REVISED

TENDER DOCUMENT FOR

MICROBIOLOGICAL LABORATORY EQUIPMENT

Food Safety & Standards Authority of India

Ministry of Health & Family Welfare

FDA Bhawan, Kotla Road

New Delhi – 110002

Letter for invitation:

Dear Sir/Madam,

FSSAI has undertaken a major programme for strengthening of Food Testing System in the country. As part of this programme, 45 State Food Testing Labs will be modernised with the induction of state-of-the-art analytical instruments. FSSAI proposes to enter into rate contract with reputed Original Equipment Manufacturers/Authorized Suppliers in India for the supply of Microbiological Laboratory Equipments.

Sealed tenders are, therefore, invited from reputed manufacturers/Authorized suppliers in India for finalising the rate contract for and on behalf of Food Safety and Standards Authority of India for the purchase of Microbiological Laboratory Equipments. The bids are to be submitted under a two bid system i.e. Technical and Financial Bids in the prescribed format. Financial bids of only technically qualified bidders would be opened.

FSSAI reserves the right to accept or reject any or all of the offers at any stage of the process without assigning any reason thereof and any claim /dispute on this shall not be entertained.

Yours Sincerely,

Head (Quality Assurance)
Food Safety and Standards Authority of India,
FDA Bhawan, Kotla Road, New Delhi – 110002

DATA SHEET

1	Name of Tendering Authority: FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA, FDA Bhavan, Kotla Road, New Delhi.
2	1) **Method of Selection:** Selection of the Bidders will be a two stage process. In the first stage the Bidders will be pre-qualified based on the compliance to specification and other requirement mentioned in the Technical Bids. The bids of only the Technically qualified bidders will be considered for opening the Financial Bid. 2) L1 bidder will be selected from among the technically qualified bidder and all other bidders will be given an opportunity to match the L1 price. Rate contract would be signed with only those bidders who will match the L1 price.
3	A Pre- Bid conference will be held: **Yes** Date: 22nd November 2016 at 12:00 pm Venue: FSSAI HQ Details. A maximum of two representatives of each Bidder shall be allowed to participate on production of a letter from the Bidder. Bidders requiring any clarification on the tender may send their queries to the Head (Quality Assurance), FSSAI by email at softel.fssai@gov.in. All queries should reach FSSAI by Email with an attachment in 'MS-Word format' at least two days prior to the pre-bid conference date as per details provided below. FSSAI shall endeavor to respond to the queries within the specified period specified therein but not less than 5 days prior to the Bid Due Date. FSSAI reserves the right not to respond to any question(s) or provide any clarifications.
4	Point of contact for any queries related to the tender: Head Quality Assurance Food Safety & Standards Authority of India, FDA Bhawan, Kotla Road, New Delhi – 110002

	Tele-No: 011-23220990 Website: http://www.fssai.gov.in Email: softel.fssai@gov.in
5	**The Bidder must submit one copy each of the technical bid and the Financial Bid in separate sealed cover. Bids received in unsealed conditions will be summarily rejected.**
6	The Bidders are required to submit two envelops, one labeled 'Technical Bid' the other labeled 'Financial bid' Both the bids must be sealed in one larger envelop and should be marked, *"Tender for Rate contract for ……..(Name of the Equipment)- Do not open except in presence of the Evaluation Committee*" The name of the Bidder submitting the bid must also be clearly indicated on the envelope. Each bid (Technical and Financial separately) shall be page numbered and Financial figures shall be laminated/covered with transparent adhesive tape.
7	The Technical bid must not contain any pricing information. If the technical bid contains any commercial information, the bid is liable to be rejected. In submitting additional information, please mark it as "supplementary" to the required response. If the Bidder wishes to propose additional services (or enhanced levels of services) beyond the scope of this tender, the bid must include a description of such services as a separate and distinct attachment of proposal.
8	Bids must be submitted not later than on **16th December 2016 at 1730 hours**. Bid received after this will not be entertained or considered.
9	Address for submission of the Bid: Head (Quality Assurance) Food Safety and Standards Authority of India, FDA Bhawan, Kotla Road, New Delhi – 110002
10	Date for public opening of Technical Bids- (To be notified)
11	Date for opening of Financial Bids of Eligible Bidders (to be notified)
12	Expected date for contract negotiations to be notified)
13	Documents to be submitted by the bidder: a) Technical bid in the format prescribed in this document along with supporting documents as mentioned herein with signature, name, designation and seal of the authorized representative of the bidder on each page of the technical bid. b) At least two Performance certificates from the organizations where the quoted equipment model has already been installed are to be provided by the bidder along with Technical bid. c) Financial bid in the format prescribed in this document with signature,

	name, designation and seal of the authorized representative of the bidder on each page of the financial bid. d) Acceptance of the terms and conditions contained herein in the format as given in the tender document.
14.	FSSAI reserves the right to accept or reject any or all of the offers at any stage of the process without assigning any reasons thereof and any claim /dispute on this shall not be entertained.

1. INTRODUCTION

The Food Safety and Standards Act, 2006 was enacted in 2006 in order to consolidate all the laws relating to food and to establish the Food Safety and Standards Authority of India (FSSAI) for laying down science-based standards for articles of food and for regulating their manufacture, storage, distribution, sale and import, for ensuring availability of safe and wholesome food for human consumption in the Country. By virtue of the mandate given to FSSAI, Rules and Regulations hitherto implemented under various regulatory orders were repealed with effect from 5th August 2011.

The Food Authority is mandated to lay down the procedure, guidelines and notification of the accredited laboratories. FSSAI may notify laboratories and research institutions accredited by NABL or any other accreditation agency. In addition to above, it also mandates the Food Authority to develop regulations for food testing laboratories, protocols for testing, audit of food safety systems and undertaking training and capacity building for laboratory staff and professional food analysts.

2. SCOPE OF THE WORK:

The scope of the work is divided into following components:

a) Providing, Installing and commissioning Testing of the equipment Microbiological Laboratory Equipments.

4.a Equipment to be provided:

Microbiological Laboratory Equipments and sample preparation facility as per the specification given in the Annexure 1 .

