and template quatification. 13. It must have touch screen system, so that no additional PC or laptop is needed. It should have at least 2 USB ports and storage of 5GB or more. 14. Warranty: 05 years comprehensive warranty. Installation and training for users shall be included without extra costs. 15. The PCR machine shall be compatible with PCR tubes from multiple vendors. 16. Voltage stabiliser and UPS systems shall be included in the offer. SOFTWARE: 17. The system should come along with High Resolution Melting (HRM) Curve Analysis Software. The vendor should have reagents for HRM Applications. 18. The system must offer preprogrammed assays for easy selection of calibrators, normalizers and sample associations. 19. The system must offer multiple customizable data analysis algorithms 20. The software must enable export of raw data in multiple formats. 21. The system should come along with software to support applications like absolute quantitation, RQ, multiplex PCR, Melt curve analysis, pathogen detection and control assays. SUPPORTING CHEMISTRIES AND APPLICATIONS: 22. The system must be open to all chemistries including SYBR, Probe and HRM 23. The system must offer multiplexing capabilities, excluding the internal passive reference dye. 24. The system must be flexible to be used with 96-well plates, strips of 8 or individual tubes. 25. The instrument may have display with an LCD touch screen that is a 6.5inch, full VGA (640 x 480). 26. Analysis work station should be of latest branded Pentium IV with licensed windows XP, operating system and colored laser printer. 27. The vendor should clearly indicate compliance or deviation vis –a vis the tender specifications and should be highlighted in the literature or

		manuals. 28. The instrument should be UL approved and manufactured according to ISO 9001 standards. 29. 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. 30. 05 years comprehensive warranty, if required. 31. Reagents for 500- 1000 reaction should be provided with the instrument. 32. 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 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: 05 years comprehensive warranty.
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
15.	**Ultra pure 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**	1. ELISA Microplate Reader: a. Light Source: Quartz-halogen lamp 6V/10W b. Wavelength Selection: 340-850nm c. Filters: 8- position filter wheel, the instrument is delivered with the following standard filters installed: 405nm, 450nm, 620nm and 650nm d. Resolution: 0.001 Abs e. Display: High contrast color display (480 x 272 dots) f. Internal Memory: At least up to 99 assay protocols and 100 test results, 96- well plates g. Optional Incubator: Temperature range from ambient +4o C up to 50o C h. Accuracy(405nm): ± 1% (0-3Abs) or ± 0.003 Abs, Whichever is greater i. Communication: USB for computer connection USB for memory stick position for data export USB for external printer j. Mains Input: 100-240V(50/60Hz) With IVD specifications 2. ELISA Microplate Washer: a. With IVD specifications b. With non-pressurised bottle to maintain biosafety c. Residual volume < 1.5 ul d. Dispensing volume 50-400 microL for 96 well plate e. With plate sensor f. Data Transfer – USB Port Number of wash protocols up to 99 g. Number of Wash buffer bottles 1
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) 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 dimensions (W x D x H): Minimum 62 x 75.4 x 82 cm 2. Shaking Speed range 25 to 400 rpm 3. Temperature range: 20°C below ambient to 80°C with accuracy of ± 0.1°C and stability of ± 0.2°C at 37°C 4. Shaking orbit: 1 inch (approx. 2.5cm) 5. Display: Large, easy to read LCD display screen 6. Platform dimensions: At least 45 x 45 cm. Platform should accommodate 10ml, 25ml, 50ml, 125ml, 250ml, 500ml clamps. 7. Controls for entering and viewing set points preferably positioned at the top / side of shaker for ease of use. 8. 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. 9. Audible and Visible Alarm: should indicate when speed deviates more than 5 rpm or temperature deviates more than 1°C from set point, and when timer operation has expired. 10. Shaker requirements: a) Single knob selects all operating conditions and quickly Triple-eccentric counter balanced drive b) Acceleration circuit to prevent sudden start and stop should be available c) Programmable controller offering up to 4 modes of timer and parameter control for

		reduced user intervention. d) Timer 0.1 to 99.9 hours or continuous mode e) UV germicidal lights. 11. Refrigeration: Hermetically sealed compressor using CFC free refrigerant 12. Power requirement: 230V/50-60Hz 16. Suitable Servo Voltage Stabilizer should be quoted 13. Warranty: 05 years comprehensive warranty.
21.	**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 12. Degree of protection IP 40 13. Dimensions (L x W x H) 247 x 121 x 145 mm 14. Weight 5.0 kg 15. Noise level at 50 Hz, typ. 45 dBA 16. Items to be supplied - Pump completely mounted w, ready for use, with manual. 17. Accessories : Rubber vacuum tubing DN 8 mm (686001) Chemistry vacuum regulator valve unit for ME/MZ 1C (696843) Silencer DN 8 - 10 mm (636588).
22.	**Stomacher**	1. Time set: 30,180,600s or work continuously 2. Rap speed: 3-12/second 3. Valid capacity:80-40 ml 4. Stainless steel material of case 5. Power: 165W 6. Electronic motor rate: 5001-1500 rpm 7. LCD display 8. Power supply: 220v/50 HZ
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: 05 years comprehensive warranty.
24.	**Laboratory glassware washer/dryer**	1. Chamber volume of Washer/Dryer Option 1: 150 – 200 litre's capacity Option 2: 200 – 275-litre capacity. Please quote for both the above options 2. Internal chamber type : Inner chamber, washing arms and tank filters made of high quality AISI 316 L stainless steel. 3. Front Glass Door : Glass Door version – Inside chamber must be visible,

		while in washing/drying run. 4. Control System : Soft touch LCD display. Microprocessor controlled. 5. Cleaning Liquid Dispenser : Minimum two automatic internal liquid dispenser. 6. Standard pre-programmed cycle : At least 10 pre-programmed standard cycles. 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. Internal Baskets for placement of glassware inside : Must include basic 3 or 4 multipurpose baskets for storing test tubes, beakers, conical flasks, round bottom flasks, pipettes and petri dishes. 10. Built in Dryer Unit : Built in forced air dryer unit for drying entire glassware content after the wash/rinse cycle. 11. 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. 12. 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. 13. Warranty: 05 years comprehensive warranty. 14. End User Training at site : Necessary end user training and instructions must be provided to all users at site. 15. List of present users in India : Must provide the list of users/ customers of this equipment in India. 16. Desirable Specification: i) Telescopic bearing railing for loading the basket. ii) Operator and Service manual with all spare parts list. 17. Availability of all spare parts and service support in India for the next 10 years.
25.	**Bench top UV-visible spectrophotometer**	1. The spectrophotometer instrument shall be a multi wavelength, UV-Visible, Split Beam / Dual Beam spectrophotometer designed for laboratory analysis of water parameters 2. The Instrument should have More than 250 Pre-Programmed Methods 3. The Spectral Bandwidth should be 2nm 4. The Required reagents for the water parameters should be from the same manufacturer. 5. The wavelength range of the instrument shall be from 190 to 1100 nm with accuracy of ±1 nm & resolution of 0.1nm. 6. The instrument should have User Guidance on Screen 7. The instrument, depending on the test selection, shall automatically select the wavelength. 8. The Instrument should have 10 fold measurement for 16mm Round sample cells 9. Readout modes shall include transmittance, absorbance, concentration, optional wavelength scan and time course graphs. 10. The instrument shall be capable of measuring aluminium; arsenic; chlorine dioxide; chlorine; chromium; color; copper; fluoride; iron; manganese; nitrogen (as ammonia, nitrate, nitrite, total nitrogen); chemical oxygen demand; phosphonates; phosphorus; potassium; silica; sulfate; sulfide; sulfite; surfactants; suspended solids; , zinc and many more 10 The Following Pre programmed Tests shall conform to USEPA-approved methods: arsenic; chlorine dioxide; chlorine, free; chlorine,total;

		chromium, hexavalent; copper; fluoride; iron (total); manganese; nickel; nitrogen (ammonia); nitrogen (nitrite);chemical oxygen demand; phenols; phosphorus (reactive);phosphorus (total); sulfate; sulfide; and zinc. 11. The instrument shall be equipped with storage capacity from 4000- 5000 data points & more than 100 user-defined calibrations. 12. The interface of the instrument shall be graphical with touch screen. 13. The instrument shall be capable of Sample Cell Compatibility Rectangular: 10, 20, 30, 50 mm, 1 inch; round: 13 mm, 16 mm, 1 inch & Optional 100 mm rectangular cell with additional adapter 14. The instrument shall provide graphical display and be capable of printing test results. 15. Operating Mode: Transmittance (%), absorbance and concentration (wavelength, time) 16. Optics : Split Beam / Dual Beam 17. Source Lamp : Tungsten (visible range), deuterium (UV range) 18. Wavelength Range : 190 - 1100 nm Accuracy : ±1 nm Reproducibility : < 0.1 nm Resolution : 0.1 nm Wavelength Selection : Automatic, based on method selection 19. Spectral Bandwidth : 2 nm 20. Photometric Measuring Range: ±3 Abs 21. Photometric Accuracy : 2 Abs with neutral glass at 546 nm 22. Stray Light : KI-solution at 220 nm < 3.3 Abs/< 0.05% 23. Display : TFT 7 inch color touch screen 24. Data Logger : Minimum 4000- Maximum 5000 data points (result, date, time, sample-ID, userID) 25. Preprogrammed Methods : >230 26. User Programs : >175 27. Sample Cell Compatibility: Rectangular: 10, 20, 30, 50 mm, 1 inch; round: 13 mm, 16 mm, 1 inch 28. Operating Conditions: 10 to 40°C, max. 80% relative humidity (non-condensing) 29. Storage Conditions: -25 to 60°C max. 80% relative humidity (non-condensing) 30. Instrument Enclosure Rating : IP 20 with closed lid 31. Interfaces : USB type A (2), USB type B, Ethernet, 32. SCOPE OF SUPPLY: The instrument should supply with Basic instrument , 1 Inch matched Glass sample cell , basic user manual, a multi adapter for round and rectangular vials, CD with manual and procedure manual in .pdf format. Power cords **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 indicatorBuy back
27.	**pH cum ORP**	1. pH Range -2.000 to 16.000 pH

	Meter	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 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: 05 years comprehensive warranty.

3. **Delivery Period –** Delivery period for setting up Microbiology section and installation of equipments would be **120 days** from the date of issue of Supply Order. Please note that Supply Order can be cancelled unilaterally by the Buyer in case items are not received within the Supply Ordered delivery period. Extension of Supply Ordered delivery period will be at the sole discretion of the Buyer, with applicability of Liquidated Damages(LD) clause.

4. **Penalty for delay in supplies / Installation:** In the event of delay in setting up of Microbiology section, supply, installation, testing and commissioning of the equipment to the satisfaction of the **FSSAI/Director, Central Food Laboratory, 3, Kyd Street, Kolkata-700016** beyond the stipulated date:

a. The Bidder will inform **FSSAI/Director, CFL, Kolkata** well in advance in writing the reasons for delay in supply and/or installation of the equipment.
b. **FSSAI/Director, CFL, Kolkata** shall have the right to recover liquidated damages at the rate of 0.25% of the Value of the equipment per day, by which the supplies or their satisfactory installation and commissioning is delayed subject to a maximum of 10%. Once the maximum is reached **FSSAI/Director, CFL, Kolkata** may consider termination of the supply order.

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

5. **Consignee Details.** O/o The Director, Central Food Laboratory, 3, Kyd Street, Kolkata-700016

6. **Eligibility Criteria for Pre-Qualification of Bidders**. The firm/Bidder fulfilling the following eligibility criteria will be considered for opening of their Commercial Bids: -

(a) Annual financial turnover, during each of the last three years should not less than Rs. Five 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.

(b) Bidder must have valid GST Registration Certification. A copy of the certificate should be enclosed with the Technical Bid.

(c) Bidder must possess valid PAN Card. A copy of the same should be enclosed with the Technical Bid.

(d) Demand Draft/Pay Order of Rs. 6,00,000/- (Rupees Six Lakh only) toward Earnest Money drawn in favour of Senior Accounts Officer, FSSAI should be submitted along with the Technical Bid.

(e) Bidders are required to submit Bank Solvency Certificate issued not earlier than 30 Nov 2017.

(f) Documents proving experience of having successfully setting up of Microbiology section and installation of equipments of similar nature should be submitted with the Technical Bid.

(g) Bidders should have the capability to attend repairs of the equipment and have the capability to ensure the uptime in a year of 90% as per **Annexure III**. (Documentary proof shall be submitted on the after sales facilities and expertise of the bidder.)

(h) Bidders who have been blacklisted / debarred by the Tender Inviting Authority or blacklisted / debarred by any State Government or Central Government department/Organization should not participate in the tender during the period of blacklisting. The bidder should enclose an undertaking to this effect alongwith the Technical Bid as per **Annexure IV**.

(i) Bidder should also provide general information as per **Annexure V**.

(j) Any other details, as considered necessary, may also be provided.

(k) Non- receipt of above mentioned documents may lead to rejection of the bid submitted by the bidder.

7. **Two-Bid System**. The quotation must be submitted by the bidder under two –bid system i.e. Technical-Bid and Commercial Bid to be submitted in separate sealed covers. Format of Technical Bid is at para 10 of the RFP. The documents mentioned in para(s) 6 and ___ should be enclosed with the Technical –Bid. Bidders are also required to furnish clause

by clause compliance of specifications bringing out clearly the deviations from specification, if any. The Bidders are advised to submit the compliance statement as per **Annexure VI**.

8. **Other terms and Conditions**:

(a) All the terms and conditions in respect of warranty/guarantee, Training of Staff etc shall be complied with.

(b) Technical Specifications and Standards:- The Goods & Services to be provided by the successful bidder under this contract shall conform to the technical specifications and quality control parameters mentioned in **para 2 of Part-II** of this document.

(c) The bidder shall be responsible for payment of any charges due to any statutory authorities such as Income Tax, GST, Customs Duties, etc.

(d) In the event, if it found that there is some statutory deduction to be made at the source, the Tender Inviting Authority will have the authority to do so.

9. **Amendment of tender documents**:

(a) At any time prior to the dead line for submission of Tender, the Tender Inviting Authority may, for any reason, modify the tender document by amendment.

(b) The amendments shall be published on the website, and the tender shall submit copy of amendments published if any signed by the bidder or the authorized representative shall be enclosed as part of the technical bid as a proof of having read and accepted the terms and conditions of the tender document.

(c) The Tender Inviting Authority shall not be responsible for failure to inform the prospective bidders for any notices published related to each tender. Bidders are requested to browse the website of the Tender Inviting Authority for information/general notices/amendments to tender document etc on a day to day basis till the tender is concluded.

10. **Bid Form**

TECHNICAL BID FORM (A)

1	Tender to be submitted to	Joint Director(QA), Food Safety and Standards Authority of India, FDA Bhawan, Kotla Road, New Delhi-110002
2	Closing date and time for receipt of Tenders.	1500 hrs on **31 Jan 2018**
3	Time, date & place of opening of Technical Bids	1530 hrs on **31 Jan 2018** in Conference Hall, Food Safety and Standards Authority of India, FDA Bhawan, Kotla Road, New Delhi-110002
4	Earnest Money Deposit	**Rs.6,00,000/-** (Rupees Six Lakh only) DD/Banker's Cheque No._____ Dated_____ Issuing Bank_____
5	Schedule of Requirements and other Technical features as contained in Pat II of the RFP	Complied / Not complied
6	Bank Solvency Certificate (issued not earlier than 30 Nov 2017)	Enclosed / Not enclosed
7	Authenticated copy of PAN	Enclosed / Not enclosed
8	Authenticated copy of GST Regn.	Enclosed / Not enclosed
9	Tender Bid valid for acceptance up to 06 months from the date of opening of the commercial bid.	Accepted / Not Accepted
10	Experience Certificate of having successfully setting up of Microbiology section and installation of equipments of similar nature.	Enclosed / Not enclosed
11	Annual Financial Turnover during the each of the last three Financial years 2016-17, 2015-16 and 2014-15, should not be less than Rs. Five Crore.	Enclosed / Not enclosed
12	An undertaking that the bidder has not been blacklisted/debarred by any State Govt./ Central Govt. Department/organization as per Annexure I.	Enclosed / Not enclosed
13	Documentary proof shall be submitted on the after sales facilities and expertise of the bidder	Enclosed / Not enclosed
14	Certificate of Guarantee/Warranty as per Annexure III	Enclosed / Not enclosed
15	Declaration form as per Annexure IV	Enclosed / Not enclosed
16	General Information about the Bidder as per Annexure V	Enclosed / Not enclosed
17	Compliance sheet as per Annexure VI	Enclosed / Not enclosed

Signature of Bidder_____
Name in Block letters_____
Capacity in which signed _____
Stamp of the Firm Date _____

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	Items	Specifications	Please Specify the details as per **Annexure II**
1.	**Modular clean rooms**	Details of Specifications for Cleanroom, Furniture and Lab lay out – Attached as ANNEXURE - I	

Part B:

Sl. No	Item	Specifications	Please Specify whether the quoted model meets the specification (Yes/No)	Specification of the quoted model
1.	**Bio-Safety Cabinet** **(Class II Type A2)**	1. Size: working area minimum 4 ft width 2. System must work on laminar air flow technology Vertical. 3. System should be class II Type A2 with 70% recirculation and 30% Exhaust by HEPA or higher filter with filter monitoring system. 4. System should come with Stand from same company. 5. System should be 99.99% efficient supply and exhaust HEPA filters of industry standard sizes and front accessible for economical and easy replacement. 6. It should have Inbuilt fumigation port for decontamination. 7. System should have 254 nm UV lamps for decontamination of germs. 8. System should have following standard feature: (a) Nominal inflow velocity of 105 feet per minute (fpm) (0.5 m/sec) (b) Nominal down flow velocity of 55 fpm (0.3 m/sec) (c) Approximately 70% air recirculation by HEPA Filter		