Note:

a) The cost should be quoted separately for all the accessories, consumables, equipment for sample preparation, CRM etc required for the functioning of the respective equipment.
b) The purchased equipment should be able to meet the requirements of the LOD and LOQ (Limit of detection and Limit of quantification) for the relevant parameters as specified in FSSR, FSSAI Manuals, Relevant test methods and be compliant to the requirements of ISO 17025.

3. FORMAT OF THE TECHNICAL BID:

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 :

1. **Name of the Equipment: ……..**
2. **Offered Model: ……..**
3. **Brief details of the offered Model:** (in terms of sensitivity, specification, LOD, LOQ, etc.) (not more than 150 words)
4. **Specification:** As per list provided in Annexure A in the enclosed:

S. No.	Main Heads/ Components	Prescribed Specification	Please specify whether the quoted model meets the specification (Yes/No)	Specification of the Quoted Model

1. **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)

Note:

- The technical bids have to be filled in the above format only. Separate application notes and details can be attached but the above format is to be filled mandatorily.
- The bidders should enclose with the technical bid a list of at least 5 Installations of the quoted model or a comparable model of equivalent sensitivity in the country, preferably in Food sector along with the Contact Name, contact no, mail ID and complete address.
- The bidders shall also provide along with the technical bid at least two Performance certificate from the organizations (at least one from the Government sector), where the quoted model/ or any other model of equivalent sensitivity has already been installed, indicating LOD/LOQ of at least 10 parameters relevant to food sector. In case he bidders are unable to obtain such a certificate, they may provide the full contact details of the users to enable FSSAI to get the certificates.

- The supplier should aim at a turnkey supply and installation of the equipment. Any accessory which is felt mandatory for the proper working of the equipment but not mentioned in the specification has to be quoted and supplied along with.
- Any unfair practice detected at any stage of the tendering process will lead to automatic disqualification/blacklisting of the concerned firm.
- No financial costs should be mentioned in the technical bid and the same shall be provided separately in a sealed envelope marked financial bid.

I ……. (Name of the person) Authorized signatory of M/S …….. (Name of the firm) herby agree to all the term and conditions. FSSAI in its own discretion can cancel /modify the tender process and FSSAI will have the right to accept or reject any or all Bids and to annul the qualification process at any stage without any liability or any obligation for such acceptance, rejection or annulment, without assigning any reasons.

Name:
Signature:
Date:
Seal:

(To be filled in the format given above and signed by the authorized representative of the bidder.)

4. FORMAT FOR FINANCIAL BID: As per list provided in Annexure A in the enclosed format:

S. No.	Specifications	Prescribed Requirement	Price in INR

Pre installation requirements: List out all pre-installation requirements (which are to be provided by the Lab)

Note:

1. 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.
2. Price quoted should be valid for minimum 2 years.
3. 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.
4. Equipment delivery time will be 60 days from days from the date of receipt of IVL certificate but not more than 6 months from date of issue of Purchase Order. Payment terms:
   a. Seventy percent (70%) of the cost of equipment / item shall be released within fifteen (15) days of receipt of such a request in writing from the Supplier, accompanied by a certificate from the Food Safety Commissioner/ laboratory In – charge to the effect that the quantities ordered have been received and that the equipment / item has been installed & commissioned satisfactorily.
   b. Balance thirty percent (30%) of the cost of equipment / item shall be released within fifteen (15) days of receipt of such a request in writing from the Supplier, accompanied by a certificate from the Food Safety Commissioner / laboratory In – charge to the effect that the required training and validation (wherever applicable) has been imparted satisfactorily.
5. All costs to be quoted shall be exclusive of taxes and duties FOR destination anywhere in India.

I ……. (Name of the person) Authorized signatory of M/S …….. (Name of the firm) herby agree to all the term and conditions. FSSAI in its own discretion can cancel /modify the tender process and FSSAI will have the right to accept or reject any or all Bids and to annul the qualification process at any stage without any liability or any obligation for such acceptance, rejection or annulment, without assigning any reasons.

Name:
Signature:
Date:
Seal:

(To be filled in the format given above and signed by the authorized representative of the bidder.)

Terms and Conditions of the Contract:

Liability of the successful bidder:

1) The bidder should enclose with the technical bid a list of at least 5 Installations of the quoted model or a comparable model of equivalent sensitivity in the country, preferably in Food sector along with the Contact Name, contact no, mail ID and complete address.
2) The bidder shall also provide along with the technical bid at least two Performance certificate from the organizations (at least one from the Government sector), where the quoted model/ or any other model of equivalent sensitivity has already been installed, indicating LOD/LOQ of at least 10 parameters relevant to food sector. In case he bidders are unable to obtain such a certificate, they may provide the full contact details of the users to enable FSSAI to get the certificates.
3) Price quoted should be valid for minimum 2 years.
4) The bidders need to give an undertaking that application support and services would be available for minimum 10 years.
5) Service support should be available throughout the country with a maximum turnaround time of 3 working days.
6) 5% of the cost of equipment need to be submitted as Performance Bank Guarantee at the time of placing the order by the respective lab.
7) The successful bidder shall have complete responsibility for the equipment in consultation with the staff of state lab where the equipment will be installed. In the event of any equipment going out of calibration the successful bidder shall be responsible for carrying out required repairs and adjustments.
8) The bidders will have to enter into tripartite agreement with FSSAI and with the respective state Governments before placement of actual supply order for the equipment

I ……. (Name of the person) Authorized signatory of M/S …….. (Name of the firm) herby agree to all the term and conditions. FSSAI in its own discretion can cancel /modify the tender process and FSSAI will have the right to accept or reject any or all Bids and to annul the qualification process at any stage without any liability or any obligation for such acceptance, rejection or annulment, without assigning any reasons.