		9. Interior-mounted, line-of-sight color display LCD information center with “Filter Life Remaining” bar graph, status line for alarm conditions and alerts to warn when filter life diminishes to 20%, 10% and 0% 10. 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 11. Built-in interval or elapsed time for experiment monitoring, fluorescent light or UV light control Touchpad control on right-hand side post for manual activation of blower, light, timer, audible alarm mute and menu selection. 12. Radiuses type 304 stainless steel interior and removable, seamless, dished work surface with lift out knobs 13. Service fixture one no with ball-type valve Epoxy-coated steel exterior 14. Towel catch located under work surface 15. Contain-Air Negative Pressure Channel Class 5 conditions per ISO 14644-1 and 2 (formerly Class 100) 16. Supply and exhaust 99.99% efficient HEPA filters. 17. One electrical duplex receptacle, covered by stainless steel splash covers. 18. System should have RS232 port to transmit the data. 19. Fully-closing, clear 1/4" tempered safety glass sash with two sash handles; counterbalanced, anti-racking mechanism; and 10° slope. 8.0 inch working sash opening height. 20. Curved stainless steel inlet grille with Reserve-Air Secondary Airflow Slots or Arm Rest type. 21. Bright, 90-100 foot candle, glare-free fluorescent lighting located outside the contaminated work area. 22. Intrinsically safe negative pressure design System should allows the user to program start up and shut down operations when the sash is raised or lowered 23. System should have the function that idles the blower when the sash is fully closed 24. System should come along with the entire necessary accessory and should be ready to work. 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. Warranty: 05 years comprehensive Warranty.		
2.	**Vertical Top Loading**	1. Design - Vertical, Tetrahedral 2. Capacity:		

	Autoclave - 2 nos (Capacity – 80 lit, 50 lit aprox.)	a. Approx. 80 liters or more internal volume. Dimensions (mm) – External - 470W x 528D x 1003Hmm (With protruding:625D), Internal Chamber dimensions- 370 x 774mm. b. Approx. 55 liters External Dimensions – 450 x 640 x 920 mm Internal Dimensions of working chamber – 350 x 550 mm (dia x ht) 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: For sterilizing 105-135ºC, for heating 45 -104ºC and for warming 45 - 95ºC with Last run memory. 6. Unwrapped Cycle Time Cold:55 Mins, Hot:40 Mins approx. 7. Accelerated cooling technology 8. Sterilizer should be provided with steam generator with Built in steam exhaust bottle. 9. Spring loaded safety valves and automatic vacuum breaker for jacket 10. Removable plug screen for chamber drain. 11. SS baffle for even steam distribution in the chamber. 12. Safety valve protection against poor pressure. 13. Safety lock for door: pressure lock safety device. 14. Advanced Microprocessor based Control Panel 15. Water level sensor, current leakage breaker, lid interlock, over heat & pressure Prevention, open temperature sensor detection & safety value Lid opening/closing detection Mechanism, Exhaust bottle detection mechanism. 16. Should come with inbuilt printer and option to print after every 1 minutes during operation and also they should provide external temperature sensor. 17. 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		

		18. Environmental factors: Shall meet IEC-60601-1-2: 200 (Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. 19. Power Supply: Power input to be 220-240VAC, 50Hz,/440 V 3 Phase as appropriate and fitted with plug compatible with local sockets 20. Warranty: 05 years comprehensive warranty.		
3.	**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: 340 L 4. Fan forced air circulation to ensure stable & uniform preservation environment 5. Should have Cycle Defrost Function & evaporator temperature detection system to permit defrosting without increasing temperature inside cabinet 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 with baked on acrylic finish on galvanized zinc plated steel 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: 05 years comprehensive warranty. 15. Operator and service manual essential requirement 16. Quality Certification: Only international quality CE certified product		
4.	**Digital Electronic Precision Balance – 2 nos.**	1. Type – Top loading Precision Balance 2. Range (weight) - 0.01gm - 1200gm 3. Accuracy: 0.01gm 4. Readability: 0.001gm 5. Capacity: 1200gm, Covered type - Glass draft shield with sliding door required. Chamber height – 210 mm approx. 6. Repeatability: 0.001gm 7. Linearity: 0.002gm 8. Response time: 1.5 s 9. Weighing Pan size: 114mm 10. Calibration: automatic/internal		

		11. Display: Touch Screen 12. Stabilization Time, 2 Seconds (typically). 13. Calibration certificate from NABL accredited calibration laboratory should be supplied along with the eqp. 14. Warranty: 05 years comprehensive warranty.		
5.	**Circulating Water bath**	1. Capacity - 15 Ltr. 2. Dimensions - Internal dimensions (w x d x h),mm - 300 x 325 x 200 Overall dimensions (w x d x h), mm - 335 x 408 x 280 3. Temperature range Ambient +5°C to 99.9°C 4. Advanced Microprocessor based Control Panel with digital display with an accuracy of ±0.5^{o}C 5. Double walled inside stainless steel and outside mild steel sheet painted in epoxy powder coating. 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. Lid of water bath is made of stainless steel 304 Qlty. 8. Number and types of racks - tube racks for 15ml x 40 and 50ml tubes x 40 – 2 nos each 9. Low level water sensor. Audible warning safety signals should be there for high/low temperature warnings, and dry running protection. 10. Instrument should have lift up bath cover; Carrier racks should be given for flasks and test tubes racks. 11. A cock should be provided to facilitate draining of bath contents. 12. Water bath protective media should be there to prevent contamination and formation of algae. 13. Heating capacity - 2 KW; should have all the accessories required for the functioning of the equipment. 14. All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment. 15. Warranty: 05 years comprehensive warranty.		
6.	**Incubator (Multi chambered) – 2 nos**	1. Configuration: Multi-chamber: 4 chambered, floor-standing, mobile - Castor wheel (for mobile incubator) 2. Capacity (Chamber volume) - (L / cu ft) - 60 / 2.1 x 4 chambers 3. Independent Temperature Control of Each Chambers with provision of minimum 2 nos. of SS-304 height adjustable racks in each chamber. 4. Temperature range (^{o}C): Amb. +5 to 70 ^{o}C, ± 0.2 ^{o}C accuracy and ±0.5 ^{o}C uniformity with programmable Temperature Control with		

		Illumination (Temperature and illumination of each chamber can be controlled independently). Independent Cooling System for each chamber to provide precise temperature 5. Stainless Steel 304 Inner Chamber 6. Door specification: Solid installed with lock 7. Dimension(W×D×H) Interior (mm) - 400×360×420 x 4 chambers Exterior (mm) - 1170×640×1360 8. No. of wire shelf (standard/ max.) 2 / 7 per chamber - Perforated shelves 9. Digital PID Controller or Programmable Controller 10. Over Temperature Protection, Over Current Leakage Breaker 11. Adjustable time and interval 12. Suitable on - line UPS (5 KVA) to support the instrument. 13. Certification: Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation 14. Each equipment should be supplied with multi channel data logger for temperature 15. Warranty: 05 years comprehensive warranty.		
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. Dimension (W×D×H) Interior (mm) 400×360×420 Exterior (mm) 577×642×760 7. Temp. Range: Ambient +10°C to +250°C 8. Temperature Accuracy: ±O.5°C 9. Temperature Protection: Automatic over temperature alarm based protection system. 10. Timer function: Choice of time (On/Off condition) for automatic setting. 11. Temp. Control: Microprocessor control with LCD/ LED display. 12. Convection system: Gentle drying and heating with superior temperature uniformity. 13. 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. Capacity: 60-70 Ltrs. 15. Certification : Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation 16. Warranty: 05 years comprehensive warranty.		
8.	**Fumigator / Fogger**	1. Laboratory fumigator dispenser consistent particle size generation of 5-15 µ, better 2. Should be compatible with wide range of disinfectant in a closed room. 3. Design- With Wheels, Vortex type. Non rotating and non closing nozzle. 4. Tank Capacity- 2 liters. Easy clean, detachable and non corrosive for chemical 5. ELECTRICAL - 200-270V, 50 HZ. 6. Warranty: 05 years comprehensive warranty.		
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. The technology should involve Ag-Ab testing for sample inoculation strips containing all reagents required for testing . 4. The system should involve only adding of pre enriched sample into individual strips containing all other reagents (enzyme conjugate/ wash buffer/ substrate). 5. The instrument shall be a multi parametric system and able to perform more than two parameters in the same run. 6. System should be supplied with an accessory for sample heating device. 7. System should be capable for the detection of : vi) Salmonella species vii) Listeria species *viii) E.coli* ix) *S.aureus* enterotoxin x) Campylobacter 8. System should be supplied with an accessory system to determine *E.coli*, Shigella species, Vibrio species, anaerobic bacteria (Clostridium species) from food samples based on colorimetric technology. 9. Negative and Positive controls must be supplied with the kits and system should demonstrate them. 10. The accessory system should be based on Biochemical reactions should be available in both kinetic mode and end point mode within a day. 11. The results for the Biochemical reactions should be available on an intuitive software which is 21 CFR part 11 compliant with facility of audit trail and electronic signature.		

		12. Biochemical profiling should be done using plastic cards impregnated with biochemical substrates specifically for Gram positive cocci, Gram negative cocci, Gram negative rods, Bacillus species, Coryneform species, anaerobic bacteria and yeast species. 13. Biochemical profiling should be done by an automatic analyzer allowing automatic filling of test cards with the test suspension followed by automatic internal barcode reading, sealing and loading of cards in the incubator sections. 14. Analyzer should be connected to a computer with preloaded software capable of kinetic analysis of ongoing reading and producing results in real time. 15. Software should be capable of creating new organism list in the database apart from the existing database . 16. System should be provided with an accessory system to perform automated Gram staining for positive samples to confirm and further testing. 17. System should be provided with a accessory system based on FRET technology (Fluorescence Resonance Energy Transfer) coupled with Melt point peak analysis to detect food borne pathogens. 18. System should be provided with an accessory with specific media to detect anaerobic bacteria from canned food samples / juices using colorimetry technology. 19. All test results should be obtained between 24 – 72 hrs. 20. A remote access software should be provided with the system to help monitoring of the system remotely and for troubleshooting. 21. System should be accompanied with all accessories like computer, printer, barcode scanner. 22. System should be supported with MS windows operated system and all modular hardware units with sample preparation station, reading station computer and accessories with barcode scanner USB, colour printer and provision for integration with LIMS. 23. Software up-gradation should be free of cost for lifetime of system. System should come along with the entire necessary accessory and should be ready to work. Any accessory system(s) other than those mentioned in the technical specifications, that are required for satisfactory installation of the system should be quoted and supplied with the instrument. 24. The system must have no additional reagent costs. If additional reagent costs are required please supply details including cost and preparation time.		

		25. 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. 21. Warranty: 05 years comprehensive warranty. 26. Kits for pathogen screening and identification 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. 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. Warranty: 05 years comprehensive warranty. 15. 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 96-well Peltier based PCR Machine 2. The System must have capacity for minimum multiplexing of four targets in qPCR. 3. The System must have filters to detect these dyes: sybr, fam, hex, cy3 and cy5 4. The excitation source should be multiple LED's and detection should be photodiode. 5. The Hardware must offer Peltier based thermal cycling for fast PCR (40 cycles in 42 minutes) 6. The system should have temperature range of 25-99.9°C with an accuracy of 0.2°C 7. The system should have peak block ramp rate for heating and cooling of 4.5°C or more. 8. The system should support minimum reaction volume of 10µL 9. Optics preferably contained in modular cartridges, for no cross talk and improved data resolution is desired. Scan time for all channels is 2 seconds or less irrespective of plex number/optical channels is preferred 10. The Instrument must offer 10 logs of linear dynamic range. 11. Instrument preferably should have easily changeable optics cartridges 12. The system shall offer options for genotyping via high resolution melting curve analysis and template quatification. 13. It must have touch screen system, so that no additional PC or laptop is needed. It should have at least 2 USB ports and storage of 5GB or more. 14. Warranty: 05 years comprehensive warranty. Installation and training for users shall be included without extra costs. 15. The PCR machine shall be compatible with		

		PCR tubes from multiple vendors. 16. Voltage stabiliser and UPS systems shall be included in the offer. SOFTWARE: 17. The system should come along with High Resolution Melting (HRM) Curve Analysis Software. The vendor should have reagents for HRM Applications. 18. The system must offer preprogrammed assays for easy selection of calibrators, normalizers and sample associations. 19. The system must offer multiple customizable data analysis algorithms 20. The software must enable export of raw data in multiple formats. 21. The system should come along with software to support applications like absolute quantitation, RQ, multiplex PCR, Melt curve analysis, pathogen detection and control assays. SUPPORTING CHEMISTRIES AND APPLICATIONS: 22. The system must be open to all chemistries including SYBR, Probe and HRM 23. The system must offer multiplexing capabilities, excluding the internal passive reference dye. 24. The system must be flexible to be used with 96-well plates, strips of 8 or individual tubes. 25. The instrument may have display with an LCD touch screen that is a 6.5inch, full VGA (640 x 480). 26. Analysis work station should be of latest branded Pentium IV with licensed windows XP, operating system and colored laser printer. 27. The vendor should clearly indicate compliance or deviation vis –a vis the tender specifications and should be highlighted in the literature or manuals. 28. The instrument should be UL approved and manufactured according to ISO 9001 standards. 29. 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. 30. 05 years warranty with one year spare replacement, if required. 31. Reagents for 500- 1000 reaction should be provided with the instrument. 32. Suitable on - line UPS (about 2 KVA) is required to support the instrument.		
12	**Automatic**	1. Camera - CMOS color camera or higher		

	colony counter (bench-top, digital)	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: 05 years comprehensive warranty.		
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	**Ultra pure 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		
15	**Fully Automated Elisa Reader & Washer**	1. ELISA Microplate Reader: a. Light Source: Quartz-halogen lamp 6V/10W b. Wavelength Selection: 340-850nm c. Filters: 8- position filter wheel, the instrument is delivered with the following standard filters installed: 405nm, 450nm, 620nm and 650nm d. Resolution: 0.001 Abs e. Display: High contrast color display (480 x 272 dots) f. Internal Memory: At least up to 99 assay protocols and 100 test results, 96- well plates g. Optional Incubator: Temperature range from ambient +4o C up to 50o C h. Accuracy(405nm): ± 1% (0-3Abs) or ± 0.003 Abs, Whichever is greater i. Communication: USB for computer connection USB for memory stick position for data export USB for external printer j. Mains Input: 100-240V(50/60Hz) With IVD specifications 2. ELISA Microplate Washer: a. With IVD specifications b. With non-pressurised bottle to maintain biosafety		

		c. Residual volume < 1.5 ul d. Dispensing volume 50-400 microL for 96 well plate e. With plate sensor f. Data Transfer – USB Port Number of wash protocols up to 99 g. Number of Wash buffer bottles 1		
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 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**	1. Safety Bunsen Burner with flame monitoring and overheating protection for safe operation.		

	Bunsen Burner	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.		
19	**Shaking Incubator**	1. Overall dimensions (W x D x H): Minimum 62 x 75.4 x 82 cm 2. Shaking Speed range 25 to 400 rpm 3. Temperature range: 20°C below ambient to 80°C with accuracy of ± 0.1°C and stability of ± 0.2°C at 37°C 4. Shaking orbit: 1 inch (approx. 2.5cm) 5. Display: Large, easy to read LCD display screen 6. Platform dimensions: At least 45 x 45 cm. Platform should accommodate 10ml, 25ml, 50ml, 125ml, 250ml, 500ml clamps. 7. Controls for entering and viewing set points preferably positioned at the top / side of shaker for ease of use. 8. 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. 9. Audible and Visible Alarm: should indicate when speed deviates more than 5 rpm or temperature deviates more than 1°C from set point, and when timer operation has expired. 10. Shaker requirements: a) Single knob selects all operating conditions and quickly Triple-eccentric counter balanced drive b) Acceleration circuit to prevent sudden start and stop should be available c) Programmable controller offering up to 4 modes of timer and parameter control for reduced user intervention. d) Timer 0.1 to 99.9 hours or continuous mode e) UV germicidal lights. 11. Refrigeration: Hermetically sealed compressor using CFC free refrigerant 12. Power requirement: 230V/50-60Hz 16. Suitable Servo Voltage Stabilizer should be quoted 13. Warranty: 05 years comprehensive warranty.		

20	**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 12. Degree of protection IP 40 13. Dimensions (L x W x H) 247 x 121 x 145 mm 14. Weight 5.0 kg 15. Noise level at 50 Hz, typ. 45 dBA 16. Items to be supplied - Pump completely mounted w, ready for use, with manual. 17. Accessories : Rubber vacuum tubing DN 8 mm (686001) Chemistry vacuum regulator valve unit for ME/MZ 1C (696843) Silencer DN 8 - 10 mm (636588).		
21	**Stomacher**	1. Time set: 30,180,600s or work continuously 2. Rap speed: 3-12/second 3. Valid capacity:80-40 ml 4. Stainless steel material of case 5. Power: 165W 6. Electronic motor rate: 5001-1500 rpm 7. LCD display 8. Power supply: 220v/50 HZ		
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: 05 years comprehensive warranty.		
23	**Laboratory glassware washer/dryer**	1. Chamber volume of Washer/Dryer Option 1: 150 – 200 litre's capacity Option 2: 200 – 275-litre capacity.		