Name:
Signature:
Date:
Seal:

Annexure A

Specifications of laminar Air Flow

S. No.	Specifications	Requirement	Yes/No
1.	**Working principle**	• The LAMINAR AIRFLOW UV Chamber when switched on, the blower unit should create a suction pressure through the primary filter (or Pre-filter), which removes dust particles of above 10 micron size in the first stage. Subsequently, the filtered air passed to the HEPA filters, where the particles or substances of 0.3 micron size and above are removed. Finally the ultra-clean filtered air supplied to the working chamber as a uniform airflow to perform precision analysis activities	
2.	**Cabinet (Material of construction)**	The system should have • Laminar Air Flow Cabinet should have fully enclosed bench designed. • The Laminar flow bench should have Stainless Steel SS 304 table with MS coated tabular frame and body. • Laminated Unit should also have stand by control system with lock and key.	
3.	**Unit**	The unit should have • Door should be made of tempered safety glass sliding door or glass wind screen • Should have LCD display to show measured parameters like stage velocity, total using time, UV/FL lamp on/off etc • Unit should have Differential pressure indicator.	
	Cleanliness level	The system should have • CLASS 100 (ISO 5 for particle sizes 0.5 μ < 3530 particles/M^3 of air at both at Rest & Operation Condition as per ISO 14644 –1	
4.	**Working size**	• 4 ft x 2 ft x 2 ft	
5.	**Work table**	• It should have IS 304 Grade Stainless Steel with finish 4 polish surface Front door • 5 mm thick clear Acrylic Sheet - Vertical sliding	
6.	**Direction of flow**	• Horizontal	
7.	**Airflow Speed**	• Velocity should have 90 Feet/Minute ± 20	
8.	**Blower Assembly**	• It should have one set blower system, which consists of dynamically & statically balanced aluminium centrifugal impeller driven by 1/4 HP, single phase,1200- 1400RPM motor, enclosed in an PU coated GI casing suitably suspended in a pair springs & connected to the filter chamber through flexible canvas duct	
9.	**HEPA Filters**	The filters should have • **Size**: 30" x 18" x 3" • **Type**: Separator less type, Mini-Pleats HEPA Media • **Media**: Ultra clean glass fiber paper • **Retention**: 0.3 Micron • **Efficiency**: 99.997% • **Initial Pressure**: 16 mm WG	

		• **Grade** : H13 rating	
10.	**Pre Filters**	• **Size** : 600 x 300 x 65 mm • **Media** : Synthetic, non-woven polyester • **Casing** : Epoxy painted GI frame • **Retention** : 10 Micron & above • **Efficiency** : 90% • **Initial Pressure**: 6 mm WG • **Grade** : F7 rating	
11.	**Particle Retention**	• 0.3 Micron	
12.	**Noise level**	<60 dBA±5	
13.	**Power Supply**	• Power supply should have 220-230 V, 50 Hz. And all components UL listed and CE marked	
14.	**Illumination**	• Fluorescent tube 1 no.	
15.	**Light**	• High intensity, low wattage >800 lux • Pre-mounted UV lamp (30 W) with separate switch.	
16.	**UV lamp**	• It should be 15 Watts, Equivalent to Philips make ,1½ Feet length,– 1 No. each	
17.	**Other accessories**	• 5/15 Amp power point, Gas inlet, Levelling Screws & Castor Wheels • Side mounted double electrical socket for ancillary equipment operation • DOP test port • Easily changeable pre-filters • Fitted with UV Germicidal lamp for sterilization. • Fitted with Acrylic Front Door sliding type • Fitted with Manometer for Measurement of HEPA Filters Choking system. • Fitted with Cock for Gas Connection. • Ensure noiseless operation and anti-vibration construction provides efficient working environment. • Filter replacement warning signal	
18.	**Certification required**	• Test Certificate for Mini-Pleat HEPA Filters • Calibration Certificate for Pressure Gauge • Calibration Certificate for Air Velocity Anemometer, • Warranty Certificate	
19.	**Operation and maintenance training component**	• The supplier will have to carry out successful installation at our laboratory premises (where ever the system has to be installed) and provide on – site comprehensive training for scientific personnel operating the system and support services till customer satisfaction with the system and a training at the suppliers lab premises is also required. .	

Specifications of Bio Safety Cabinet class II Type B2

S. No.	Specifications	Requirement	Yes/No
1	**Cabinet (Material of construction)**	Cabinet should have made from Galvanized Iron 18 SWG sheet metal with polyurethane paint coated finish and bottom will be supported with MS with PU coated modular stand which can be adjustable for height with levelling legs.	
2.	**Unit**	The unit should have • Front door Made of clear 5 mm thick Toughened glass, vertical sliding, with Feather touch Motorized operation, while opening the door UV Lamp will be cut "OFF" And while closing the door UV Lamp will be "ON" Automatically. • Side Panels: Both the sidewalls are made from double layered outer GI & inner stainless steel with return-air plenum in between. • Edges should perforated to avoid entry of room air into the work zone and exit of contaminated air in to the room and such contaminated air is sucked through this full height perforation at the edges of the sidewalls.	
3	**Cleanliness level**	The system should have • CLASS 100 (ISO 5 for particle sizes 0.5 µ < 3530 particles/M^3 of air at both at Rest & • Operation Condition as per ISO 14644(ISO 5 replaces Class 100 • US-FS 209 E) Conforming to NSF/ANSI 49, USA & En12469 standards.	
4	**Working size**	Ft (w x d x h) 3 x 2 x 2	
5	**Work table**	It should have Removable type tabletop, made of perforated IS 304 Stainless Steel with satin finished.	
6.	**Working Area:**	The entire working zone should lined with IS 304 grade stainless steel materials with joint free covering on corners for easy cleaning	
7.	**Direction of flow**	Vertical	
8	**Air Balancing**	100% Exhaust & 0% Re-Circulation	
9	**Particle retention**:	0.3 micron particles with typical efficiency of >99.997%0.3 micron particles with typical efficiency of >99.997%	

10.	**Airflow Speed**	Velocity should have 90 Feet/Minute ± 20	
11.	**Supply Air Blower**	It should consists of dynamically & statically balanced aluminium centrifugal impeller driven by an Single phase, 1440-RPM motor, enclosed in a PU coated Suspended in a pair of springs & connected to the filter chamber through flexible canvas duct inside the cabinet.	
12.	**Exhaust Blower**	• It should have Suitable displacing capacity having a static of 60 mm WG and made of mild steel and directly driven by a single phase, 1440-RPM motor. The exhaust motor & blower unit will be connected to the cabinet through an exhaust duct made of rigid PVC pipe.	
13.	**Exhaust Duct**	• The exhaust air will be sending out through an exhaust duct made of 125 mm diameter rigid PVC pipe. Suitable canopy will be provided at the end of the duct	
14.	**ON/OFF Controls**	• "ON/OFF" soft touch switch controller for the blower, UV lamp, Day light lamp The UV will automatically switch "off" when the front doors opened; likewise, the UV will switch "on" automatically when the door is closed. This will avoid accidental exposure of UV rays to the users' as UV rays are harmful to the skin.	
15.	**HEPA Filters**	The filters should have • **Type**: Separator less type, Mini-Pleats HEPA Media • **Media**: Ultra clean glass fiber paper • **Retention**: 0.3 Micron • **Efficiency**: 99.997% • **Initial Pressure**: 12 mm WG • **Grade** : H14 rating	
16.	**Pre Filters**	• **Media** : Synthetic, non-woven polyester • **Casing** : Epoxy painted GI frame • **Retention** : 10 -15 micron • **Efficiency** : 90% • **Initial Pressure**: 6 mm WG • **Grade** : F7 rating	
17.	**Noise level**	65 decibel on "A" scale ± 5 as per NSF 49	
18.	**Power Supply**	• Power supply should have 220-240 V, 50 Hz. And all components UL listed and CE marked Electric supply requirement	
19.	**Illumination**	4 feet, 40 Watt, Fluorescent tube – 2 Nos	
20.	**Light**	• High intensity, low wattage >800 lux	

		• Pre-mounted UV lamp (30 W) with separate switch.	
21.	**UV lamp**	• It should be 30Watts, Equivalent to Philips make ,3 Feet length,	
22.	**Certification required**	• Test Certificate for Mini-Pleat HEPA Filters • Calibration Certificate for Pressure Gauge • Calibration Certificate for Air Velocity Anemometer, • Warranty Certificate • Meet American (NSF/ANSI) or European standard EN 12469 (type tested) or both	
23.	**Operation and maintenance training component**	• The supplier will have to carry out successful Installation at our laboratory premises (where ever the system has to be installed) and provide on – site comprehensive training for scientific personnel operating the system and support services till customer satisfaction with the system and a training at the suppliers lab premises is also required.	
24.	**Warranty**	• The supplier or his authorized agent should have after sales and service centre near each of our laboratory location where the equipment is to be supplied. • Number and details of the service engineers has to be provided .	

Specification of vertical Auto clave

S. No.	Specifications	Requirement	Yes/No
1.	**Design**	• Unit made of SS 304 chamber, • Lid made of heavy gauge lid, die pressed S.S.304 with pressure gauge. • Steam release valve & necessary Safety valves, with foot lifting arrangement to open lid, programmable, with all functional accessories. • The sterilization chamber should be made of corrosion resistant stainless steel.	
2.	**Unit**	• Should have water inlet and outlet valves. • Should have a water level gauge • Should have gauges for measuring inner and outer steam pressure. • Should have an inner temperature indicator. • Should have automatic pressure control switch, safety valve and eject valve. • Should have joint-less silicone gasket. • Should have automatic low water protection. • The pressure gauge attached to the front side for easy check. • Should have radial type locking system • The instrument should have Mechanical Safety Devices :- **A**. Over current protection. **B**. Over temperature protection by automatic power cut-off. **C**. Over pressure protection by automatic and manual safety valve.	
3.	**Capacity**	Approx. 120 lit	

4.	**Display**	Microprocessor display for Time , temperature and pressure	
5	**Operating Temperature**	About 121°C.	
6	**Operating pressure**	15 to 20 psi pressure.	
7	**Alarm**	Low water level alarm and cut off / Sensor open alarm	

8	**Accessories**	Perforated carriers made up of SS 304 (3-4 Nos.)	
9	**Power Supply**	220/230 volts AC-50 Hz or Suitable power supply	
10	**Warranty and service**	Five years comprehensive warranty which includes replacement of corrupt/ damaged part and labour.	

Specifications of incubator (1)

Sno.	Specifications	Requirement	Yes/No
1.	**Material of construction**	• Double walled construction with complete inner chamber made of highly polished stainless steel • Outer chamber should be of steel sheet finished with powder coated point Insulation to maintain desired temperature • Inner chamber should be fabricated with ribs for adjusting shelves to convenient height and shelves to be supplied • Shelves should be made of polished stainless steel sheet as per chamber	
2.	**Capacity**	• 200 liters.	
3.	**Temperature range**	• Temperature should be thermostatically controlled with range +5˚ C from ambient to 60˚ C.	
4.	**Unit**	• Should have effective capacity minimum 50 litters. • Air ventilators to be provided on both side • The equipment should be provide with control panel having a thermostat control knob, on-off switch, pilot lamp and timer, digital indicator • Temperature homogeneity between top and bottom shelves should be maintained	
5.	**Power supply**	• It Should be supplied with power card and plug suitable to operate on 220 V, single phase, 50 Hz, AC supply .	

Specifications of incubator (2)

Sno.	Specifications	Requirement	Yes/No
1.	**Material of construction**	• Double walled construction with complete inner chamber made of highly polished stainless steel • Outer chamber should be of steel sheet finished with powder coated point Insulation to maintain desired temperature • Inner chamber should be fabricated with ribs for adjusting shelves to convenient height and shelves to be supplied • Shelves should be made of polished stainless steel sheet as per chamber	
2.	**Capacity**	• 150 liters.	
2.	**Temperature range**	• Temperature should be thermostatically controlled with range +5˚ C from ambient to 60˚ C.	
3.	**Unit**	• Should have effective capacity minimum 50 litters. • Air ventilators to be provided on both side • The equipment should be provide with control panel having a thermostat control knob, on-off switch, pilot lamp and timer, digital indicator • Temperature homogeneity between top and bottom shelves should be maintained	
4.	**Power supply**	• It Should be supplied with power card and plug suitable to operate on 220 V, single phase, 50 Hz, AC supply .	