		Please quote for both the above options 2. Internal chamber type : Inner chamber, washing arms and tank filters made of high quality AISI 316 L stainless steel. 3. Front Glass Door : Glass Door version – Inside chamber must be visible, while in washing/drying run. 4. Control System : Soft touch LCD display. Microprocessor controlled. 5. Cleaning Liquid Dispenser : Minimum two automatic internal liquid dispenser. 6. Standard pre-programmed cycle : At least 10 pre-programmed standard cycles. 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. Internal Baskets for placement of glassware inside : Must include basic 3 or 4 multipurpose baskets for storing test tubes, beakers, conical flasks, round bottom flasks, pipettes and petri dishes. 10. Built in Dryer Unit : Built in forced air dryer unit for drying entire glassware content after the wash/rinse cycle. 11. 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. 12. 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. 13. Warranty: 05 years comprehensive warranty. 14. End User Training at site : Necessary end user training and instructions must be provided to all users at site. 15. List of present users in India : Must provide the list of users/ customers of this equipment in India. 16. Desirable Specification: i) Telescopic bearing railing for loading the basket. ii) Operator and Service manual with all spare parts list. 17. Availability of all spare parts and service support in India for the next 10 years.		
24	**Bench top UV-visible**	1. The spectrophotometer instrument shall be a multi wavelength, UV-Visible, Split Beam /		

	spectrophotometer	Dual Beam spectrophotometer designed for laboratory analysis of water parameters 2. The Instrument should have More than 250 Pre-Programmed Methods 3. The Spectral Bandwidth should be 2nm 4. The Required reagents for the water parameters should be from the same manufacturer. 5. The wavelength range of the instrument shall be from 190 to 1100 nm with accuracy of ±1 nm & resolution of 0.1nm. 6. The instrument should have User Guidance on Screen 7. The instrument, depending on the test selection, shall automatically select the wavelength. 8. The Instrument should have 10 fold measurement for 16mm Round sample cells 9. Readout modes shall include transmittance, absorbance, concentration, optional wavelength scan and time course graphs. 10. The instrument shall be capable of measuring aluminium; arsenic; chlorine dioxide; chlorine; chromium; color; copper; fluoride; iron; manganese; nitrogen (as ammonia, nitrate, nitrite, total nitrogen); chemical oxygen demand; phosphonates; phosphorus; potassium; silica; sulfate; sulfide; sulfite; surfactants; suspended solids; , zinc and many more 10 The Following Pre programmed Tests shall conform to USEPA-approved methods: arsenic; chlorine dioxide; chlorine, free; chlorine,total; chromium, hexavalent; copper; fluoride; iron (total); manganese; nickel; nitrogen (ammonia); nitrogen (nitrite);chemical oxygen demand; phenols; phosphorus (reactive);phosphorus (total); sulfate; sulfide; and zinc. 11. The instrument shall be equipped with storage capacity from 4000- 5000 data points & more than 100 user-defined calibrations. 12. The interface of the instrument shall be graphical with touch screen. 13. The instrument shall be capable of Sample Cell Compatibility Rectangular: 10, 20, 30, 50 mm, 1 inch; round: 13 mm, 16 mm, 1 inch & Optional 100 mm rectangular cell with additional adapter 14. The instrument shall provide graphical display and be capable of printing test results. 15. Operating Mode: Transmittance (%), absorbance and concentration (wavelength, time) 16. Optics : Split Beam / Dual Beam 17. Source Lamp : Tungsten (visible range), deuterium (UV range) 18. Wavelength		

		Range : 190 - 1100 nm Accuracy : ±1 nm Reproducibility : < 0.1 nm Resolution : 0.1 nm Wavelength Selection : Automatic, based on method selection 19. Spectral Bandwidth : 2 nm 20. Photometric Measuring Range: ±3 Abs 21. Photometric Accuracy : 2 Abs with neutral glass at 546 nm 22. Stray Light : KI-solution at 220 nm < 3.3 Abs/< 0.05% 23. Display : TFT 7 inch color touch screen 24. Data Logger : Minimum 4000- Maximum 5000 data points (result, date, time, sample-ID, userID) 25. Preprogrammed Methods : >230 26. User Programs : >175 27. Sample Cell Compatibility: Rectangular: 10, 20, 30, 50 mm, 1 inch; round: 13 mm, 16 mm, 1 inch 28. Operating Conditions: 10 to 40°C, max. 80% relative humidity (non-condensing) 29. Storage Conditions: -25 to 60°C max. 80% relative humidity (non-condensing) 30. Instrument Enclosure Rating : IP 20 with closed lid 31. Interfaces : USB type A (2), USB type B, Ethernet, 32. SCOPE OF SUPPLY: The instrument should supply with Basic instrument , 1 Inch matched Glass sample cell , basic user manual, a multi adapter for round and rectangular vials, CD with manual and procedure manual in .pdf format. Power cords		
25	**Digital Temperature Humidity Meter**	7. Temperature -20 °C to 60 °C ± 0.5 °C - Readability 0.1 °C 8. R.H. 5 % to 95 % R.H. ± 2.5 % - % R.H readability 9. Backlit dual display of humidity and temperature 10. Past record storage capacity 11. Min/Max/Avg data hold 12. Low battery indicatorBuy back		
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 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: 05 years comprehensive warranty.		

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

PART III- STANDARD CONDITIONS OF RFP

The Bidder is required to give confirmation of their acceptance of the Standard Conditions of the Request for Proposal mentioned below which will automatically be considered as part of the Contract concluded with the successful Bidder (i.e. Seller in the Contract) as selected by the Tender Inviting Authority(i.e. Buyer). Failure to do so may result in rejection of the Bid submitted by the Bidder.

2. **Law**: The Supply Order shall be considered and made in accordance with the law of the Republic of India. The Supply Order shall be governed by and interpreted in accordance with the laws of the Republic of India.

3. **Award of Contract.** The contract will be awarded to the lowest evaluated responsive bidder qualifying to the final round after scrutiny of the technical bids and demonstration of the accessories, i.e. after financial bid opening.

4. **Effective Date of the Contract.** The contract shall come into effect on the date of signature by both the parties on the contract (Effective Date) and shall remain valid until the completion of the obligations of the parties under the contract. The deliveries and supplies and performance of the services shall commence from the effective date of the contract.

5. **Effective Date of the Supply Order**: The Supply Order shall come into effect on the date of its acknowledgment by the Seller and shall remain valid until the completion of the obligations of the parties under the Supply Order. The deliveries and supplies and performance of the service shall commence from the effective date of the Supply Order.

6. **Arbitration.** All disputes or differences arising out of or in connection with the Contract shall be settled by bilateral discussions. Any dispute, disagreement or question arising out of or relating to the Contract or relating to construction or performance, which cannot be settled amicably, may be resolved through arbitration. The standard clause of arbitration is as per the Arbitration and Conciliation Act, 1996 of India. Venue of Arbitration shall be the place from where the contract has been issued i.e. New Delhi, India.

7. **Penalty for use of Undue influence.** The Seller undertakes that he has not given, offered or promised to give, directly or indirectly, any gift, consideration, reward, commission, fees, brokerage or inducement to any person in service of the Buyer or otherwise in procuring the Contracts or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of the present Contract or any other Contract with the Government of India for showing or forbearing to show favour or disfavour to any person in relation to the present Contract or any other Contract with the Government of India. Any breach of the aforesaid undertaking by the Seller or any one employed by him or acting on his behalf (whether with or without the knowledge of the Seller) or the commission of any offers by the Seller or anyone employed by him or acting on his behalf, as defined in Chapter IX of the Indian Penal Code, 1860 or the Prevention of Corruption Act, 1986 or any other Act enacted for the prevention of corruption shall entitle the Buyer to cancel the contract and all or any other contracts with the Seller and recover from the Seller the amount of any loss arising from such cancellation. A decision of the Buyer or his nominee to the effect that a breach of the undertaking had been committed shall be final and binding on the Seller. Giving or offering of any gift, bribe or inducement or any attempt at any such act on behalf of the Seller towards any officer/employee of the Buyer or to any other person in a position to influence any officer/employee of the Buyer for showing any favour in relation to this or any other contract, shall render the Seller to such liability/ penalty as the Buyer may deem proper,

including but not limited to termination of the contract, imposition of penal damages, forfeiture of the Bank Guarantee and refund of the amounts paid by the Buyer.

8. **Agents / Agency Commission**: The Seller confirms and declares to the Buyer that the Seller is the original manufacturer of the stores/provider of the services referred to in this Supply Order and has not engaged any individual or firm, whether Indian or foreign whatsoever, to intercede, facilitate or in any way to recommend to the Government of India or any of its functionaries whether officially or unofficially, to the award of the Supply Order to the Seller; nor has any amount been paid, promised or intended to be paid to any such individual or firm in respect of any such intercession, facilitation or recommendation. The Seller agrees that if it is established at any time to the satisfaction of the Buyer that the present declaration is in any way incorrect or if at a later stage it is discovered by the Buyer that the Seller has engaged any such individual/firm, and paid or intended to pay any amount, gift, reward, fees, commission or consideration to such person, party, firm or institution, whether before or after the signing of this Supply Order, the Seller will be liable to refund that amount to the Buyer. The Seller will also be debarred from entering into any Supply Order with the Government of India/FSSAI for a minimum period of five years. The Buyer will also have a right to consider cancellation of the Supply Order either wholly or in part, without any entitlement or compensation to the Seller who shall in such an event be liable to refund all payments made by the Buyer in terms of the Supply Order along with interest at the rate of 2% per annum above LIBOR rate. The Buyer will also have the right to recover any such amount from any Supply Orders concluded earlier with the Government of India/FSSAI.

9. **Non-disclosure of Supply Order documents**: Except with the written consent of the Buyer / Seller, other party shall not disclose the Supply Order or any provision, specification, plan, design, pattern, sample or information thereof to any third party.

10. **Termination of Supply Order**: The Buyer shall have the right to terminate this Supply Order in part or in full in any of the following cases:-

(a) The delivery of the material is delayed for causes not attributable to Force Majeure for more than (02 months) after the scheduled date of delivery.

(b) The Seller is declared bankrupt or becomes insolvent.

(c) The delivery of material is delayed due to causes of Force Majeure by more than (04 months).

(d) The Buyer has noticed that the Seller has utilized the services of any Indian/Foreign agent in getting this Supply Order and paid any commission to such individual/company etc.

(e) As per decision of the Arbitration Tribunal.

11. **Notices** : Any notice required or permitted by the Supply Order shall be written in the English language and may be delivered personally or may be sent by FAX or registered pre-paid mail/airmail, addressed to the last known address of the party to whom it is sent.

12. **Transfer and Sub-letting**: The seller has no right to give, bargain, sell, assign or sublet or otherwise dispose of the Supply Order or any part thereof, as well as to give or to let a third party take benefit or advantage of the present Supply Order or any part thereof.

13. **Patents and other Industrial Property Rights**: The prices stated in the present Supply Order shall be deemed to include all amounts payable for the use of patents, copyrights, registered charges, trademarks and payments for any other industrial property rights. The Seller shall indemnify the Buyer against all claims from a third party at any time on account of the infringement of any or all the rights mentioned in the previous paragraphs, whether such claims arise in respect of manufacture or use. The Seller shall be responsible for the completion of the supplies including spares, tools, technical literature and training aggregates irrespective of the fact of infringement of the supplies, irrespective of the fact of infringement of any or all the rights mentioned above.

14. **Amendments**: No provision of present Supply Order shall be changed or modified in any way (including this provision) either in whole or in part except by an instrument in writing made after the date of this Supply Order and signed on behalf of both the parties and which expressly states to amend the present Supply Order.

15. **Taxes and Duties**

(i) **General**

(a) Bidders must indicate separately the relevant Taxes/Duties likely to be paid in connection with delivery of completed goods specified in RFP. In absence of this, the total cost quoted by them in their bid will be taken into account in the ranking of bids.

(b) If a Bidder is exempted from payment of any duty/tax upto any value of supplies from them, he should clearly state that no such duty/tax will be charged by them up to the limit of exemption which they may have. If any concession is available in regard to rate/quantum of any duty/tax, it should be brought out clearly. In such cases, relevant certificate will be issued by the Buyer later to enable the Seller to obtain exemptions from taxation authorities.

(c) Any changes in levies, taxes and duties levied by Central/State/Local government such as excise duty, Octroi/entry tax, GST etc. on final product upward as a result of any statutory variation taking place within contract period shall be allowed reimbursement by the Buyer, to the extent of actual quantum of such duty/tax paid by the Seller. Similarly, in case of downward revision in any such duty/tax, the actual quantum of reduction of such duty/tax shall be reimbursed to the Buyer by the Seller. All such adjustments shall include all reliefs, exemptions, rebates, concession etc, if any, obtained by the Seller. Section 64-A of Sales of Goods Act will be relevant in this situation.

(d) Levies, taxes and duties levied by Central/State/Local governments such as excise duty, Octroi/entry tax, GST etc. on final product will be paid by the Buyer on actuals, based on relevant documentary evidence. Taxes and duties on input items will not be paid by Buyer and they may not be indicted separately in the bids. Bidders are required to include the same in the pricing of their product.

(ii) **GST**

(a) If it is desired by the Bidder to ask for GST to be paid as extra, the same must be specifically stated. In the absence of any such stipulation in the bid, it will be presumed that the prices quoted by the Bidder are inclusive of GST and no liability of GST will be developed upon the Buyer.

(b) On the Bids quoting GST extra, the rate and the nature of GST applicable at the time of supply should be shown separately. GST will be paid to the Seller at the

rate at which it is liable to be assessed or has actually been assessed provided the transaction of sale is legally liable to GST and the same is payable as per the terms of the Supply Order.

(iii) **Octroi Duty & Local Taxes**

(a) Normally, materials to be supplied to Government Departments against Government Supply Orders are exempted from levy of town duty, Octroi Duty, Terminal Tax and other levies of local bodies. The local Town/Municipal Body regulations at times, however, provide for such Exemption only on production of such exemption certificate from any authorised officer. Seller should ensure that stores ordered against Supply Orders placed by this office are exempted from levy of Town Duty/Octroi Duty, Terminal Tax or other local taxes and duties. Wherever required, they should obtain the exemption certificate from the Buyer, to avoid payment of such local taxes or duties.

(b) In case where the Municipality or other local body insists upon payment of these duties or taxes the same should be paid by the Seller to avoid delay in supplies and possible demurrage charges. The receipt obtained for such payment should be forwarded to the Buyer without delay together with a copy of the relevant act or by-laws/notifications of the Municipality of the local body concerned to enable him to take up the question of refund with the concerned bodies if admissible under the said acts or rules.

PART IV- SPECIAL CONDITIONS OF RFP

1. The Bidder is required to give confirmation of their acceptance of Special Conditions of the RFP mentioned below which will automatically be considered as part of the Contract concluded with the successful Bidder (i.e. Seller in the Contract) as selected by the Tender Inviting Authority (i.e. Buyer). Failure to do so may result in rejection of Bid submitted by the Bidder.

2. **Performance Guarantee:**

The Seller will be required to furnish a Performance Guarantee by way of Bank Guarantee through a public sector bank or a private sector bank authorized to conduct government business for a sum equal to 10% of the contract value within 30 days of receipt of the confirmed order. Performance Bank Guarantee should be valid up to 60 days beyond the date of warranty.

3. **Option Clause:** To take care of any change in the requirement during the period starting from issue of RFP till placement of the contract, Buyer reserves the right to 100% plus/minus increase or decrease the quantity of the required goods up to that limit without any change in the terms & conditions and prices quoted by the Seller. While awarding the contract, the quantity ordered can be increased or decreased by the Buyer within this tolerance limit.

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

5. **Paying Authority :**

The payment will be made on submission of the following documents by the Seller to the Paying Authority along with the bill:

i. Ink-signed copy of contingent bill / Seller's bill.
ii. Ink signed copy of commercial invoice/Seller's bill.
iii. Copy of Supply Order and Contract.
iv. CRVs in duplicate.
v. Inspection note.
vi. Claim for statutory and other levies to be supported with requisite documents / proof of payment such as Excise duty challan, Customs duty clearance

certificate, Octroi receipt, proof of payment for EPF/ESIC contribution with nominal roll of beneficiaries, etc as applicable.

vii. Guarantee / Warranty certificate.

viii. Performance Bank guarantee /Indemnity bond where applicable.

ix. Details for electronic payment viz Account holder's name, Bank name, Branch name and address, Account type, Account number, IFSC code, MICR code (if these details are not incorporated in supply order/Supply Order).

x. Any other document / certificate that may be provided for in the Supply Order.

xi. User Acceptance.

6. **Fall clause.** The following Fall clause will form part of the contract placed on successful bidder

(a) The price charged for the stores supplied under the contract by the Seller shall in no event exceed the lowest prices at which the Seller sells the stores or offer to sell stores of identical description to any persons/Organisation including the purchaser or any department of the Central government or any Department of State government or any statutory undertaking of the Central or State government as the case may be during the period till performance of all supply Orders placed during the currency of the rate contract is completed.

(b) If at any time, during the said period the Seller reduces the sale price, sells or offer to sell such stores to any person/organisation including the Buyer or any Deptt, of Central Govt. or any Department of the State Government or any Statutory undertaking of the Central or State Government as the case may be at a price lower than the price chargeable under the contract, the Seller shall forthwith notify such reduction or sale or offer of sale to the Buyer and the price payable under the contract for the stores of such reduction of sale or offer of the sale shall stand correspondingly reduced.

(c) The Seller shall furnish the following certificate to the Paying Authority along with each bill for payment for supplies made against the Rate contract – "We certify that there has been no reduction in sale price of the stores of description identical to the stores supplied to the Government under the contract herein and such stores have not been offered/sold by me/us to any person/organisation including the purchaser or any department of Central Government or any Department of a state Government or any Statutory Undertaking of the Central or state Government as the case may be upto the date of bill/the date of completion of supplies against all supply orders placed during the currency of the Rate Contract at price lower than the price charged to the government under the contract except for quantity of stores categories under sub-clauses (a),(b) and of sub-para (ii) above details of which - .....".

7. **Risk & Expense clause:-**

(a) Should the stores or any installment thereof not be delivered within the time or times specified in the contract documents, or if defective delivery is made in respect of the stores or any installment thereof, the Buyer shall after granting the Seller 45 days to cure the breach, be at liberty, without prejudice to the right to recover liquidated damages as a remedy for breach of contract, to declare the contract as cancelled either wholly or to the extent of such default.

(b) Should the stores or any installment thereof not perform in accordance with the specifications / parameters provided by the SELLER during the check proof tests to be done in the BUYER's country, the BUYER shall be at liberty, without prejudice to any other remedies for breach of contract, to cancel the contract wholly or to the extent of such default.

(c) In case of a material breach that was not remedied within 45 days, the BUYER shall, having given the right of first refusal to the SELLER be at liberty to purchase, manufacture, or procure from any other source as he thinks fit, other stores of the same or similar description to make good:-

(i) Such default.

(ii) In the event of the contract being wholly determined the balance of the stores remaining to be delivered there under.

(d) Any excess of the purchase price, cost of manufacturer, or value of any stores procured from any other supplier as the case may be, over the contract price appropriate to such default or balance shall be recoverable from the SELLER. Such recoveries shall not exceed 10% of the value of the contract."

8. **Force Majeure clause :-**

(a) Neither party shall bear responsibility for the complete or partial nonperformance of any of its obligations (except for failure to pay any sum which has become due on account of receipt of goods under the provisions of the present contract), if the non-performance results from such Force Majeure circumstances as Flood, Fire, Earth Quake and other acts of God as well as War, Military operation, blockade, Acts or Actions of State Authorities or any other circumstances beyond the parties control that have arisen after the conclusion of the present contract.

(b) In such circumstances the time stipulated for the performance of an obligation under the present contract is extended correspondingly for the period of time of action of these circumstances and their consequences.

(c) The party for which it becomes impossible to meet obligations under this contract due to Force Majeure conditions, is to notify in written form the other party of the beginning and cessation of the above circumstances immediately, but in any case not later than 10 (Ten) days from the moment of their beginning.

(d) Certificate of a Chamber of Commerce (Commerce and Industry) or other competent authority or organization of the respective country shall be a sufficient proof of commencement and cessation of the above circumstances.

(e) If the impossibility of complete or partial performance of an obligation lasts for more than 4 (four) months, either party hereto reserves the right to terminate the contract totally or partially upon giving prior written notice of 30 (thirty) days to the other party of the intention to terminate without any liability other than reimbursement on the terms provided in the agreement for the goods received.