Specifications of incubator (3)

Sno.	Specifications	Requirement	Yes/No
1.	**Material of construction**	• Double walled construction with complete inner chamber made of highly polished stainless steel • Outer chamber should be of steel sheet finished with powder coated point Insulation to maintain desired temperature • Inner chamber should be fabricated with ribs for adjusting shelves to convenient height and shelves to be supplied • Shelves should be made of polished stainless steel sheet as per chamber	
2.	**Capacity**	• 100 liters.	
3.	**Temperature range**	• Temperature should be thermostatically controlled with range +5˚ C from ambient to 60˚ C.	
4.	**Unit**	• Should have effective capacity minimum 50 litters. • Air ventilators to be provided on both side • The equipment should be provide with control panel having a thermostat control knob, on-off switch, pilot lamp and timer, digital indicator • Temperature homogeneity between top and bottom shelves should be maintained	
5.	**Power supply**	• It should be supplied with power card and plug suitable to operate on 220 V, single phase, 50 Hz, AC supply.	

Specifications of colony counter

S. No.	Specifications	Requirement	Yes/No
1.	**Material of construction**	Full Stainless steel fabricated body with duly heat cured epoxy coating with dimensions 41x32x30 cm	
2.	**Unit**	It should consist of • Digital dispay upto 4 digits. • count range from 0 to >9000 • It should consist of Magnifying lens (more than 2X magnification. with digital marking pen(1) • Accepts petridish upto size 120mm diameter with a centering adaptor for standard 90mm petri dish • Fluorescent LED lamp • Zero reset button	
3.	**Warranty**	2 yrs of warranty with working manual.	

Specifications for stomacher

Sno.	Specifications	Requirement	Yes/No
1.	Unit	• It should have dimensions of 330mm wide x 355 mm deep x 300 mm high • Should have chamber of stainless steel with window door • Should have multi-function digital display Provision of adjustable blending power with on screen indicator. • Should have provision of removable paddles for cleaning and autoclaving • Should have facility for side by side paddle stop. • Provision of fully opening door facility.	
2.	Voltage supply	220-250V	
3.	Supply frequency	50-60 Hz	
4.	Plug Top Fuse	F5A	
5.	insulation	Class 1 (Earthed)	
6.	Installation	Over voltage Category II	
7.	Pollution	Pollution degree II	
8.	Duty Cycle	Continuous	
9.	Disposable bag size	177mm×304mm	
10.	Minimum capacity	80ml	
11.	Maximum capacity	400ml	
12.	Temperature	Ambient operating temperature 10-35^{o}c.	

13.	**Humidity range**	Operating relative humidity range should be 10-89%	
14.	**Adjustable timer settings**	0-10 seconds	
15.	**Paddle speed**	200-230 rpm	
16.	**Paddle clearance**	0-10mm	
	Accessories	Quoted with supply filter bags (1000 number), gag clips (50 number) and bag stand (2 number)	
17.	**Warranty**	Warranty of 2 years.	

Specifications of Water bath

S. No.	Specifications	Requirement	Yes/No
1	**Material of construction**	• It should be Double walled inside stainless steel and outside mild steel sheet painted in epoxy powder coating (rust resistant material) with lid • Capacity of 325 ×250×100 mm.	
2	**Unit**	• Bath should consist of two pilot lamp, temperature control knob and ON/OFF switch to work on 220/230 volts AC supplied with or without stirring arrangement without racks and thermometer. • Instrument should have lift up bath cover; • Carrier racks should be given for flasks and test tubes racks. • A cock should be provided to facilitate draining of bath contents. • Water bath protective media should be there to prevent contamination and formation of algae.	
3	**Temperature Control**	• Temperature is generally electronic digital temperature controller, from ambient temperature +5 to 100^0C with accuracy of $\pm1^0$ C and $\pm0.1^0$C	
4	**Signals**	• Audible warning safety signals should be there for high/low temperature warnings, and dry running protection.	

5	**Heating capacity**	• It should have 2 KW; and all the accessories required for the functioning of the equipment.	
6	**Size**	• Size of the inner chamber should be 325 ×250×100 .	
7	**Operation and warranty**	• Two years comprehensive warranty which includes replacement of corrupt/ damaged part and labour • All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment	

Specifications of Analytical Balance.

S. No.	Specifications	Requirement	Yes/No
1.	**Operational Requirements**	It should have • Microprocessor based single pan analytical balance with high accuracy and precision. • Reading of the weight by digital display • Electronic top loading balance with transparent case. • The balance should have functions of piece counting, percent weighing, and formulation, dynamic. • Weighing with automatic and manual start and provision for data interface.	
2.	**Technical Specifications**	• Weigh accurately up to 3rd decimal place. • Fully automatic time and temperature controlled internal calibration and balance should be capable to adjust itself Auto zero setting. • Weighing capacity up to 200g Readability 0.001gm Repeatability 1mg or less. Setting time 1.5secs	
3.	**Balance should have**	• Liquid Crystal Display (LCD) for display and Stainless steel square weighing pan • IR sensors for hands free operation • Alphanumeric data entry of 4ID's	

4.	**Environmental factors**	• Safety for electromagnetic compatibility. • The unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of 80%.	
5.	**Power supply**	• Power input to be 220-240VAC, 50Hz. • Suitable UPS with maintenance free batteries with minimum one hr backup should be supplied with the system	
6.	**Accessories**	• All necessary accessories should be provided with unit. .	

Specifications of ultra low Temperature deep freezer

Sno.	Specifications	Requirement	Yes/No
1.	**Capacity**	400-500 litres	
2.	**Exterior Chamber size**	1750×700×930 mm	
3.	**Temperature range**	Up to -20 °C	
4.	**Unit**	• Should be Vertical type • Microprocessor-based • temperature controller, • Temperature up to -20°C can be set freely, Digital temperature display. • Audible/visual alarm for high or low temperature alarm, system failure alarm. • Power supply: 220V /50Hz 1 phase. • CFC free hermetically sealed refrigeration system with compressor. Charged with refrigerant to pull down the temperature up to -40^{O}C • Mounted Heavy duty Castor wheels for easy movements • Double walled main door with sub doors arrangements • Sub doors made of FRP Sheet or better material with special silicon Gasket system for leak proof	
5.	**Structure design**	• Outer body is painted steel board, inside is aluminium panel. • Top door with key lock. • One unit basket made of steel wire are convenient to store articles	

6.	**Refrigerator system**	• Quick freezing switch to make fast cooling. • Famous good quality compressor • Freezer must use CFC-FREE, HCFC-FREE non flammable refrigerants, and refrigeration system must be energy efficient.	
7.	**Accessories**	• Freezer should be supplied with 3KVA voltage stabilizer. • The instrument should be provided with a Cooling Unit and a 5 KV stabilizer. • CO2 Back up with Cylinder, Racks with Boxes be quoted as optional.	

Specifications of UV-VIS Spectrophotometer

Sno.	Specifications	Requirement	Yes/No
1.	**Optical Design**	• Double Beam with sample and reference cuvette positions; Czerny-Turner Monochromatic • Reference Compartment Should accommodate cells up to 100 mm path length as standard feature	
2.	**Light Source**	Instrument should have 2 sources i.e. (1) Halogen lamp for Visible range (2) Deuterium Lamp for UV range, light source should be auto automatically selected as per wavelength required.	
3.	**Spectral Bandwidth**	0.2 to 5 nm Variable bandwidth	
4.	**Detector**	Instrument should have high sensitive Photomultiplier tube as a detector	
5.	**Scan Ordinate Modes**	Absorbance, % Transmittance, % Reflectance	
6.	**Resolution**	Resolution: 0.1nm or better.	
7.	**Wavelength Range**	190-900 nm Wavelength	
8.	**Wavelength Accuracy**	± 0.3nm for entire range	
9.	**Wavelength Repeatability**	± 0.05nm or better± 0.8 nm	
10.	**Scanning Speed**	Instrument should have variable wavelength scan rate from 4000 to 0.5nm/Min with automatic selection.	
11.	**Photometric Range**	Absorbance = -4.0 to 4.0 Abs or better. Transmittance & reflectance 0 to 80000 % or better.	

12.	**Photometric Accuracy**	0.5 A: ± 0.004A; 1A: ± 0.006A; 2A: ± 0.010A; (440 nm; traceable neutral density filters)	
13.	**Stray Light**	Max. 0.005% (220 nm Nal) or better, Max. 0.005% (340,370 nm $NaNO_2$) or better Max. 1% (198nm KCI) or better	
14.	**Noise**	0.00005 Abs RMS (500nm) or better	
15.	**Drift**	< 0.0005 A/hr (500 nm, 1 hour warm-up)	
16.	**Baseline flatness**	± 0.0005 Abs or better	
17.	**Accessories**	Instrument should have large sample compartment with suitable facility to fit below accessories. (Supplier should quote for same in the offer) (i) Quartz cell 10 mm Rectangular Path Length (5pairs) (ii) Quartz Cell 50mm Rectangular Path Length (2 Pairs) (iii) Quartz cell 100 mm rectangular Path Length (2 pairs). 3) Film Holder for measurement of direct transmittance of films	
18.	**Warranty**	5 yrs of warranty	

Specifications of Binocular Microscope

Sno.	Specifications	Requirement	Yes/No
1.	**Body**	• Binocular, sturdy, stable base body with focus adjustment controls.	
2.	**Eye piece**	• It should be Paired, high quality, (the image of the object as seen through the binocular eyepiece should be well defined centrally in at least 2/3 field of view) • Achromatic, wide field, 10 x with inbuilt pointer. • The eyepiece should be aplanatic and have a minimum field number of 18 Diopter adjustment must be present on one/ both eye pieces or on the eye piece tube.	
3.	**Optical system**	• Optical system should be infinity corrected. • System complete with illumination system is required.	
4.	**Objective**	• Three objectives 10x, 40x, 100x. • 10x and 40x objectives should have numerical apertures of 0.25 and 0.65 respectively. • 100x should have numerical aperture of 1.25 and should be of oil immersion. • Unbreakable containers to be provided for storing the objectives. All objectives should be wide field, achromatic and par focal.	

5.	**Nose piece**	• Revolving nose piece to accommodate a minimum of three objectives with click stops. It should be provided with ribbed grip for easy rotation mounted on a precision ball bearing mechanism for smooth and accurate alignment. Extra ports if any should be fitted with dust proof metallic/ebonite caps.	
6.	**Stage**	• Stage uniformly horizontal, mechanical stage having dimensions of length 140 mm (+/- 20mm) with fine vermier graduations (minimum reading accuracy of 0.1 mm). • It should be designed with convenient sub-stage vertical coaxial adjustment for slide manipulation. • The stage should have ball-bearing arrangement to allow smooth travel in transverse directions i.e. 80 mm (+/-5mm) and front to back direction, 50mm (+/- 5mm).	
7.	**Sub-stage condenser**	• Abbe-type condenser with numerical aperture (N.A.) 1.25 focusable with rack and pinion arrangement incorporating a spherical lens and an iris-diaphragm	
8.	**Sub-stage illuminator**	• The system should have a build-in variable light source (Illuminator). • This light source should have a	

		20 W, 6 V Halogen lamps. • The system should be provided with a step down transformer and an on-off switch and intensity control. • The lamp should be provided with a lamp socket which has the facility for easy replacement of the bulb	
9.	**Power supply**	• Voltage 220 V AC, 50Hz. should have one on-off power switch • A plano-concave mirror in fork mounting should be supplied which would be attachable to the base for field use when power is not available.	
10.	**Unit**	• All optical parts including objectives, eye pieces and prisms should have anti-reflective coating which also gives anti-fungal property. • All metallic parts should be corrosion-proof, acid proof and stain-proof. • Working manual should be provided with each microscope. • A bottle of at least 25 ml immersion oil, a roll of lens tissue paper and lens cleaning solution (100 ml) should be provided with each microscope. • One anti static cleaning brush should be provided with each Microscope for cleaning purpose. • The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%.	