9. **Buy Back Offer**: The purchase of tendered item(s) will be adjusted/offset against buyback of old item(s) mentioned below. Bidders will formulate and submit their tenders accordingly. Interested Bidders can inspect the old goods to be traded through this

transaction. Buyer reserves its right to trade or not to trade the old goods while purchasing the new ones and the Bidders are to frame their bids accordingly covering both the options. Details of the buy-back offer are as under :

(a) Details of Items for buy-back scheme:

1. Old Biosafety Cabinet – 4 ft [Make: Amar Chand & Co., Ambala, India, Year of Installation: 2008]

2. Old Fully Automatic Autoclave – 60 lit [Make: Osworld, Mumbai, India, Year of Installation: 2013]

3. Old Precision Balance [Make: Sartorius, LP1200S Year of Installation: 2007]

4. Old BOD Incubator (2 nos.) [Make: YOMA, YORKO (Double Door) India, Year of Installation: 2009]

5. Old Oven [Make: Heraeus Instrument, Germany, Model T_6 Year of Installation: 2005]

6. Old Water Purification System [Make: Millipore, U.S.A ELIX 3, 10 AND MILLI Q Year of Installation: 2007]

7. Old UV – VIS Spectrophotometer [Make: Varian, Australia CARRY 50 BIO Year of Installation: 1989]

Further details may be provided during the site visit.

(b) Place for Inspection of Old items: Central Food Laboratory, 3, Kyd Street, Kolkata-700016 (**Tele: 033-22291309/71827**).

(c) **Timings for Inspection:** 10:30 to 12:30 and 1430 to 1630.

(d) **Last date for Inspection** : Inspection should be carried out before Pre-bid meeting.

(e) Period of handing over old items to successful bidder: Within 15 days of placement of order.

(f) Handling Charges and Transportation expenses to take out the old items will be on account of the successful bidder.

10. **Specification**: The following Specification clause will form part of the contract placed on successful Bidder - The Seller guarantees to meet the specifications as per Part-II of RFP and to incorporate the modifications to the existing design configuration to meet the specific requirement of the Buyer Services as per modifications/requirements recommended after the Maintenance Evaluation Trials. All technical literature and drawings shall be amended as the modifications by the Seller before supply to the Buyer. The Seller, in consultation with the Buyer, may carry out technical upgradation/alterations in the design, drawings and specifications due to change in manufacturing procedures, indigenization or obsolescence. This will, however, not in any way, adversely affect the end specifications of the equipment. Changes in technical details, drawings repair and maintenance techniques alongwith necessary tools as a result of upgradation/alterations will be provided to the Buyer free of cost within (7) days of affecting such upgradation/alterations.

11. **Quality:** The quality of the stores delivered according to the present Contract shall correspond to the technical conditions and standards valid for the deliveries of the same stores for in Seller's country or specifications enumerated as per RFP and shall also include therein modification to the stores suggested by the Buyer. Such modifications will be mutually agreed to. The Seller confirms that the stores to be supplied under this Contract shall be new

i.e. not manufactured before (Year of Contract), and shall incorporate all the latest improvements and modifications thereto and spares of improved and modified equipment are backward integrated and interchangeable with same equipment supplied by the Seller in the past if any. The Seller shall supply an interchangeability certificate along with the changed part numbers wherein it should be mentioned that item would provide as much life as the original item.

12. **Inspection Authority**: Inspection may be carried out by a duly appointed Inspection Officer or duly constituted Inspection Committee before award of tender at the cost of the bidder.

13. **Franking clause**: The following franking clause will form part of the contract placed on successful Bidder –

(a) In the case of Acceptance of Goods "The fact that the goods have been inspected after the delivery period and passed by the Inspecting Officer/Committee will not have the effect of keeping the Contract alive. The goods are being passed without prejudice to the rights of the Tenderer under the terms and conditions of the Contract".

(b) In the case of Rejection of Goods "The fact that the goods have been inspected after the delivery period and rejected by the Inspecting Officer/Committee will not bind the Buyer in any manner. The goods are being rejected without prejudice to the rights of the Buyer under the terms and conditions of the Supply Order."

14. **Warranty/Training:** The Seller has to warrant that the Goods supplied under this Contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.

Warranty: Minimum 05 Years warranty after successful installation of the instrument. Service and training during warranty period should be free of cost. This should cover the repair and maintenance with spare parts of the equipment purchased under the Supply Order. This will also include :

(i) **Preventive Maintenance Service**: The Seller will provide a minimum of two Preventive Maintenance Service visits during a year to the operating base to carry out functional check-ups and minor adjustments/tuning as may be required.

(ii) **Breakdown Maintenance Service**: In case of any breakdown of the equipment/system, on receiving a call from the Buyer, the Seller is to provide maintenance service to make the equipment/system serviceable.

(b) **Response time**: The response time of the Seller should not exceed 48 hours from the time the breakdown intimation is provided by the Buyer.

(c) Serviceability of 90% per year is to be ensured. This amounts to total maximum downtime of 37 days per year. Also unserviceability should not exceed 2 working days at one time. Required spares to attain this serviceability may be stored at site by the Seller at his own cost. Total down time would be calculated at the end of the year. If downtime exceeds permitted downtime, Liquidated Damages would be applicable for the delayed period.

(d) Maximum repair turnaround time for equipment/system would be 3 days. However, the spares should be maintained in a serviceable condition to avoid complete breakdown of the equipment/system.

(e) **Technical Documentation** : All necessary changes in the documentation (Technical and Operators manual) for changes carried out on hardware and software of the equipment will be provided.

(f) During the Warranty period, the Seller shall carry out all necessary servicing/repairs to the equipment/system under Warranty at the current location of the equipment/system. Prior permission of the Buyer would be required in case certain components/sub systems are to be shifted out of location. On such occasions, before taking over the goods or components, the Seller will give suitable bank guarantee to the Buyer to cover the estimated current value of item being taken.

(g) The Buyer reserves its right to terminate the maintenance Supply Order at any time without assigning any reason after giving a notice of 1 month. The Seller will not be entitled to claim any compensation against such termination. However, while terminating the Supply Order, if any payment is due to the Seller for maintenance services already performed in terms of the Supply Order, the same would be paid to it as per the Supply Order terms.

15. **Training**: Training for the operation of instrument, software, data evaluation, trouble shooting and development of analytical methods will be provided free of cost during the warranty period.

16. **Uptime**. The successful bidder will guarantee to provide 90% uptime of all the systems during warranty and subsequent AMC. In case of failure to do so, proportionate payment will be deducted from the bank guarantee/payment due to the successful bidder. **A certificate as per Annexure III may be enclosed with the Technical Bid.**

17. **Intellectual Proprietary Rights**. The Seller shall, at all times, indemnify and keep indemnified the Buyer, free of cost, against all claims which may arise in respect of goods & services to be provided by the Seller under the contract for infringement of any intellectual property rights or any other right protected by patent, registration of designs or trademarks.

In the event of any such claim in respect of alleged breach of patent, registered designs, trademarks etc. being made against the Buyer, the Buyer shall notify the successful bidder of the same and the Seller shall, at his own expenses take care of the same for settlement without any liability to the Buyer.

The Seller/its Indian Agent/CMC Provider shall at all times, indemnify and keep indemnified the Buyer/ Government of India against all claims/ damages etc. for any infringement of any Intellectual Property Rights (IPR) while providing its services under Comprehensive Warranty/ CAMC.

18. **Special conditions**:

(a) The bidder has to arrange supply of equipment/material as per the technical specification mentioned in para 2 of Part II of RFP.

(b) The bidder has to provide the after sales support for the equipment/material and other works done.

(c) The certificate of fitness shall be obtained by the Seller.

(d) Onsite performance evaluation of the equipment may be carried out for those who qualify in the technical bid.

(e) The bidder will ensure that the equipment is properly insured for 110% of the order value to cover the transit upto site of installation of the equipment.

(f) Best trade packing suitable for safe Rail/Road/Air transit shall be used subject to packing and marking being acceptable to the Inspecting Authority.

PART V- EVALUATION CRITERIA & PRICE BID ISSUE

1. **Evaluation Criteria**- The broad guidelines for evaluation of Bids will be as follows:

(a) Only those Bids will be evaluated which are found to be fulfilling all the eligibility and qualifying requirements of the RFP, both technically and commercially.

(b) In respect of Two-Bid system, the technical Bids forwarded by the Bidders will be evaluated by the Tender Inviting Authority with reference to the technical characteristics mentioned in the RFP. The compliance of Technical Bids would be determined on the basis of the parameters specified in the RFP.

(c) The commercial terms and documents submitted as part of the technical bids shall be scrutinized by a Technical Evaluation Committee constituted by the Tender Inviting Authority.

(d) The Technical Evaluation Committee may also verify the veracity of claims in respect of the known performance of the equipment offered, the experience and reputation of bidder in the field, the financial solvency etc.

(e) The decisions of the Technical Evaluation Committee on whether the tenders are responsive or non-responsive or requiring clarifications will be informed.

(f) The demonstration/presentation may also be conducted by Technical Evaluation Committee in which external experts from the User Institutions/funding agencies may be Invited.

(g) The price Bids of only those Bidders will be opened whose Technical Bids are cleared after technical evaluation.

(h) The Lowest Bid will be decided upon the lowest price quoted by the particular Bidder as per the Price Format given at Para 2 below. The consideration of taxes and duties in evaluation process will be as follows :-

- L-1 bidder will be determined by excluding levies, taxes and duties levied by Central/State/Local governments such as excise duty, GST, Octroi/entry tax, etc. on Goods and Services as quoted by bidders.

(j) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price will prevail and the total price will be corrected. If there is discrepancy between words and figures; the amount in words will prevail for calculation of price.

(k) The Lowest acceptable Bid will be considered further for placement of Supply order after complete clarification and price negotiations as decided by the Tender Inviting Authority.

(l) The Bidders are required to spell out the rates of GST, etc in unambiguous terms; otherwise their offers will be loaded with the maximum rates of duties and taxes for the purpose of comparison of prices. In the absence of any such stipulation it will be presumed that the prices quoted are firm and final and no claim on account of such duties will be entrained after the opening of tenders.

(m) Any other criteria as applicable to suit in a particular case.

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

Cost Details

(A) Basic cost of setting up:

Sl.No	Items	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)		

(B) Basic cost of the item/items:

Sl.No	Item	Specifications	Cost in INR
1.	**Bio-Safety Cabinet** **(Class II Type A2)**	1. Size: working area minimum 4 ft width 2. System must work on laminar air flow technology Vertical. 3. System should be class II Type A2 with 70% recirculation and 30% Exhaust by HEPA or higher filter with filter monitoring system. 4. System should come with Stand from same company. 5. System should be 99.99% efficient supply and exhaust HEPA filters of industry standard sizes and front accessible for economical and easy replacement. 6. It should have Inbuilt fumigation port for decontamination. 7. System should have 254 nm UV lamps for decontamination of germs. 8. System should have following standard feature: (a) Nominal inflow velocity of 105 feet per minute (fpm) (0.5 m/sec) (b) Nominal down flow velocity of 55 fpm (0.3 m/sec) (c) Approximately 70% air recirculation by HEPA Filter 9. Interior-mounted, line-of-sight color display LCD	

		information center with “Filter Life Remaining” bar graph, status line for alarm conditions and alerts to warn when filter life diminishes to 20%, 10% and 0% 10. 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 11. Built-in interval or elapsed time for experiment monitoring, fluorescent light or UV light control Touchpad control on right-hand side post for manual activation of blower, light, timer, audible alarm mute and menu selection. 12. Radiuses type 304 stainless steel interior and removable, seamless, dished work surface with lift out knobs 13. Service fixture one no with ball-type valve Epoxy-coated steel exterior 14. Towel catch located under work surface 15. Contain-Air Negative Pressure Channel Class 5 conditions per ISO 14644-1 and 2 (formerly Class 100) 16. Supply and exhaust 99.99% efficient HEPA filters. 17. One electrical duplex receptacle, covered by stainless steel splash covers. 18. System should have RS232 port to transmit the data. 19. Fully-closing, clear 1/4" tempered safety glass sash with two sash handles; counterbalanced, anti-racking mechanism; and 10° slope. 8.0 inch working sash opening height. 20. Curved stainless steel inlet grille with Reserve-Air Secondary Airflow Slots or Arm Rest type. 21. Bright, 90-100 foot candle, glare-free fluorescent lighting located outside the contaminated work area. 22. Intrinsically safe negative pressure design System should allows the user to program start up and shut down operations when the sash is raised or lowered 23. System should have the function that idles the blower when the sash is fully closed 24. System should come along with the entire necessary accessory and should be ready to work. 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. Warranty: 05 years comprehensive Warranty.	
2.	**Vertical Top Loading Autoclave - 2 nos (Capacity – 80 lit, 50 lit aprox.)**	1. Design - Vertical, Tetrahedral 2. Capacity: a. Approx. 80 liters or more internal volume. Dimensions (mm) – External - 470W x 528D x 1003Hmm (With protruding:625D), Internal Chamber dimensions- 370 x 774mm. b. Approx. 55 liters External Dimensions – 450 x 640 x 920 mm Internal Dimensions of working chamber – 350 x 550 mm (dia x ht) 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: For sterilizing 105-135ºC, for heating 45 -104ºC and for warming 45 - 95ºC with Last run memory. 6. Unwrapped Cycle Time Cold:55 Mins, Hot:40 Mins approx. 7. Accelerated cooling technology 8. Sterilizer should be provided with steam generator with Built in steam exhaust bottle. 9. Spring loaded safety valves and automatic vacuum breaker for jacket 10. Removable plug screen for chamber drain. 11. SS baffle for even steam distribution in the chamber. 12. Safety valve protection against poor pressure. 13. Safety lock for door: pressure lock safety device. 14. Advanced Microprocessor based Control Panel 15. Water level sensor, current leakage breaker, lid interlock, over heat & pressure Prevention, open temperature sensor detection & safety value Lid opening/closing detection Mechanism, Exhaust bottle detection mechanism. 16. Should come with inbuilt printer and option to print after every 1 minutes during operation and also they should provide external temperature sensor. 17. 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 18. Environmental factors: Shall meet IEC-60601-1-2: 200 (Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. 19. Power Supply: Power input to be 220-240VAC, 50Hz,/440 V 3 Phase as appropriate and fitted with plug compatible with local sockets 20. Warranty: 05 years comprehensive warranty.	
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: 340 L 4. Fan forced air circulation to ensure stable & uniform preservation environment 5. Should have Cycle Defrost Function & evaporator temperature detection system to permit defrosting without increasing temperature inside cabinet 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 with baked on acrylic finish on galvanized zinc plated steel 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: 05 years comprehensive warranty. 15. Operator and service manual essential requirement 16. Quality Certification: Only international quality CE certified product	
4.	**Digital Electronic Precision Balance – 2 nos.**	1. Type – Top loading Precision Balance 2. Range (weight) - 0.01gm - 1200gm 3. Accuracy: 0.01gm 4. Readability: 0.001gm 5. Capacity: 1200gm, Covered type - Glass draft shield with sliding door required. Chamber height – 210 mm approx. 6. Repeatability: 0.001gm 7. Linearity: 0.002gm 8. Response time: 1.5 s 9. Weighing Pan size: 114mm 10. Calibration: automatic/internal 11. Display: Touch Screen 12. Stabilization Time, 2 Seconds (typically). 13. Calibration certificate from NABL accredited calibration laboratory should be supplied along with the eqp. 14. Warranty: 05 years comprehensive warranty.	
5.	**Circulating Water bath**	1. Capacity - 15 Ltr. 2. Dimensions - Internal dimensions (w x d x h),mm - 300 x 325 x 200 Overall dimensions (w x d x h), mm - 335 x 408 x 280 3. Temperature range Ambient +5°C to 99.9°C 4. Advanced Microprocessor based Control Panel with digital display with an accuracy of ±0.5^{o}C 5. Double walled inside stainless steel and outside mild steel sheet painted in epoxy powder coating. 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. Lid of water bath is made of stainless steel 304 Qlty. 8. Number and types of racks - tube racks for 15ml x 40 and 50ml tubes x 40 – 2 nos each 9. Low level water sensor. Audible warning safety signals should be there for high/low temperature warnings, and dry running protection.	

		10. Instrument should have lift up bath cover; Carrier racks should be given for flasks and test tubes racks. 11. A cock should be provided to facilitate draining of bath contents. 12. Water bath protective media should be there to prevent contamination and formation of algae. 13. Heating capacity - 2 KW; should have all the accessories required for the functioning of the equipment. 14. All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment. 15. Warranty: 05 years comprehensive warranty.	
6.	**Incubator (Multi chambered) – 2 nos**	1. Configuration: Multi-chamber: 4 chambered, floor-standing, mobile - Castor wheel (for mobile incubator) 2. Capacity (Chamber volume) - (L / cu ft) - 60 / 2.1 x 4 chambers 3. Independent Temperature Control of Each Chambers with provision of minimum 2 nos. of SS-304 height adjustable racks in each chamber. 4. Temperature range (^oC): Amb. +5 to 70 ^oC, ± 0.2 ^oC accuracy and ±0.5 ^oC uniformity with programmable Temperature Control with Illumination (Temperature and illumination of each chamber can be controlled independently). Independent Cooling System for each chamber to provide precise temperature 5. Stainless Steel 304 Inner Chamber 6. Door specification: Solid installed with lock 7. Dimension(W×D×H) Interior (mm) - 400×360×420 x 4 chambers Exterior (mm) - 1170×640×1360 8. No. of wire shelf (standard/ max.) 2 / 7 per chamber - Perforated shelves 9. Digital PID Controller or Programmable Controller 10. Over Temperature Protection, Over Current Leakage Breaker 11. Adjustable time and interval 12. Suitable on - line UPS (5 KVA) to support the instrument. 13. Certification: Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation 14. Each equipment should be supplied with multi channel data logger for temperature 15. Warranty: 05 years comprehensive warranty.	
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. Dimension (W×D×H) Interior (mm) 400×360×420	

		Exterior (mm) 577×642×760 7. Temp. Range: Ambient +10°C to +250°C 8. Temperature Accuracy: ±O.5°C 9. Temperature Protection: Automatic over temperature alarm based protection system. 10. Timer function: Choice of time (On/Off condition) for automatic setting. 11. Temp. Control: Microprocessor control with LCD/ LED display. 12. Convection system: Gentle drying and heating with superior temperature uniformity. 13. 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. Capacity: 60-70 Ltrs. 15. Certification : Traceable Calibration certificate from NABL Accredited laboratory with IQ/OQ/PQ validation 16. Warranty: 05 years comprehensive warranty.	
8.	**Fumigator / Fogger**	1. Laboratory fumigator dispenser consistent particle size generation of 5-15 µ, better 2. Should be compatible with wide range of disinfectant in a closed room. 3. Design- With Wheels, Vortex type. Non rotating and non closing nozzle. 4. Tank Capacity- 2 liters. Easy clean, detachable and non corrosive for chemical 5. ELECTRICAL - 200-270V, 50 HZ. 6. Warranty: 05 years comprehensive warranty.	
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. The technology should involve Ag-Ab testing for sample inoculation strips containing all reagents required for testing . 4. The system should involve only adding of pre enriched sample into individual strips containing all other reagents (enzyme conjugate/ wash buffer/ substrate). 5. The instrument shall be a multi parametric system and able to perform more than two parameters in the same run. 6. System should be supplied with an accessory for sample heating device. 7. System should be capable for the detection of : xi) Salmonella species xii) Listeria species *xiii) E.coli* xiv) *S.aureus* enterotoxin xv) Campylobacter 8. System should be supplied with an accessory system to determine *E.coli*, Shigella species, Vibrio species, anaerobic bacteria (Clostridium species) from food	

		samples based on colorimetric technology. 9. Negative and Positive controls must be supplied with the kits and system should demonstrate them. 10. The accessory system should be based on Biochemical reactions should be available in both kinetic mode and end point mode within a day. 11. The results for the Biochemical reactions should be available on an intuitive software which is 21 CFR part 11 compliant with facility of audit trail and electronic signature. 12. Biochemical profiling should be done using plastic cards impregnated with biochemical substrates specifically for Gram positive cocci, Gram negative cocci, Gram negative rods, Bacillus species, Coryneform species, anaerobic bacteria and yeast species. 13. Biochemical profiling should be done by an automatic analyzer allowing automatic filling of test cards with the test suspension followed by automatic internal barcode reading, sealing and loading of cards in the incubator sections. 14. Analyzer should be connected to a computer with preloaded software capable of kinetic analysis of ongoing reading and producing results in real time. 15. Software should be capable of creating new organism list in the database apart from the existing database . 16. System should be provided with an accessory system to perform automated Gram staining for positive samples to confirm and further testing. 17. System should be provided with a accessory system based on FRET technology (Fluorescence Resonance Energy Transfer) coupled with Melt point peak analysis to detect food borne pathogens. 18. System should be provided with an accessory with specific media to detect anaerobic bacteria from canned food samples / juices using colorimetry technology. 19. All test results should be obtained between 24 – 72 hrs. 20. A remote access software should be provided with the system to help monitoring of the system remotely and for troubleshooting. 21. System should be accompanied with all accessories like computer, printer, barcode scanner. 22. System should be supported with MS windows operated system and all modular hardware units with sample preparation station, reading station computer and accessories with barcode scanner USB, colour printer and provision for integration with LIMS. 23. Software up-gradation should be free of cost for lifetime of system. System should come along with the entire necessary accessory and should be ready to work. Any accessory system(s) other than those mentioned in the technical specifications, that are required for satisfactory installation of the system should be quoted and supplied with the instrument. 24. The system must have no additional reagent costs. If	

		additional reagent costs are required please supply details including cost and preparation time. 25. 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. Warranty: 05 years comprehensive warranty. 27. Kits for pathogen screening and identification 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. 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. Warranty: 05 years comprehensive warranty. 15. 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 96-well Peltier based PCR Machine 2. The System must have capacity for minimum multiplexing of four targets in qPCR. 3. The System must have filters to detect these dyes: sybr, fam, hex, cy3 and cy5 4. The excitation source should be multiple LED's and detection should be photodiode. 5. The Hardware must offer Peltier based thermal cycling for fast PCR (40 cycles in 42 minutes) 6. The system should have temperature range of 25-99.9°C with an accuracy of 0.2°C 7. The system should have peak block ramp rate for heating and cooling of 4.5°C or more. 8. The system should support minimum reaction volume of 10µL 9. Optics preferably contained in modular cartridges, for no cross talk and improved data resolution is desired. Scan time for all channels is 2 seconds or less irrespective of plex number/optical channels is preferred 10. The Instrument must offer 10 logs of linear dynamic range. 11. Instrument preferably should have easily changeable optics cartridges 12. The system shall offer options for genotyping via high resolution melting curve analysis and template quatification. 13. It must have touch screen system, so that no additional PC or laptop is needed. It should have at least 2 USB ports and storage of 5GB or more. 14. Warranty: 05 years comprehensive warranty. Installation and training for users shall be included without extra costs. 15. The PCR machine shall be compatible with PCR tubes from multiple vendors. 16. Voltage stabiliser and UPS systems shall be included in the offer. SOFTWARE: 17. The system should come along with High Resolution Melting (HRM) Curve Analysis Software. The vendor	

		should have reagents for HRM Applications. 18. The system must offer preprogrammed assays for easy selection of calibrators, normalizers and sample associations. 19. The system must offer multiple customizable data analysis algorithms 20. The software must enable export of raw data in multiple formats. 21. The system should come along with software to support applications like absolute quantitation, RQ, multiplex PCR, Melt curve analysis, pathogen detection and control assays. SUPPORTING CHEMISTRIES AND APPLICATIONS: 22. The system must be open to all chemistries including SYBR, Probe and HRM 23. The system must offer multiplexing capabilities, excluding the internal passive reference dye. 24. The system must be flexible to be used with 96-well plates, strips of 8 or individual tubes. 25. The instrument may have display with an LCD touch screen that is a 6.5inch, full VGA (640 x 480). 26. Analysis work station should be of latest branded Pentium IV with licensed windows XP, operating system and colored laser printer. 27. The vendor should clearly indicate compliance or deviation vis –a vis the tender specifications and should be highlighted in the literature or manuals. 28. The instrument should be UL approved and manufactured according to ISO 9001 standards. 29. 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. 30. 05 years warranty with one year spare replacement, if required. 31. Reagents for 500- 1000 reaction should be provided with the instrument. 32. 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: 05 years comprehensive warranty.	
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.	**Ultra pure 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 iv) Resistivity > 16 Megaohm-cm v) Conductivity < 0.06 Micro-Siemens vi) 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 Elisa Reader & Washer**	1. ELISA Microplate Reader: a. Light Source: Quartz-halogen lamp 6V/10W b. Wavelength Selection: 340-850nm c. Filters: 8- position filter wheel, the instrument is delivered with the following standard filters installed: 405nm, 450nm, 620nm and 650nm d. Resolution: 0.001 Abs e. Display: High contrast color display (480 x 272 dots) f. Internal Memory: At least up to 99 assay protocols and 100 test results, 96- well plates g. Optional Incubator: Temperature range from ambient +4o C up to 50o C h. Accuracy(405nm): ± 1% (0-3Abs) or ± 0.003 Abs, Whichever is greater i. Communication: USB for computer connection USB for memory stick position for data export USB for external printer j. Mains Input: 100-240V(50/60Hz) With IVD specifications 2. ELISA Microplate Washer: a. With IVD specifications b. With non-pressurised bottle to maintain biosafety c. Residual volume < 1.5 ul d. Dispensing volume 50-400 microL for 96 well plate e. With plate sensor f. Data Transfer – USB Port Number of wash protocols up to 99 g. Number of Wash buffer bottles 1	
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 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.	
19.	**Shaking Incubator**	1. Overall dimensions (W x D x H): Minimum 62 x 75.4 x 82 cm 2. Shaking Speed range 25 to 400 rpm 3. Temperature range: 20°C below ambient to 80°C with accuracy of ± 0.1°C and stability of ± 0.2°C at 37°C 4. Shaking orbit: 1 inch (approx. 2.5cm) 5. Display: Large, easy to read LCD display screen 6. Platform dimensions: At least 45 x 45 cm. Platform should accommodate 10ml, 25ml, 50ml, 125ml, 250ml, 500ml clamps. 7. Controls for entering and viewing set points preferably positioned at the top / side of shaker for ease of use. 8. 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. 9. Audible and Visible Alarm: should indicate when speed deviates more than 5 rpm or temperature deviates more than 1°C from set point, and when timer operation has expired. 10. Shaker requirements: a) Single knob selects all operating conditions and quickly Triple-eccentric counter balanced drive b) Acceleration circuit to prevent sudden start and stop should be available c) Programmable controller offering up to 4 modes of timer and parameter control for reduced user intervention. d) Timer 0.1 to 99.9 hours or continuous mode e) UV germicidal lights.	

		11. Refrigeration: Hermetically sealed compressor using CFC free refrigerant 12. Power requirement: 230V/50-60Hz 16. Suitable Servo Voltage Stabilizer should be quoted 13. Warranty: 05 years comprehensive warranty.	
20.	**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 12. Degree of protection IP 40 13. Dimensions (L x W x H) 247 x 121 x 145 mm 14. Weight 5.0 kg 15. Noise level at 50 Hz, typ. 45 dBA 16. Items to be supplied - Pump completely mounted w, ready for use, with manual. 17. Accessories : Rubber vacuum tubing DN 8 mm (686001) Chemistry vacuum regulator valve unit for ME/MZ 1C (696843) Silencer DN 8 - 10 mm (636588).	
21.	**Stomacher**	1. Time set: 30,180,600s or work continuously 2. Rap speed: 3-12/second 3. Valid capacity:80-40 ml 4. Stainless steel material of case 5. Power: 165W 6. Electronic motor rate: 5001-1500 rpm 7. LCD display 8. Power supply: 220v/50 HZ	
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: 05 years comprehensive warranty.	
23.	**Laboratory glassware washer/dryer**	1. Chamber volume of Washer/Dryer Option 1: 150 – 200 litre's capacity Option 2: 200 – 275-litre capacity. Please quote for both the above options	

		2. Internal chamber type : Inner chamber, washing arms and tank filters made of high quality AISI 316 L stainless steel. 3. Front Glass Door : Glass Door version – Inside chamber must be visible, while in washing/drying run. 4. Control System : Soft touch LCD display. Microprocessor controlled. 5. Cleaning Liquid Dispenser : Minimum two automatic internal liquid dispenser. 6. Standard pre-programmed cycle : At least 10 pre-programmed standard cycles. 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. Internal Baskets for placement of glassware inside : Must include basic 3 or 4 multipurpose baskets for storing test tubes, beakers, conical flasks, round bottom flasks, pipettes and petri dishes. 10. Built in Dryer Unit : Built in forced air dryer unit for drying entire glassware content after the wash/rinse cycle. 11. 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. 12. 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. 13. Warranty: 05 years comprehensive warranty. 14. End User Training at site : Necessary end user training and instructions must be provided to all users at site. 15. List of present users in India : Must provide the list of users/ customers of this equipment in India. 16. Desirable Specification: i) Telescopic bearing railing for loading the basket. ii) Operator and Service manual with all spare parts list. 17. Availability of all spare parts and service support in India for the next 10 years.	
24.	**Bench top UV-visible spectrophotometer**	1. The spectrophotometer instrument shall be a multi wavelength, UV-Visible, Split Beam / Dual Beam spectrophotometer designed for laboratory analysis of water parameters 2. The Instrument should have More than 250 Pre-Programmed Methods 3. The Spectral Bandwidth should be 2nm 4. The Required reagents for the water parameters should be from the same manufacturer. 5. The wavelength range of the instrument shall be from 190 to 1100 nm with accuracy of ±1 nm & resolution of	

		0.1nm. 6. The instrument should have User Guidance on Screen 7. The instrument, depending on the test selection, shall automatically select the wavelength. 8. The Instrument should have 10 fold measurement for 16mm Round sample cells 9. Readout modes shall include transmittance, absorbance, concentration, optional wavelength scan and time course graphs. 10. The instrument shall be capable of measuring aluminium; arsenic; chlorine dioxide; chlorine; chromium; color; copper; fluoride; iron; manganese; nitrogen (as ammonia, nitrate, nitrite, total nitrogen); chemical oxygen demand; phosphonates; phosphorus; potassium; silica; sulfate; sulfide; sulfite; surfactants; suspended solids; , zinc and many more 10 The Following Pre programmed Tests shall conform to USEPA-approved methods: arsenic; chlorine dioxide; chlorine, free; chlorine,total; chromium, hexavalent; copper; fluoride; iron (total); manganese; nickel; nitrogen (ammonia); nitrogen (nitrite);chemical oxygen demand; phenols; phosphorus (reactive);phosphorus (total); sulfate; sulfide; and zinc. 11. The instrument shall be equipped with storage capacity from 4000- 5000 data points & more than 100 user-defined calibrations. 12. The interface of the instrument shall be graphical with touch screen. 13. The instrument shall be capable of Sample Cell Compatibility Rectangular: 10, 20, 30, 50 mm, 1 inch; round: 13 mm, 16 mm, 1 inch & Optional 100 mm rectangular cell with additional adapter 14. The instrument shall provide graphical display and be capable of printing test results. 15. Operating Mode: Transmittance (%), absorbance and concentration (wavelength, time) 16. Optics : Split Beam / Dual Beam 17. Source Lamp : Tungsten (visible range), deuterium (UV range) 18. Wavelength Range : 190 - 1100 nm Accuracy : ±1 nm Reproducibility : < 0.1 nm Resolution : 0.1 nm Wavelength Selection : Automatic, based on method selection 19. Spectral Bandwidth : 2 nm 20. Photometric Measuring Range: ±3 Abs 21. Photometric Accuracy : 2 Abs with neutral glass at 546 nm 22. Stray Light : KI-solution at 220 nm < 3.3 Abs/< 0.05% 23. Display : TFT 7 inch color touch screen 24. Data Logger : Minimum 4000- Maximum 5000 data	

		points (result, date, time, sample-ID, userID) 25. Preprogrammed Methods : >230 26. User Programs : >175 27. Sample Cell Compatibility: Rectangular: 10, 20, 30, 50 mm, 1 inch; round: 13 mm, 16 mm, 1 inch 28. Operating Conditions: 10 to 40°C, max. 80% relative humidity (non-condensing) 29. Storage Conditions: -25 to 60°C max. 80% relative humidity (non-condensing) 30. Instrument Enclosure Rating : IP 20 with closed lid 31. Interfaces : USB type A (2), USB type B, Ethernet, 32. SCOPE OF SUPPLY: The instrument should supply with Basic instrument , 1 Inch matched Glass sample cell , basic user manual, a multi adapter for round and rectangular vials, CD with manual and procedure manual in .pdf format. Power cords	
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 indicatorBuy back	
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 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: 05 years comprehensive warranty.	
	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]	
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_____

Annexure: I

Declaration Form

I/We M/s._____ represented by its Proprietor / Managing Partner / Managing Director having its Registered Office at _____ _____ do hereby declare that I/We have carefully read all the conditions of tender..... **dated ……** for supply of **……** floated by the Food Safety Standard Authority of India, New Delhi and accepts all terms & conditions of the Tender.

Signature and Seal of the Bidder
Name in capital letters with Designation

NOTE:

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

Annexure: II

Technical specification for a Turn key solution for clean room laboratory

Set up & furniture

1. CLEANROOM TENDER SPECIFICATIONS

The following section provides a detailed description of target specifications for different classes of clean room.

1.1. Yellow Room: ISO6: Class 1000

This is the test sample and reference standard handling room. The cleanliness and inside conditions to be maintained in the clean room are mentioned in Table 1.

Table 1: General Specifications of Yellow room	
Class of cleanliness as per ISO 14644 Standard @ rest conditions	**ISO6 (Class 1000)**
Temperature range	21 ◦C ± 2 ◦C
Relative humidity	45% − 50%
Over pressure (Pa)	30 ± 5

1.2. Non Yellow Room/ Change room: ISO7: Class 10000

All the process tools are installed here. The cleanliness and inside conditions to be maintained in the clean room are mentioned in Table.2. The change room is meant for garment changing and their specifications are exactly same as that of Non yellow room.

Table 2: General Specifications of Non Yellow room	
Class of cleanliness as per ISO 14644 Standard @ rest conditions	**ISO7 (Class 10000)**
Temperature range	21 ◦C ± 2 ◦C
Relative humidity	50% − 60%
Over pressure (Pa)	15 ± 5

1.3. Service Bay: ISO8: Class 100000

Service is an area designated to install some parts of the processing equipment. The utilities and other lines run through this designated area to the required tools. The cleanliness and inside conditions to be maintained in the clean room are mentioned in Table.3.

Table 3: General Specifications of Service Bay	
Class of cleanliness as per ISO 14644 Standard @ rest conditions	**ISO8 (Class 100000)**
Temperature range	24 ◦C ± 2 ◦C
Relative humidity	Not Applicable
Over pressure (Pa)	Not Applicable

2. Detailed Descriptions of items to be used and their specifications

2.1. Airshower

The air shower should be fully automatic and electrically operated unit suitable for de-contaminating the personnel entering into the clean area. The requirements for this are mentioned below:

- Size of the airshower should not be less than 1500 mm × 1200 mm
- The height of the airshower should not be less than 2000 mm
- Main body and door should be made out of Approved Painted Cold Rolled Steel.
- Adjustable type SS 304 Nozzles are mandatory
- Nozzles should not be less than 18
- Nozzle velocity ≥ 4800 f pm
- Air flow rate ≥ 1800 cfm.
- Having Two single panel doors (entry and exit), opening outside
- Doors should be double skin PUF or aluminium honeycomb infill insulated with viewing winow, door closers, handles etc.
- Doors should have interlocking facility with sensors
- Should include magnahelic Gauge to measure differential pressure 0-100 mm
- Should cater to two persons
- Programmable shower cycles 10-990 sec.
- Blower should be double inlet double width (DIDW) blower, which is statically and dynamically balanced.
- Operational sound level when measured at 1 meter from equipment should be 75dBA ± 10%, when ambient sound level is not greater than 55 dBA
- Should Operate on 415 VAC 3 Phase, 50 Hz power supply
- Should have pre-filter of High-density polyethylene (HDPE), washable type with efficiency 90% down to 10 µm
- Should have HEPA filter with efficiency of 99.97% down to 0.3 µm
- Should have light fixture, preferably LED.
- Flooring should be solid platform. Pre-filters should be mounted on the sides.
- Should be equipped with panic switch for emergency cut off with hooter system and emergency door release switch.