11.	**Digital camera**	• 3 megapixel scientific grade (even at dim light) colour CCD camera along with image capture and analysis software and c-mount adapter. Resolution at least 2448 x 1920 effective pixel (4 x 4 bining and 2 x 2 bining) and 10 bit digitization. • Microscope should come along with PC (i5 6200U processor, 6 GB RAM, 500GB HDD, DVR R/W, LED 20"). With UPS (minimum offline backup of 30 minutes).	
12.	**Warranty and maintenance**	• All consumables required for installation and standardization of system and microscope cover to be given free of cost. • Three years warranty, 5 yrs comprehensive AMC should be available with service centres in close proximity. User/Technical/Maintenance manuals to be supplied. • List of important spare parts and accessories with their part number and costing.	

Specifications of Howard Mold Counter

S. No.	Specifications	Requirement	Yes/No
1.	**Counting Chamber**	• Includes Cover slips (5080 and 5090 • All glass construction • It should consist of Engraved lines for microscopic calibration.	
2.	**Dimensions**	• Glass slides of 75 x 35 mm, with central section 15 x 20 mm which provides a cell of 0.1 mm depth	

Specification of Cooling Centrifuge

S. No.	Specifications	Requirement	Yes/No
1	**Base unit**	• Table-top high speed refrigerated centrifuge with option of fixed angle as well as swing out rotors. • Should give max Speed of 14,000 rpm/max rcf of 20,000xg or above with fixed angle rotor • Rotor imbalance checking and imbalance alarms should be present • Should be compatible with rotors for small volume(1.5 ml/2.0 ml) as well as large volume (at least 4X100 ml) • LCD digital display for RPM/RCF, timer and temperature setting and actual run conditions should be displayed • Preferably European CE/USFDA approved	
2	**Temperature range**	• 5ºC to 40 ºC	
3.	**Power requirement**	• 220 v to 240 v -50 Hz If a voltage stabilizer is required, it should be supplied along with the unit	
		The unit should be supplied along with the following	

4.	**Rotors**	rotors: • **Fixed angle rotor**: Fixed angle rotor for 1.5/2.0 ml tubes (at least 28 places or more) • Should supply adapters for 0.5 and 0.2 ml tubes • Should give RCF of 20,000 X g or more. • Rotor should be autoclavable. • **Swing out rotor**: Should have at least 4X 100 ml of capacity. • Maximum RCF produced should be 3200 x g or above • Four buckets should be provided (either round or rectangular buckets) • Adapters for 15ml conical bottom centrifuge tubes & 50 ml conical bottom centrifuge tubes should be provided (two adapters for 6 or 8 X15 ml and two adapters for 2 or 4X50 ml) • Rotor and buckets should be autoclavable. • Fitted with certified aerosol type cap on the rotor to avoid any accident due to breakage of sample tubes.	
5.	**Operation and warranty**	• 3 years comprehensive warranty	

Specifications of B.O.D Incubator

S. No.	Specifications	Requirement	Yes/No
1.	Capacity	• It should have capacity of 340 Litters	
2.	Temperature Range	• 5°C to 60°C at normal room temperature	
4.	Control Accuracy	• Accuracy should be +/- 0.1°C	
5.	External Chamber	• Mild steel and painted in epoxy powder coating.	
6.	Inner Chamber	• Stainless Steel of 30quality with minimum 4 No of Detachable shelves	
7.	Inner Acrylic Door	• Inner full size see through Acrylic 8mm thick	
8.	Outer Door	• Double walled metal door with Magnetic gasket and lock and key.	
9.	Air Circulation	• By motorized Recirculation/Forced Air for temperature homogeneity	
10.	Chamber unit	• It should consists of Control panel with at cabinet top with 3 nos. indicator for main, heating and cooling • It should have cord with plug to work on 220/230 volts A.C. • Microprocessor display for temperature.	

Specification of Micro Filtration Unit

S. No.	Specifications	Requirement	Yes/No
1.	**Unit Assembly** **(Material of construction)**	• Assembly should consist of borosilicate glass funnel with funnel base, filter support with silicone stopper clamp • It should have Holder which should be autoclavable . • It should be PTFE-Faced Fritted Glass Support. • Having diameter to hold filter paper of the 47mm diameter	
2.	**Assembly**	• Assembly should be classic glass fitted holder with fitted inlet as funnel	
3.	**Funnel capacity**	• It should be Available in four graduated funnel capacities 100, 300, 500, or 1000 mL.	
4.	**Filter pore size**	• It should have capacity to hold membrane filter pore size starting 0.2 micrometer with diameter of 47 mm .	
5.	**Accessories**	• It should consists of vacuum pump with PVC tubing. • Should consist of side arm flask (minimum 1 liter capacity) • Forceps to handle filter paper (sharp edged)	

Specification of pH meter

Sno.	Specifications	Requirement	Yes/No
1.	Ph Range	0 - 14.00	
2.	Ph Accuracy	± 0.01 pH	
3.	Mv Range	0 - ± 1999	
4.	Mv Accuracy	± 1mV	
5.	Temperature Range	0 – 100 ^{o}C	
6.	Temperature Accuracy	± 1 ^{0}C	
7.	Calibration Points	• 3-point calibration with auto buffer recognition • For calibration, pre programmed buffer sets should be supplied.	
8.	Temperature Compensation	• Automatic	
9.	Display	• Backlit blue LCD with operation icon	
10.	Power	• 9V DC	
11.	Dimensions (L X W X H)	• 210 x 205 x 65 mm	

Specifications of fumigator

S. No.	Specifications	Requirement	Yes/No
1.	**Capacity**	• 5 liters with easy cleaning facility	
2.	**Material of construction**	• Body should be compact, durable, leak proof and made of stainless steel /heavy duty plastic	
3.	**Particle size**	• It should consist aerosols with particle size of less than 5 microns • The blower head should be rust proof and deliver aerosols uniformly.	
4.	**Unit**	• It should be compatible with all disinfectant solutions usual concentration. • It should be compatible with maximum Ph range (both acid and alkali). • The equipment should be of good quality and conform to national/ international standards.	
5.	**Power supply**	• The machine should operate on 220 +- 10 volts, 50 Hz, single phase, A.C • Provided with Cable should be at least 5 meters in length, ISI marked.	
6.	**Operation**	• The discharge rate should not be less than 1Liter/25 minutes. • The tank capacity, discharge rate and timer on the machine should be so that the disinfectant should be able to disinfect 4000-5000 cubic feet in one cycle of 2 hours (max).	
7.	**Warranty**	• 2 yrs of warranty with user manual • Company should be able to demonstrate and train users on proper usage of the fumigation machine in the user areas.	