- Should have remote mechanism to deactivate all switches while the shower is on except the panic switch.
- It should include service panels for blowers and filters

2.2. Wall Panels

Wall panels to be used in the cleanroom constructions should meet the following specifications:

- Should be double skin type, 100 mm thick, sandwiched with self-extinguishing quality PUF of density not less than 38 kg/m3
- Thickness of inner and outer skin should be made out of powder coated steel sheet with thickness not less than 0.8 mm
- Further, the sheets should be hot dip galvanized with zinc coating not less than 180GSM on both sides of the panel
- Should be smooth finished with white color.
- The tongue and groove panels are not preferred.
- Minimum width of the panel should be preferably more than 1180 mm and of any suitable length as required in a continuous length lamination
- All the wall joints should be filled with suitable sealant material.
- View Panel dimensions are provided in the drawing. The view panels should be double glass and should have thickness not less than 5 mm and all the joints between toughned glass and wall panels should be sealed.
- View panels for yellow room should be covered with yellow films having Wavelength 260 − 380 nm to avoid the interference of white light because the process to be carried out in this room will be under yellow light environment.
- The mounting of the wall should be sturdy and should be fixed with necessary bottom flow track and top runnel U channels
- For fixing the door suitable L and C sections should be used, All the wall joints should be filled with suitable sealant for effective sealing.
- Suitable Coving of Radius 50 mm/75 mm made out of anodized Aluminium material should be fixed along the joints between wall & the Floor, wall & the false ceiling joints between the Wall panels, 3D covings at the Corners as required.
- Wall Panels should have embedded conduits for electrical and utilities.
- All Electrical wiring should be embedded inside the wall panel
- 50 mm thick wall may be used in rare occasion citing a proper justification. However, the technical expert team has to approve the usage of the same.
- Suitable factory made cutouts wherever required should be provided in the wall panel as applicable for fan filter units, HEPA filters, light fixture, return air grills, power sockets, cables. Pipes, exhaust ducts, magnahelic gauge, smoke sensors, utilities etc.
- Built in Return Air raisers should be incorporated in 100 mm wall panels wherever applicable
- The wall panels for gas enclosure room should be 100 mm thick.

2.3. False Ceiling

The false ceiling is a modular non-walkable ceiling with the following specifications:

- Structural frame work should be of aluminium extruded sections or any other suitable material along with internal coving on both side of the panel
- Panel should have a 50 mm thick Polyurethane Foam (PUF) or Expanded Polystyerene (EPS) having a density of 18-20 kg/m3
- Panel should be sandwiched in between pre painted galvanized iron (PPGI, not less than 0.8 mm) or pre coated galvanized iron (PCGI, not less than 0.8 mm.) or powder coated galvanized iron (not less than 0.8 mm).
- Suitable factory made cutouts wherever required should be provided in the wall panel as applicable for fan filter units, HEPA filters, light fixture, return air grills, power sockets, cables. Pipes, exhaust ducts, magnahelic gauge, smoke sensors, utilities etc.
- Non-walkable T-grid may also be considered instead of continuous panel.

2.4. Flooring for Yellow Room

- The clean rooms floor should be of Electro Static Conductive type, vinyl tiles. Electrostatic (EC) type flexible homogeneous, compressed ESD Vinyl floor tiles in flooring/skirting having a minimum thickness of 2 mm
- The recommended size of the tile is 600 mm × 600 mm
- The ESD tiles should have electrical conductive resistance in the range of 104Ω − 106Ω should be resistant to acids, chemicals and fire.
- ESD floor tiles should be laid on existing cement concrete flooring including providing and laying of approved conductive primer including necessary conductive adhesive. • The human body voltage should not exceed 3040 V.
- The tiles should have dimensional stability of 0.05% and minimum decay time of 0.25 sec as per ESTM/DIN/EN standard • Joint between the tiles should be PVC welded. The Tiles should be laid after preparation of surface by abrading the surface manually/mechanically to remove dirt, oil and other contamination. All dust and debris should be swept or vacuumed from the surface.
- The floor should be laid after preparation of surface by abrading the surface manually/mechanically to remove, dirt, oil and other contaminants. All dust and debris should be swept or vacuumed from the surface. The copper strip should be laid by cutting a groove and connected to earthing point.

2.5. Flooring for Non-Yellow room and Service Bay

- 2 mm self leveling epoxy flooring with epoxy screed coving for the wall to floor finishes.
- The painting should be high build high solid product with 98% solid content
- It should be tolerant up to 70◦C temperature
- It should be resistant to common lab solvents and chemicals
- It should be scratch proof with an abrasive resistance of 15 mg per 1000 cycles

2.6. High Efficiency Particulate Air (HEPA Filters)

- The clean air should travel/enter the clean space through HEPA Filters housed in the false ceiling of the clean room. The proposed HEPA filter system should meet the following specifications
- Should be replaceable gel seal type 0.3 µm filter face velocity of 0.45 m/sec, flange type, with built in inlet collar
- Module should able to operate from Room Side having suitable Gear & lever Mechanism.
- Typical size expected is 2 f t × 4 f t
- The height of filter media pack should not be less than 4 inch.
- The casing of filter module should be of aluminium
- The filter module should be placed on the ”T” flushing on the ceiling
- Should have an efficiency of 99.997% down to 0.3 µm
- The HEPA filter module should be accessible for maintenance from room side and filter module should be replaceable from room side.
- The HEPA filter module should be provided with volume control damper, DOP port and necessary supports.
- The HEPA filter media should be glass fiber.
- The filter face guard should be epoxy coated expanded steel
- The HEPA filter should be factory sealed for leak proof operation and should be easy to be replaced at site.

2.7. Clean Room Doors

There are two double doors and two single doors for the entire clean room. The dimension of the doors are mentioned earlier. Apart from meeting the dimension requirements, the doors should meet the following requirements

- Single Flush doors, roller hinger type
- The dimensions are door are mentioned in the drawing.
- Minimum door thickness 45 mm
- Should be fabricated using the similar material as that of wall panels.
- Doors handles, push plate and hinges should be stainless steel.
- The door should be provided with door closer and lock.
- The main single door should be operated with a biometric. The price for the same should be included in the budget
- View Panel should be 700 mm × 700 mm on each leaf. The view panels should be double glass and should have thickness not less than 5 mm and all the joints between toughned glass and door frame should be sealed.
- View panels for yellow room should be covered with yellow films having Wavelength 260 − 380 nm to avoid the interference of white light because the process to be carried out in this room will be under yellow light environment.
- Double Door should also have a pushbar setup with tower bolt for at least one leaf.

2.8. Lighting

- Light fixtures should be flat panel or tear drop type suitable for housing in the false ceiling grid
- For yellow room, yellow cleanroom compatible flat panel lights or tear drop lights should be provided for main assembly with LUX level around 270- 300 LUX
- For Non yellow room and service bay cleanroom compatible flat panel lights or tear drop lights should be provided for main assembly with LUX level around 400- 450 LUX

2.9. Magnahelic gauge

- The gauge should be clean room compatible type of size 100 mm diameter with pressure range of 0-10 mm
- The gauge should be supplied with necessary SS mounting box, PVC tubing etc.

2.10. Digital Temperature and RH Indicator

- The temperature and RH should be clean room compatible with range 0 − 50◦C and 0 − 90% RH with display

2.11. Air Handling Unit and its accessories

Description

Supply Air to Clean rooms Supply Air to the Cleanroom should be from AHU via Supply Air Ducts and through terminally fitted HEPA Filter fixed in the false ceiling. The clean air enters to the clean spaces through this terminally fitted HEPA Filters and then enters the return path via Return Air Risers fixed on the periphery of clean room wall panels / Inbuilt Return Air Riser panels.

Return Air to Clean rooms

Return Air from the Cleanroom should be through grills made out of Aluminum along with Volume Control Damper (VCD) and having GI Powder coated collars. These are envisioned to be located at about 200 mm above the floor level, fixed on the periphery of the cleanroom wall panels. Return air from the Cleanroom should also be via Fabricated Return Air Raisers made out of 18 G thick GI material duly insulated along with suitable supports and accessories, located in the Service Area or Inbuilt Return Air Riser Panels. The fabricated return air risers located in service corridor/chase or alternatively from Inbuilt Return air riser panel ducts are connected to the main return air ducts & should be connected to Mixing chamber of AHU.

Supply Air to the Service Bay

Supply Air to the Service Area should be from independent AHU via main & Branch Supply Air Ducts & through terminally fitted Supply AIR Diffusers/HEPA filters with VCD to vary the Volume of the Air, fixed in the false ceiling. The clean air enters to the Service Area through this terminally fitted Diffusers/HEPA filters and then enters the return Air Ducts via Return Air Diffusers fixed in the False Ceiling of the Service Area. Return Air to Service Bay Return Air from the Service Area should be through Return Air Diffusers made out of Aluminum along with VCD to control the Volume of the Return Air and having GI Powder coated collars, located in the False Ceiling. The RA Diffusers should be connected to the branch & main Return ducts & should be connected to Mixing chamber of AHU for re-circulation.

THREE INDEPENDENT Air Handling Units (AHUs) should be supplied and each AHU should cater to only one designated class area clean room

2.12. AHU Specifications

The AHU capacity calculations must be carried out by the vendor based on the specifications provided in the previous section. Apart from a realistic capacity (optimally designed), AHU should meet the following specifications. AHU should comprise/made of

- Double skinned Unit constructed out of 24G pre coated GI sheet as outer skin and 24G plain GI sheet as inner skin with 45 mm thickness PUF section in between.
- Prefilter section with 10 µm filters
- Cooling Coil Section catering to designed TR.
- Blower section with Double inlet Double width blower
- Drive set and pulley
- Fine filter section with 5 µm
- Heaters with Humidistat and thermostat and controls with electrical strip heaters.
- Other accessories like dampers, 24G SS 304 Drain pan, Common base frame with Vibration isolators pads, Suitable inspection doors for filter, Coil & Blower sections, should be provided.
- It should have provision for bypass air
- It should also have HEPA bleed off module to adjust pressure differential
- Provisions for integration with BMS system and for measuring the parameters like pressure drop across filters, speed, etc.

Specifications of parts in AHU (Category: Essential)

Cooling coil

The cooling coils should be of heavy gauge seamless copper tubes with firmly bonded plain corrugated. The cooling coil should be tested with at least 150 PSIG pressure before dispatch from the manufacturer. Coils should be provided with positive means for complete draining. Area of coils should be such that the face

velocity of air across the cooling coil does not exceed 2.8 m/sec. (550 fpm). ”U” bends should be of forged copper and should be brazed to tubes using silver solder only. The cooling coil should be of minimum 6 rows deep for each circuit. The face and bypass damper/bypass arrangement should be provided.

Fans

The fan of air handling unit should be double inlet, double width centrifugal fan having forward curved steel blades. The impeller should be mounted on a steel shaft of adequate size, the shaft should be supported with minimum two bearing. The bearing should be mounted on the outside of casing for easy access and maintenance. The fans should be statically and dynamically balanced. The blower should be AMCA certified for noise and performance. The fan should be selected for low noise level not exceeding 75 dB at 1M distance.

Fan motor

The impeller shaft should be driven by totally enclosed fan cooled squirrel cage induction motor having speed not greater than 1470 rpm. Motor should have class F insulation the motor should be suitable for 415V, 3 phase, AC 50 Hz, or 220 V, single phase, AC 50Hz Supply. The AHU motor should be suitable for continuous duty rating and base mounting type.

Mounting

The AHU should be supported / mounted on MS frame or PCC pedestal as applicable. The suitable vibration isolators should be provided for AHU. The contractor should provide the PCC pedestal/MS frame /MS support/brackets etc., for installation of AHU as required/applicable. The PCC foundational/bed should be provided by customer for installation of AHU.

The following calculated parameters should be tabulated separately for each AHU

- Capacity of AHU
- Fresh Air quantity
- Dehumidified cfm capacity
- Rows of Cooling Coil

2.13. Condensing Unit

The tonnage calculations should be carried out based on the specifications mentioned in the previous sections for each and every area of clean room. Apart from meeting the tonnage requirements, the condensing unit should meet the following specifications. Condensing unit should be/have/made of

- Direction Expansion Unit
- Scroll type compressor complete with copper piping, R-134a / R-407A / R-407C / R-410A refrigerant, HP and LP cutouts, microprocessor based control panel with control cabling etc.

- Thermostatic expansion valves
- Thermostats for tripping the compressors after reaching the temperature in conditioned areas

2.14. Dehumidifier

A suitable DEHUMIDIFIER should be provided for Yellow room to maintain RH of 45 ± 5 % . The dehumidifier should be

- Desiccant type, non-cyclic, rotary type.
- Able to dry the air by process of continuous physical adsorption to control humidity.
- The desiccant used should be Non Toxic, Non flammable having maximum moisture removable Capacity

2.15. Humidifier

In order to maintain the RH, the humidifier should also have the following specifications

- Humidifier should be made out of Stainless sheet of minimum 2 mm thick with steam generation capacity
- Should have steam outlet nozzle, immersion heaters, low level cut out, humidistat, safety stat, float valve, sight glass, ball valve for drain connection

2.16. Ducting

- The ducting should be above the false ceiling and distribution is by means of diffusers/grilles/terminal boxes.
- Construction Features (applicable only for factory fabricated ducts)
- All ducts transformation pieces and fittings should be made on CNC profile cutters,
- All ducts should be factory made using lock forming machine.
- The length of the ducts should not be more than 1200 mm
- Ducts larger than 600 mm should be cross broken or straight beaded, duct section up to 1200 mm may be used with bracing angles omitted.
- All the transverse duct connectors and accessories related hardware such as support system should be zinc coated (galvanized)
- All transverse connectors should be 4 - bolt system.
- To avoid any leakage, additional sealant should be used as required.
- Non-toxic, AC application grade P.E or PVC gasketing should be provided between all mating flanged joints.
- Gasket sizes should conform to flange manufacturing specifications.
- The specific class of transverse connectors for a given duct dimensions should be as per SMACNA 2005 standard for duct pressure class of 4” wg (1000 Pa)

- Rectangular ducts should be supported from roof/perlins/truss/ceiling using hanger rods
- Ducts should rest on supporting MS slotted angle or channel. The supporting angle or channel should be supported by MS rods with threads.
- Steel anchor fasteners should be provided by contractor for duct hanging. • Duct transformation should be used to change the shape of duct and should be made for easy and noiseless flow of air. 1
- Maximum slope of transformation should be 1:4
- All bends, offsets, branch connections should be made for smooth and noiseless flow of air and minimum pressure drop.
- In case of full radius elbow, the optimum ratio of center-line radius of elbow to duct dimension of 1.25 should be considered. However due to space constraints, shorter radius elbow or square elbow with guide vanes may be provided. Contractor should furnish the details of guide vanes etc.
- All curved elbows should be provided with air turning vanes consists of curved metal blades of vanes arranged so as to permit the air to make abrupt turns without appreciable turbulence.
- All right angle elbows should be provided with double thickness aerofoil turning vanes extending over at least 50 percent of the while curvature of the elbow. The turning vanes shall have a flange covering the whole base be riveted to the duct at not more than 60mm centres.
- Every duct tap-off from supply and return air duct shall be complete with opposed blade volume control damper .A volume control damper shall regulate the flow of air to the branch duct.
- Wherever duct passes through wall or slab. All the openings between masonry and duct work shall be neatly caulked or sealed by the contractor to prevent movement of air from one space to the adjoining space.

2.17. Exhaust System

- There should be two exhausts. One is normal exhaust and the other one is process exhaust. A more detailed specification for process exhaust is provided in gas distribution system.
- The exhaust system comprising of ducting, blowers, casing should be made of corrosion resistant material of construction (MOC) to handle the gases described in Scrubber section in the next chapter.
- The ducting should be firmly supported with galvanized brackets and tie rods.
- The system to be sound proof in nature (¡ 70db) and vibration free.
- Flammable gas exhaust should be made of SS 304 and should have a minimum length of 8 m.
- Similar equipment exhaust should be clubbed inside the cleanroom. Dissimilar exhaust should be clubbed together outside the building.
- Both normal and process exhaust should be mounted on the terrace
- Normal exhaust blower should be placed close to wetbenches. The exhaust piping should run through shaft present in the non-yellow room and service bay rather than the shaft in the opposite section where gas distribution is located.

2.18. Electrical Requirements

Scope of work

CFL, Kolkata is responsible for providing incoming supply to the distribution panels. A detailed diagram of existing distribution boards and their load sharing is available at CFL, Kolkata. Also layout of equipment and corresponding 3-phase and Single phase power socket requirements are available at CFL, Kolkata. Earthing requirements for instruments is under the scope of CFL, Kolkata. The responsibility of internal wiring doesn't lie with CFL, Kolkata and is in the scope of the vendor.

Scope of Bidder/Vendor

The items and corresponding technical specifications of electrical requirements that are in the scope of the bidder are listed below

- Starter panels for AHU's motors
- Local Control/ Emergency buttons for all the motors
- Power outlets as per the electrical layout diagram enclosed along with this tender documents
- No external conduit/ provision for running the wires. Wires should be embedded in the wall panel
- Flat diffuser type light fixtures preferable
- Electrical wires should be made of copper and should be as per ratings.
- All the power outlets, switches, sockets should be clean room compatible
- All PCC/MCC to be freestanding type with MCCB, MCBs and adequate indicating, measuring and protective devices.
- All circuit to be protected with MCBs, ELCBs and MCCBs, as per requirement.
- Single line diagram should be submitted along with the technical offer.

2.19. Fire Safety and Smoke Detection System (Category: Supplementary)

Fire/Smoke detection and fire suppression system for complete facility should be provided:

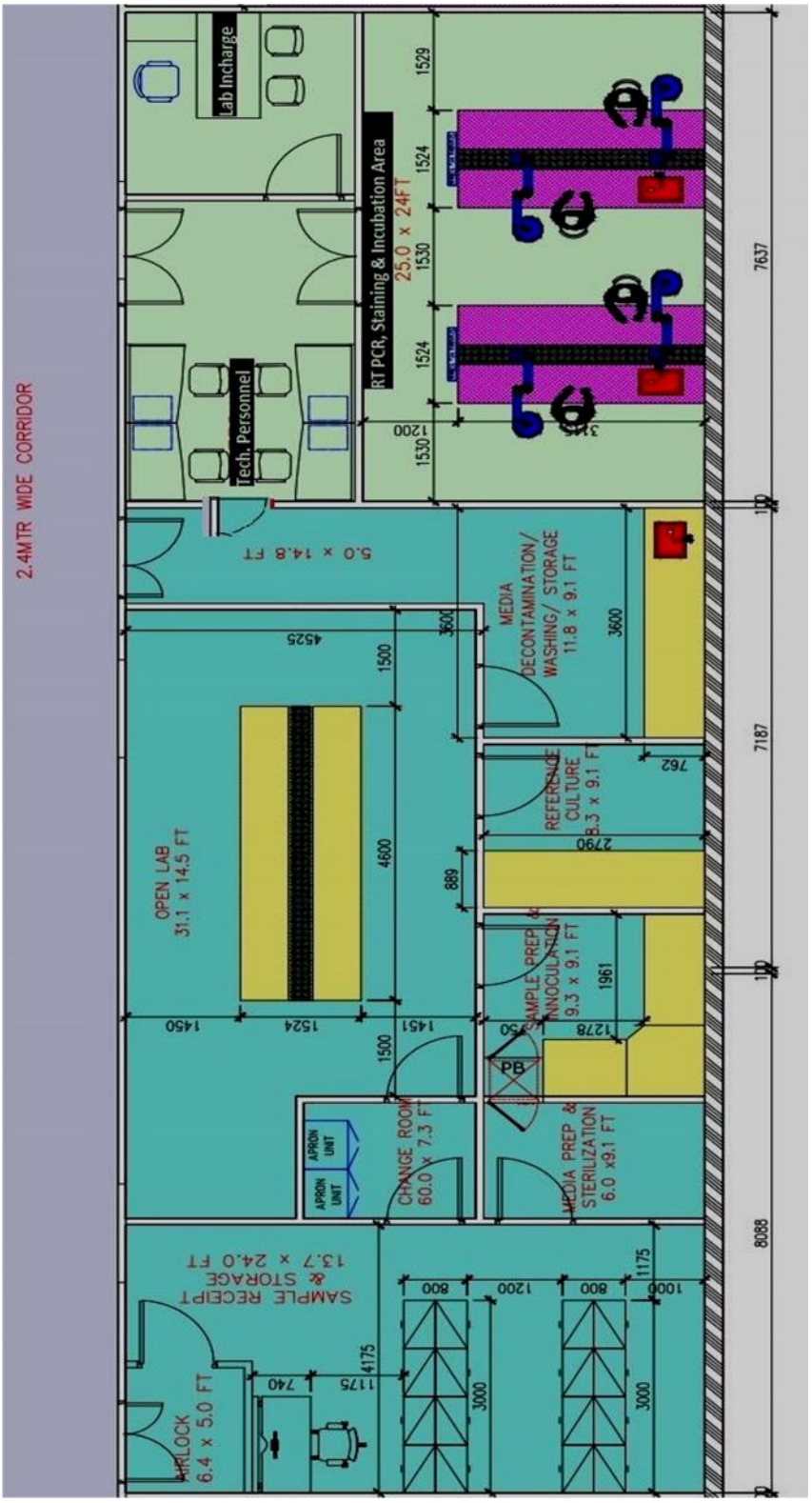
- Automatic fire detection and suppression system to be installed in the yellow room, non-yellow room, service bay, and the gas pad area for A, B and C class of fire.
- The system should consist of automatic control and display panels, audio and visual alarms, smoke and heat detectors, UV-IR detectors, Clean room compatible suppressant system.
- The suppressant should be a clean agent and have a short environment lifetime and zero ozone depleting potential. The material should also be ISO certified. Please mention the discharge time of the suppressant.
- Provision of manual trigger of suppressants to be present.
- The system should be designed for modular and/or manifold use.
- Fire panel should be sub-divided into zone system.
- The design/installation/commissioning/testing of the fire detection and suppression system should be as per NFPA standards.

- Pipes and manifolds should be of mild steel, duly painted, should have no particulate material and pressure tested. The spray nozzles in the yellow and non-yellow rooms should be of appropriate clean room compatible material.
- The contractor should show a free live demonstration of gas flooding by simulation.
- The recommended fire suppression systems are from Honeywell or Dow.
- The recommended gas detectors are from Honeywell, Drager, MDA or Bionics.

CENTRAL FOOD LABORATORY KOLKAYA

CONCEPT LAYOUT

CLEANROOM & LAB FURNITURE



LAB FURNITURE SPECIFICATION

1.00 SUMMARY AND SCOPE

A. Section Includes:

1. Furnish all cabinets and casework, including tops, ledges, supporting structures. Include delivery to the building, set in place, level, and scribe to walls and floors as required. Furnish and install all filler panels, knee space panels and scribes as shown on drawings.

2. Furnish and deliver all utility service outlet accessory fittings, electrical receptacles and switches identified on drawings as mounted on the laboratory furniture. All plumbing and electrical fittings, not preinstalled in equipment, will be packaged separately and properly marked for delivery to the appropriate contractor.

3. Furnish and deliver, for installation by the mechanical contractor, all laboratory sinks, cup sinks or drains, drain troughs, overflows and sink outlets with integral tailpieces, which occur above the floor, and where these items are part of the equipment. All tailpieces shall be furnished less the couplings required to connect them to the drain piping system.

4. Furnish service strip supports where specified, and setting in place service tunnels, service turrets, supporting structures and reagent racks of the type shown on the drawings.

5. Removal of all debris, dirt and rubbish accumulated as a result of the installation of the laboratory furniture to an onsite container provided by others, leaving the premises broom clean and orderly.

1.01 BASIS OF WORK

Laboratory Furniture as the standard of construction for steel laboratory furniture. The construction standards of this product line shall provide the basis for quality and functional installation.

2.00 CABINET STYLE:

Steel: Cabinet bodies, drawer bodies, shelves, drawer heads and door assemblies shall be fabricated from Cold Rolled Steel.

2.01 DRAWER AND DOOR STYLE:

The outer drawer and door head shall have a channel formation on all four sides to eliminate sharp raw edges of steel and the top front corners shall be welded and ground smooth. Drawer and door, when closed, shall be recessed to create an overall flush face, and with optional pull.

2.02 MATERIALS

A. **General Requirements:** It is the intent of this specification to provide a high quality steel cabinet specifically designed for the laboratory environment.

B. Steel:

Cold Rolled Steel: Cold rolled sheet steel shall be prime grade 12, 14, 16, 18 and 20 gauge U.S. Standard; roller leveled, and shall be treated at the mill to be free of scale, ragged edges, deep scratches or other injurious effects.

C. **Glass:** Glass used for framed sliding and swinging doors shall be 1/8" float glass. Glass used for unframed sliding doors, shall be 1/4" float glass. Glass used in fume hoods or other hazardous locations shall be 7/32" laminated safety float glass, except the glass shielding fluorescent lights in fume hoods shall be tempered glass to provide greater resistance to heat and impact.

D. **Drawer and Door Pulls:**

Pull shall be of modern design, offering a comfortable handgrip, and be securely fastened to doors and drawers with screws. All pulls shall be satin finish aluminum, with a clear, lacquer finish. Two pulls shall be required on all drawers over 24" long. Use of plastic pulls (molded or extruded), or a design not compatible for usage by the handicapped will not be acceptable.

E. **Hinges:** Hinges shall be made of Type 304 stainless steel .089 thick, 2-1/2” high, with brushed satin finish, and shall be the institutional type with a five-knuckle bullet-type barrel. Hinges shall be attached to both door and case with two screws through each leaf. Welding of hinges to door or case will not be accepted. Doors under 36" in height shall be hung on one pair of hinges, and doors over 36" high shall be hung on 3 hinges.

F. **Positive Catch:** A two-piece heavy-duty cam action positive catch shall be provided on all base cupboard doors and shall be positioned near the pivoting edge of door to provide a clean unobstructed opening. Main body of the catch shall be confined within an integral cabinet divider rail, while latching post shall be mounted on the hinge side of door. Nylon roller type catches are not acceptable.

G. **Elbow Catches:** Elbow catches and strike plates shall be used on left hand doors of double door cases where locks are used, and are to be burnished cast aluminum, with bright brass finish.

H. **Shelf Adjustment Clips:** Shelf adjustment clips shall be nickel-plated steel.

I. **Base Molding:** Base Molding shall be provided on all table legs, unless otherwise specified, to conceal leveling device. Shoes shall be a pliable, black vinyl material. Corner clip should be provided to hold the base molding firmly. Use of a leg shoe, which does not conceal leveling device, will not be acceptable

J. **Sink Supports:** Sink supports shall be the hanger type, suspended from top front and top rear horizontal rails of sink cabinet by four 1/4" dia. rods, threaded at bottom end and offset at top to hang from two full length reinforcements welded to the front and rear top rails. Two 3/4" x 1-2/2" x 12 gauge channels shall be hung on the threaded rods to provide an adjustable sink cradle for supporting sinks. When sink capacity exceeds 3,750 cu. in., the sink supports shall be suspended from full-length reinforcements welded to the two end rails. Two 1" x 2" x 10 gauge full-length channels shall be hung from the four 1/4" dia. rods to provide an alternate sink cradle.

2.03 CONSTRUCTION

A. Steel Base Cabinet Construction:

1. General:

a. The steel furniture shall be of modern design and shall be constructed in accordance with the best practices of the Scientific Laboratory Equipment Industry. First class quality casework shall be insured by the use of proper machinery, tools, dies, fixtures and skilled workmanship to meet the intended quality and quantity for the project.

b. All cabinet bodies shall be flush front construction with intersection of vertical and horizontal case members, such as end panels, top rails, bottoms and vertical posts in same plane without overlap. Exterior corners shall be spot welded with heavy back up reinforcement at exterior corners. All face joints shall be welded and ground smooth to provide a continuous flat plane.

c. Each cabinet shall be complete so that units can be relocated at any subsequent time without requiring field application of finished ends or other such parts.

d. Case openings shall be rabbetted on all four sides for both hinged and sliding doors to provide a dust resistant case.

e. All cabinets shall have a cleanable smooth interior. Bottom edges shall be formed down on sides and back to create easily cleanable corners with no burrs or sharp edges, and front edge shall be offset to create a seamless drawer and door recess rabbet for dust stop.

2. **Steel Gauges:** Gauges of steel used in construction of cases shall be 18 gauge, except as follows:

a. Corner gussets for leveling bolts and apron corner braces, 12 gauge.
b. Case and drawer suspension channels, 14 gauge.
c. Top and intermediate front horizontal rails, table aprons, hinge reinforcements, and reinforcement gussets, 16 gauge.
d. Drawer assemblies, door assemblies, bottom, bottom back rail, toe space rail, and adjustable shelves, 20 gauge.

3. **Base Cabinets:**

a. End uprights shall be formed into not less than a channel formation at top, bottom, back and front. The front edge shall further offset to form a strike for doors and drawers, and shall be perforated for the support of drawer channels, intermediate rails and hinge screws. An upright filler shall be screwed in place in all cupboard units to close the back of the channel at front of the upright and to provide a smooth interior for the cupboard to facilitate cleaning. The upright filler shall be perforated with shelf adjustment holes at not more than 2" centers painted prior to assembly. The inside front of the upright shall be further reinforced with a full height 16 gauge hinge reinforcement angle.

b. Top horizontal rail on base cabinets shall interlock within the flange at top of end panels for strength, but shall be flush as face of unit. Top rail shall have a full width rabbet for swinging

doors and drawers. Reinforcements shall be provided at all front corners for additional welded strength between vertical and horizontal case members.

c. Intermediate rails shall be provided between doors and drawers, but shall not be provided between drawers unless made necessary by locks in drawers. When required, intermediate rails shall be recessed behind doors and drawer fronts, and designed so that security panels may be added as required.

d. Intermediate vertical uprights shall be furnished to enclose cupboards when used in a unit in combination with a half width bank of drawers. However, to allow storage of large or bulky objects, no upright of any type shall be used at the center of double door cupboard units.

e. Cabinet bottom, and bottom rail shall be formed of one piece of steel except in corner units and shall be formed down on sides and back to create a square edge transition welded to cabinet end panels, and front edge shall be offset to create a seamless drawer and door recess rabbet for dust stop.

f. Toe space rail shall extend up and forward to engage bottom rail to form a smooth surfaced fully enclosed toe space, 3" deep x 5" high. Whenever toe space base is omitted for units to set on building bases on separate steel bases, then the toe space rail shall extend back 4-1/2".

g. Back construction shall consist of a top and bottom rail, channel formed for maximum strength and welded to back and top flange of end uprights, open for access to plumbing lines.

Cupboard units only shall be provided with removable back panels.

h. Die formed gussets, with multiple ends for strength, shall be furnished in each bottom corner of base units to insure rigidity, and a 3/8"-16 leveling bolt, 3" long, and shall engage a clinch nut in each gusset. Access to the leveling bolts shall be through plug buttons in the bottom pan. Each leveling bolt and gusset shall be capable of supporting 500 lbs. Access to leveling bolts through toe space or leveling bolts requiring special tools to adjust are not acceptable.

i. Adjustable shelves shall be formed down 3/4", returned back 7/8" and up 1/4" into a channel formation front and rear; formed down 3/4" at each end, shelves over 42" long shall be further reinforced with a channel formation welded to underside of shelf.

j. Drawer bodies shall be made in one-piece construction including the bottom, two sides, back and front. They shall be fully coved at interior bottom on all four sides for easy cleaning. The top front of the inner drawer body shall be offset to interlock with the channel formation in drawer head providing a 3/4" thick drawer head.

k. Drawer suspension assembly shall consist of 2 sections providing a quiet, smooth operation on ball bearing nylon rollers. All drawers shall be self-closing from a point 5" open. Cabinet channels shall maintain alignment of drawer and provide an integral drawer stop, but the drawer shall be removable without the use of tools. Drawers shall provide 13-5/8" front to back clearance when fully extended. Drawers shall rise when opened thus avoiding friction with lower drawers and/or doors. Drawer suspension system shall incorporate a double stop,

lock open feature. Case suspension channels shall be Galvanized Steel, drawer suspension channels shall be Cold Rolled Steel. Drawer suspension channels on Stainless Steel Cabinets shall be zinc plated after they are formed.

l. Steel Door assembly (two-piece) for solid pan swinging doors shall consist of an inner and outer door pan. Outer door pan shall be formed at all four sides. The corners on the pull side of the outer door pan shall be welded and ground smooth to prevent exposure of sharp edges of steel at these critical points. Inner door pan shall be flanged at all four sides with hinge reinforcements welded in place. The door assembly shall be 3/4" thick and contains sound deadening material.

m. Steel Drawer/door assemblies shall be painted prior to assembly. Both shall be punched for attaching drawer pulls. Likewise, inner pan formation of door and drawer body shall be indented for in-field installation of locks when required.

n. Doors shall be readily removable and hinges easily replaceable. Hinges shall be applied to the cabinet and door with screws. Welding of hinges to either cabinet or door will not be acceptable.

o. Knee space panels, where shown or specified, shall be 20 gauge, finished same as casework cabinets, and easily removable for access to mechanical service areas.

2.04 PERFORMANCE REQUIREMENTS

A. Steel Casework Construction Performance:

1. Base cabinets shall be constructed to support at least a uniformly distributed load 200 lbs. per square foot of cabinet top area, including working surface without objectionable distortion of interference with door and drawer operation.

2. Base cabinet corner gussets with leveling bolts shall support 500 lbs. per corner, at 1-1/2" projection of the leveling bolt below the gusset.

3. Each adjustable and fixed shelf 4 ft. or shorter in length shall support an evenly distributed load of 40 lbs. per square ft. up to a maximum of 200 lbs., with nominal temporary deflection, but without permanent set.

4. Drawer construction and performance shall allow 13-5/8" clear when in an extended position and suspension system shall prevent friction contact with any other drawer or door during opening or closing. All drawers shall operate smoothly, a minimum of 10,000 cycles with an evenly distributed load of 150 lbs.

5. Swinging doors on floor-mounted casework shall support 200 lbs. suspended at a point 12" from hinged side, with door swung through an arc of 160 degrees. Weight load test shall allow only a temporary deflection, without permanent distortion or twist. Door shall operate freely after test and assume a flat plane in a closed position.

B. Steel Paint System Finish and Performance Specification:

Steel Paint System Finish: After Cold Rolled Steel and Textured Steel component parts have been completely welded together and before finishing, they shall be given a pre-paint

treatment to provide excellent adhesion of the finish system to the steel and to aid in the prevention of corrosion. Physical and chemical cleaning of the steel shall be accomplished by washing with an alkaline cleaner, followed by a spray treatment with a complex metallic phosphate solution to provide a uniform fine grained crystalline phosphate surface that shall provide both an excellent bond for the finish and enhance the protection provided by the finish against humidity and corrosive chemicals. After the phosphate treatment, the steel shall be dried and all steel surfaces shall be coated with a chemical and corrosion-resistant, environmentally friendly, electro statically applied powder coat finish. All components shall be individually painted, insuring that no area be vulnerable to corrosion due to lack of paint coverage. The coating shall then be cured by baking at elevated temperatures to provide maximum properties of corrosion and wear resistance. The completed finish system in standard colors shall meet the performance test requirements specified under PERFORMANCE TEST RESULTS.

C. Performance Test Results (Chemical Spot Tests):

a. Testing Procedure: Chemical spot tests for non-volatile chemicals shall be made by applying 5 drops of each reagent to the surface to be tested and covering with a 1-1/4" dia. watch glass, convex side down to confine the reagent. Spot tests of volatile chemicals shall be tested by placing a cotton ball saturated with reagent on the surface to be tested and covering with an inverted 2-ounce wide mouth bottle to retard evaporation. All spot tests shall be conducted in such a manner that the test surface is kept wet throughout the entire test period, and at a temperature of 77° ±3° F. For both methods, leave the reagents on the panel for a period of one hour. At the end of the test period, the reagents shall be flushed from the surface with water, and the surface scrubbed with a soft bristle brush under running water, rinsed and dried. Volatile solvent test areas shall be cleaned with a cotton swab soaked in the solvent used on the test area. Immediately prior to evaluation, 16 to 24 hours after the reagents are removed, the test surface shall be scrubbed with a damp paper towel and dried with paper towels.

b. Test Evaluation: Evaluation shall be based on the following rating system.

Level 0 – No detectable change.

Level 1 – Slight change in color or gloss.

Level 2 – Slight surface etching or severe staining.

Level 3 – Pitting, cratering, swelling, or erosion of coating. Obvious and significant deterioration.