Specifications of UV chamber

Sno.	Specifications	Requirement	Yes/No
1.	**Test sample Area**	Approx 3mx3mx8cm	
2.	**Temp Range**	25-75°C	
3.	**Temperature uniformity**	±2°C	
4.	**UV Lamp/tube**	• As Per Standards IEC 61215/61646:2005, IEC 61345 5	
5.	**UV radiation non uniformity**	• ±15% over the test plane	
6.	**UV radiometer**	• Should measure UV-A, UV-B (280nm to 400nm)	
7.	**UV integrator**	• Should indicate measured UV irradiance on the test plane for UV-A, UV-B in W/m2	
8.	**Module temperature measurement**	• At least four module temperature sensors (RTD) for monitoring module rear side. • The module temperature sensors shall be calibrated.	
9.	**Acoustic alarm**	• In case of any error/warning	
10.	**Electricity Supply**	• 1-phase 230V±10% or 3-phase 440V±10%, Frequency: 50Hz (Automatically Resume the test when there is power-cut)	
11.	**Warranty**	• Additional spares parts for at least 1 year with Warranty. Shall be provided	
12.	**Calibration certificate**	• From any national/international accredited body	
13.	**Safety Protection**	1.Reverse phase sequence protection for three phase 2. Shock proof body 3. Emergency stop 4. Door Interlock 5. Temperature Protection 6. UV protected glass window	

Specification of Anaerobic jar

Sno.	Specifications	Requirement	Yes/No
1	**Capacity**	• 12 liters total volume	
2	**Material of construction**	• Transparent, unbreakable polycarbonate jar.	
3.	**Unit**	• Jar should provided with pressure -cum -vacuum gauge attached to the lid • Jar should be ideal for all strict anaerobic test conditions. • Lid should consist of O- ring gasket. • It should provided with petri dish (100mmdiatemer) holder/SS rack.	
4.	**Warranty**	• 3 years of warranty with working manual	

Specifications of Hot air Oven

S. No.	Specifications	Requirement	Yes/No
1.	Material of construction	• Should have double walled construction, with high quality insulated steel. Inner walls of 304 quality SS, Outer walls of Powder coated GI sheets. • Facility for adjustable shelves, 10 removable shelves to be provided. • Size of inner chamber approx 55x55x70 cm with internal lighting facility, Insulated door fitted with heavy hinges, mechanical door lock.	
2.	Capacity	• 200 liters	
3.	Temperature range	• It should be Ambient +5°C to 250°C with temperature setting accuracy ±1°C • Separate PT 100 sensor and display for temperature (LED)	
5.	Power supply	• All electrical peripherals required for smooth functioning e.g. voltage stabilizers should be provided.	
6.	Accessories	• Should have all the accessories required for the functioning of the equipment.	
7.	Warranty and service	• Five years comprehensive warranty	

LIST OF MEDIA - MICROBIOLOGY	
Sl. No.	**MEDIA**
1	Acetate Agar
2	Baird Parker Agar
3	Bismuth Sulphite Agar
4	Brain Heart Infusion Broth
5	Brilliant Green Lactose Bile Broth 2%
6	Bromocresol Purple Carbohydrate Broth
7	Buffered Peptone Water
8	Butterfield's Buffered Phosphate Diluent
9	Cooked Meat Medium
10	Carbohydrate Utilization Broth
11	Czapek Yeast (Autolysate) CYA agar
12	Decorboxylase Test Medium (Lysine, Ornithine, Arginine provide separtely)
13	Dextrose Tryptone Agar
14	EC Broth
15	Egg Yolk Tellurite Supplement
16	Frazer Broth
17	L- EMB Agar
18	Gelatin Phosphate Salt Broth
19	Gram Negative Broth (GN)
20	Hektoen Enteric Agar
21	Hough & Liefson Medium
22	Half Frazer Broth
23	Klinger Iron Agar
24	Koser's Citrate Broth
25	Lactobacillus MRS Agar
26	Lactose Broth
27	Lactose Gelatin Medium
28	Lauryl Tryptose Broth
29	Liver Broth
30	Lysine Iron Agar
31	Macconkey agar
32	Malonate Broth
33	Malt Agar
34	Motility Test Medium
35	MRVP Broth
36	MYP Agar
37	Modified Oxford Agar
38	MY-40 Agar

39	Nitrate Broth
40	Nutrient Broth
41	Nutrient Agar
42	Peptone Water Diluent
43	Plate Count Agar
44	Phenol Red Carbohydrate Broth
45	Potato Dextrose Agar
46	Pseudomonas Presumptive Test Broth
47	Psuedomonas confirmation medium (Skim Milk Agar)
48	Palcam Agar
49	Phosphate Buffered peptone water
50	Selenite Cystine Broth
51	Sheep Blood Agar
52	Sulphite Agar
53	Tetrathionate Broth
54	Thiosulfate-Citrate-Bile Salts-Sucrose Agar (TCBS)
55	T1 N1 Agar
56	Thioglycollate Agar
57	Tryptone Glucose Extract Agar
58	Triple Sugar Iron Agar
59	Tryptone Broth
60	Trypticase Soy Broth
61	Tryptose-Sulfite Cycloserine (TSC) Agar
62	Urea Broth
63	Violet Red Bile Agar
64	Xylose Lysine Deoxycholate Agar (XLD)