After testing, panel shall show no more than three (3) Level 3 conditions.

c. Test Reagents

Test No. Chemical Reagent Test Method

1. Acetate, Amyl Cotton ball & bottle

2. Acetate, Ethyl Cotton ball & bottle

3. Acetic Acid, 98% Watch glass

4. Acetone Cotton ball & bottle

5. Acid Dichromate, 5% Watch glass

6. Alcohol, Butyl Cotton ball & bottle

7. Alcohol, Ethyl Cotton ball & bottle

8. Alcohol, Methyl Cotton ball & bottle

9. Ammonium Hydroxide, 28% Watch glass

10. Benzene Cotton ball & bottle

11. Carbon Tetrachloride Cotton ball & bottle

12. Chloroform Cotton ball & bottle

13. Chromic Acid, 60% Watch glass

14. Cresol Cotton ball & bottle

15. Dichlor Acetic Acid Cotton ball & bottle

16. Dimethylformanide Cotton ball & bottle

17. Dioxane Cotton ball & bottle

18. Ethyl Ether Cotton ball & bottle

19. Formaldehyde, 37% Cotton ball & bottle

20. Formic Acid, 90% Watch glass

21. Furfural Cotton ball & bottle

22. Gasoline Cotton ball & bottle

23. Hydrochloric Acid, 37% Watch glass

24. Hydrofluoric Acid, 48% Watch glass

25. Hydrogen Peroxide, 3% Watch glass

26. Iodine, Tincture of Watch glass

27. Methyl Ethyl Ketone Cotton ball & bottle

28. Methylene Cloride Cotton ball & bottle

29. Mono Chlorobenzene Cotton ball & bottle

30. Naphthalene Cotton ball & bottle

31. Nitric Acid, 20% Watch glass

32. Nitric Acid, 30% Watch glass

33. Nitric Acid, 70% Watch glass

34. Phenol, 90% Cotton ball & bottle

35. Phosphoric Acid, 85% Watch glass

36. Silver Nitrate, Saturated Watch glass

37. Sodium Hydroxide, 10% Watch glass

38. Sodium Hydroxide, 20% Watch glass

39. Sodium Hydroxide, 40% Watch glass

40. Sodium Hydroxide, Flake Watch glass

41. Sodium Sulfide, Saturated Watch glass

42. Sulfuric Acid, 33% Watch glass

43. Sulfuric Acid, 77% Watch glass

44. Sulfuric Acid, 96% Watch glass

45. Sulfuric Acid, 77% and Nitric Acid, 70%, equal parts Watch glass

46. Toluene Cotton ball & bottle

47. Trichloroethylene Cotton ball & bottle

48. Xylene Cotton ball & bottle

49. Zinc Chloride, Saturated Watch glass

* Where concentrations are indicated, percentages are by weight.

2. Performance Test Results (Heat Resistance): Hot water (190° F - 205° F) shall be allowed to trickle (with a steady stream at a rate not less than 6 ounces per minute) on the finished surface, which shall be set at an angle of 45° from horizontal, for a period of five minutes. After cooling and wiping dry, the finish shall show no visible effect from the hot water treatment.

3. Performance Test Results (Impact Resistance): A one-pound ball (approximately 2" diameter) shall be dropped from a distance of 12 inches onto the finished surface of steel panel supported underneath by a solid surface. There shall be no evidence of cracks or checks in the finish due to impact upon close eye-ball examination.

4. Performance Test Results (Bending Test): An 18 gauge steel strip, finished as specified, when bent 180o over a 1/2" diameter mandrel, shall show no peeling or flaking off of the finish.

5. Performance Test Results (Adhesion): Ninety or more squares of the test sample shall remain coated after the scratch adhesion test. Two sets of eleven parallel lines 1/16" apart shall be cut with a razor blade to intersect at right angle thus forming a grid of 100 squares. The cuts shall be made just deep enough to go through the coating, but not into the substrate. They shall then be brushed lightly with a soft brush. Examine under 100 foot-candles of illumination. Note: This test is based on ASTM D2197-68, "Standard Method of Test for Adhesion of Organic Coatings".

6. Performance Test Results (Hardness): The test sample shall have a hardness of 4-H using the pencil hardness test. Pencils, regardless of their brand are valued in this way: 8-H is the hardest, and next in order of diminishing hardness are 7-H, 6-H, 5-H, 4-H, 3-H, 2-H, F, HB, B (soft), 2-B, 3-B, 4-B, 5-B (which is the softest). The pencils shall be sharpened on emery paper to a wide sharp edge. Pencils of increasing hardness shall be pushed across the paint film in a chisel-like manner until one is found that will cut or scratch the film. The pencil used before that one-that is, the hardest pencil that will not rupture the film-is then used to express or designate the hardness.

WorkTops:

The worktops shall be of 18/19mm Jet black Granite of a even surface and the level

Tolerance less than 1 mm. The front edge of the granite shall be chamfered at an angle of 28 deg and smoothened. The back splash for the wall bench shall be granite 18/19mm thick material for an height of 4” from the finished table top level.

Stainless Steel Tops: Stainless steel tops and working surfaces shall be Type 304 stainless steel unless otherwise specified. All exposed surfaces shall be 16 gauge stainless steel reinforced on the underside by 16 gauge carbon steel channels, so spaced as to prevent twisting, oil-canning or buckling. Exposed edges of tops shall be formed into a 1" thick channel shape, and suitable wood inserts shall be provided on all four edges of underside of top to facilitate anchoring to base units. Splash rails and curbs shall be formed from the same sheet as the top or so welded thereto that they form integral parts thereof. Top edges of curbs and splash-backs shall be formed into a channel shape. Unless otherwise shown or called for, all tops having built-in sinks shall have a raised rim 1" wide on all edges. Where stainless steel sinks are supplied, the sink bowl shall be so welded to the top as to form an integral part thereof. All welds shall be ground smooth and polished to a uniform satin finish over the entire top and sink assembly. Soldering of the sinks, curbs or splash rails to the top will not be permitted. Mechanical joints or field joints, where made necessary by size, shall be a tight butt joint of the top surfaces, reinforced and held in alignment with steel reinforcements.

5. Polypropylene Molded Sinks: The sinks should be injection molded from Poly propylene co-polymer resin. Polypropylene to have very high resistance to attack from a wide range of chemicals and the ability to withstand temperatures up to 100 deg C. The impact resistance should be high which will minimize damage during and after installation. The sinks should be with self draining base and should be suitable for mounting on top or underside of the work benches. The sinks should be compatible to a

vast number of acids, alkalis and reagents. The size of the sink is 600Lx450Dx315Hmm AND BOWL SIZE: 550Lx400Dx315Hmmmm. This sinks shall have bottle trap with reducing coupler of size 51x31mm and with 38mm polypropylene pipe of one foot length. All gaskets and O-rings are made from Nitrile.

Stainless Steel Sinks : (Type 304)

Stainless steel sinks shall be Type 304 stainless steel. All exposed surfaces shall be finished in a No. 4 finish. Sinks shall be 18 gauge metal unless heavier gauges are specified or dictated by construction requirements. All sink joints shall be continuously welded. Inside radii shall be 1-1/8". Bottoms shall be pitched to the drain indent. Sink bowl should be with built in bottle trap. Top edges of free standing sinks shall be formed into a channel formation with all joints welded and ground smooth and polished.

6. Laboratory Service fixtures:

I. **General**

A. All laboratory service fixtures shall have the construction and shall meet the performance requirements set forth in this specification. Fixture types shall be as indicated in the fixture schedule or fixture details included in either the project drawings or these specifications.

D. All service fixtures shall be factory assembled (including the assembly of valves and shanks to turrets, flanges and other mounting accessories), and each fixture shall be individually factory tested. Fixtures shall be tested in the manner and at the pressures set forth below.

E. Except as otherwise indicated, faucet and valve handles shall be forged brass Nylon type and shall have a color coded screw-on index disc. Color code requirements for indexing service fixtures shall follow DIN Standard 12920:1995.

II. **Finish**

1. **General**

1. Laboratory service fixtures and safety equipment shall be furnished with a powder coated finish to enhance the appearance of the fitting and to protect against corrosion. Coating material shall be a blend of epoxy and polyurethane. The hybrid blend shall ensure a finish coating with and optimum combination of chemical resistance, mar and abrasion resistance and resistance to fading under ultraviolet (UV) light.

2. Fittings inside fume hoods shall have an epoxy finish color-coded to match the fixture service index color. Coating material shall be free flowing epoxy powder with a particle size of 35-70 microns.

2. **Mar and Abrasion Resistance**

Finishes shall have a pencil hardness of 2H-4H with adhesion substantial enough to withstand both direct and reverse impacts of 160 inch pounds. Finish shall have excellent mar resistance and be capable of withstanding scuffing, marring and other ordinary wear.

3. **Reparability**

Finish shall be capable of surface repair in the event that a fixture is scratched or a surface rupture occurs. The service fixture manufacturer shall have available an air-drying aerosol coating, specially formulated to match the existing epoxy coating color, which may be applied in the field to repair coated surfaces.

III. **Water Faucets and Valves**

A. All faucets and valves for water service shall have a renewable unit containing all working components subject to wear, including a stainless steel replaceable seat and an integral adjustable volume control (designated by the suffix “AC”). The renewable unit shall be interchangeable among all faucets and valves for water service. The renewable unit shall be broached for position locking in the valve body. The unit shall have a high durometer thermoplastic valve disc and a molded TFE stem packing. The unit shall be capable of being readily converted from compression to self-closing, and vice versa, without disturbing the faucet body.

B. Goosenecks shall have a separate outlet coupling with a 3/8" IPS female thread securely brazed to the gooseneck for attachment of serrated hose ends, aspirators and other outlet fittings. Rigid goosenecks shall have a 3/8" IPS male inlet thread and be threaded directly into the faucet body so as to be absolutely rigid. Swing goosenecks shall utilize a TFE packing with an externally adjustable packing nut.

C. Water faucets and valves shall be fully assembled and individually tested at 80 pounds per square inch (PSI) water pressure.

Dual Purpose Eye Wash/Drench Hose Units:

Deck mounted eye wash/drench hose units shall be capable of use as a fixed eye wash with hands-free operation or as a drench hose. Units shall have two Gentle Spray outlet heads mounted parallel and angled forward, each with a self-regulating volume control, reticulated polyurethane filter and removable spray cover. Dust covers shall be hinged swing-away style and shall be permanently attached to the spray head with a stainless steel pin. The valve shall be self-closing type with a stainless steel squeeze handle and a locking clip to hold the valve open once activated. Units shall be furnished with a deck flange with locator guide to hold the unit facing forward and an 8 ft. reinforced PVC hose.

Specifications for Flexible Extraction Arms:

1. Extraction Arms shall be of modern design with 3 sections suitable for ceiling, wall or table mounting.

2. Flow rate of arms shall be between 35cmh to 80cmh for dia.50mm arms or

80cmh to 180cmh for dia.75mm arms.

3. All extraction arms shall be designed to have a large friction diameter joint and the “One-Hand-Operation” of the adjustment knob to provide a very flexible function with a stable joint that stays in position without sagging. No great force needed to be applied and no tools are required.

4. The joint shall have a reinforced indentation which prevents deformation. A design that use “O-Ring” which may cause slip or the joint to crack shall not be permitted.

5. The adjustment knob joint shall have ball bearings insulate the set frictions, which facilitates the arms movements without jamming the joint or losing stability and function.

6. Material of the arms shall be white colour polypropylene or anodized aluminum surface.

7. The arms shall come with a integral air tight throttle damper clearly indicating the flow for open or shut off positions.

8. The arms shall come with suitable connection to tubes (suction nozzles), round high impact Plexiglass (PPMA) hood or epoxy coated aluminum round hoods.

Specifications for SS316 Spot Extractor:

- The SS Spot extractor is especially designed to take care of populated air at a high temperature (Eg: From a atomic absorption unit). The hood and all components that are at risk of coming into contact with hot air are made from Stainless steel (316L). The wall bracket is made from powder coated mild sheet steel. The vertical telescopic movement is 440mm
- The extractor is standard designed from wall mounting. The wall bracket is also adjustable horizontally.
- For connection to the ventilation duct a 1.5m long flexible hose, with a maximum temperature resistance of 250 deg C, is delivered with the extractor.
- The telescopic movement is created by two sliding rings made of Teflon for heat resistance and a locking device to ensure that the hood stays in the intended vertical position.

Solvent Storage Cabinets for flammable liquid storage.

- Fusible link hold doors wide open and melt at 165° F for automatic closure (on self-close models).
- Sturdy, 18-gauge double wall steel with 1 ½” of insulating air space.
- Minimal air-gaps provide better protection.
- Easy close, self-latching door; handle does not require manual rotation tot engage mandatory three-point latch for protection under fire conditions.
- Fully-welded (not riveted) construction holds square ness for longer life, offering greater protection in a fire since air gaps are reduced.
- Continuous piano hinge provides smooth closure.
- Built-in grounding connector (on outside side panel) for easy grounding.
- Dual vents with built-in flame arresters strategically placed at bottom and opposite top are welded not screwed in place.
- Durable and chemical resistant, lead-free powder coat paint finish, inside-and-out, retrains high gloss look and minimizes the effects of corrosion and humidity.
- Adjustable leveling feet for stability on uneven surfaces.
- Patented, concealed self-close mechanism provides obstruction-free access to top shelf space. Self-indexing door guarantee they will close in sequence and assure a tight closure form top to bottom (on self-close models).
- Rounded safety corners and doors reduce accidental nicks or cuts and potential hand injury.

- Exclusive “spill-catcher” shelves with built-in troughs catch incidental drips and easily adjust on 2 ¼ “centers for versatile storage. Heavy-gauge galvanized steel is ribbed for extra strength to support a substantial 350-lb weight capacity.
- Welded shelf hangers interlock with shelf to offer maximum “no slip” stability and no flimsy bracket to lose.
- Fully painted interior with no thin spots – minimal air gaps at the seams.
- 2” liquid-tight containment sump with up to a 5-gallon capacity on 45-gallon models holds leaks and meets EPA requirements.
- Keyed, fail-safe closing mechanism ensures three-point latching system works the first time, every time. Available in Lever or Sure-Grip handle styles to safely secure contents. Double key set included.
- Highly visible trilingual warning label “Flammable Keep Fire Away”
- Complies with OSHA 29 CFR 1910.106 and NFPA Code 30, section 6.3.3 FM approved.

Acid Storage Cabinets for Corrosives.

- All models have the same quality features as flammable cabinets including: double-wall construction, dual vents, grounding wire connection, adjustable shelves, leak proof sills, three-point self-latching doors and leveling feet.
- To resist aggressive chemicals, acid cabinets also include polyethylene trays attached to galvanized steel shelves and a separate polyethylene liner for the bottom sump.
- The liner can be removed for easy cleaning of drips and leaks.
- The popular 30-gallon two door cabinet also includes an extra polyethylene top work tray which can be secured to cabinet-top for a handy work surface.
- An all-epoxy, baked-on powder coat finish, inside-and-out, provides increased chemical resistance.
- Paint is exclusively formulated to resist the acids, bases and solvents often used in laboratories.

APPLICABLE CODES & STANDARDS

a. SEFA 3 – Scientific Equipment and Furniture Association

b. SEFA 8 - Scientific Equipment and Furniture Association

c. NFPA 30 - National Fire Protection Association

d. NFPA-45 - National Fire Protection Association

e. UL - Underwriters Laboratories

f. ASTM D552 – Bending Test

Annexure: III

CERTIFICATE OF GUARANTEE/WARRANTY

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

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

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

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

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

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

v. We certify that the equipment being/quoted is the latest model and that spares for the equipment will be available for a period of at least 10 years and we also guarantee that we will keep the organization informed of any up date of the equipment over a period of 5 years.

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

vii. We shall try to repair the equipment at **CFL, Kolkata** premises itself. However, the equipment will be taken to our site on our own expenses in case it is not possible to repair the same at **CFL, Kolkata**. We shall take the entire responsibility for the safe custody and transportation of the equipment taken out for repairs till the equipment is rehabilitated to the **CFL, Kolkata** after repairs Any loss of equipment

or its accessories under its charge on account of theft, fire or any other reasons shall be at our sole risk and responsibility which will be compensated to the Buyer for such losses at the order value for the damaged/lost equipment/part, including accessories.

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

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

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

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

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

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

1. Authorized signatory
(with seal)

Date

Place

2. Authorized signatory

NOTE:

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

Annexure: IV

FORMAT FOR NON BLACKLISTING OF SUPPLIER

I/ We _____Manufacturer/partner/Authorized Distributor/Agent (strike out which is not applicable) of (Supplier) _____ do hereby declare and solemnly affirm that the individual/firm/company is not black-listed by the Union/State Government/Autonomous body. Any partner or shareholder thereof is not directly or indirectly connected with or has any subsisting interest in business of my/our firm.

DEPONENT

Address _____

_____

I/ We hereby solemnly declare and affirm that the above declaration is true and correct to the best of my knowledge and belief. No part of it is false and nothing has been concealed.

Dated: DEPONENT

(Note: To be furnished on Rs.50/- non-judicial stamp paper duly attested by the Executive Magistrate/Notary Public/Oath Commissioner.)

Annexure: V

General Information about the Bidder

1	Name of the Bidder			
	Registered address of the firm			
	State		District	
	Telephone No.		Fax	
	Email		Website	
Contact Person Details				
2	Name		Designation	
	Telephone No.		Mobile No.	
Communication Address				
3	Address			
	State		District	
	Telephone No.		Fax	
	Email		Website	

Type of the Firm (Please √ relevant box)						
4	Private Ltd.		Public Ltd.		Proprietorship	
	Partnership		Society		Others, specify	
	Registration No. & Date of Registration.					

Nature of Bussiness (Please √ relevant box)				
5	Original Equipment Manufacturer		Authorized Dealer /Representative	
	Direct Importer		Others, specify.	

Key personnel Details (Chairman, CEO, Directors, Managing Partners etc.)				
6	in case of Directors, DIN Nos. are required			
	Name		Designation	
	Name		Designation	

Bank Details				
7	Bank Account No.		IFSC Code	
	Bank Name & Address		Branch Name	
	Tel No		Email ID	

8	*Whether any criminal case was registered against the company or any of its promoters in the past?*	Yes / No
9	*Other relevant Information provided ** *(Here enclose the details such as presentation on the details of the bidder in a CD preferably; please avoid submission of detailed leaflets/brochures etc, if possible.)*	

Date:		*Office Seal*		*Signature of the bidder / Authorised signatory*	

Signature and Seal of the Bidder
Name in capital letters with Designation

Annexure: VI

COMPLIANCE SHEET

Specifications as per indent (point wise)	Compliance of the quoted model	**Compliance of alternate model, if any**	Remarks (Deviations)

Place:

Signature and seal of the Manufacturer/Bidder

Date:

NOTE:

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

2. Compliance statement should be supported with the printed catalogue mentioning page number and clearly highlighting the required tender specifications in the catalogue.

3. Where there is no deviation, the statement should be returned duly signed with an endorsement indicating “No Deviations”

Furnishing of wrong statement may lead to debar from the future purchases of FSSAI.