

**REQUEST FOR PROPOSAL FOR EMPANELMENT  
FOR SETTING UP OF BASIC FUNCTIONAL LABORATORY**  
(Open Tender enquiry)

**Request for Proposal (RFP) No. 08/2019-20**

**File No. 11023/19/2019-QA**

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 30<sup>th</sup> May, 2019

The Food Safety and Standards Authority of India (hereinafter called "The Authority" invites tender on Two-Bid system for **Empanelment of Bidders for Setting up of BASIC FUNCTIONAL LABORATORY** on turnkey basis in States/UTs.

2. Bids under Two bid system (Technical Bid and Commercial Bid) in sealed covers are invited for "**EMPANELMENT OF BIDDERS FOR SETTING UP OF BASIC FUNCTIONAL LABORATORY**". 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       | : | Assistant Director (Quality Assurance)<br>Food Safety and Standards<br>Authority of India, FDA Bhawan,<br>Kotla Road, New Delhi-110002 |
| (c) Name/designation of contact person        | : | Nilesh Kumar Ojha<br>Assistant Director (Quality Assurance)                                                                            |
| (d) Telephone No.                             | : | 011- 23237417                                                                                                                          |
| (e) Last Date and Time for Receipt of Tenders | : | 09 July 2019 at 1500 Hrs                                                                                                               |
| (f) Date and Time of Opening of Tenders       | : | 09 July 2019 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:** **09 July 2019 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 **09 July 2019 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](http://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 June 2019 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 forfeiture of Bidder's 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. **Conditional tenders will also be rejected.**

13. **Validity of Bids:** The Bids should remain valid till **12 Months** from the last date of submission of the Bids.

## **PART II – ESSENTIAL DETAILS OF ITEMS/SERVICES REQUIRED**

The tenders are invited for Empanelment of vendors for **Setting up of Basic Functional Laboratory in States/UTs** as mentioned under schedule of requirements in Part II of RFP. This empanelment is initially for a period of 03 years which may be extended further with the approval of Competent Authority. This tender is a Turnkey project. Consortium is allowed.

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

- A. Equipments for Basic Functional Laboratory
- B. Associated Civil and Electrical Works
- C. Provision of Manpower

2. Technical Details:

### **PART-A**

S. No.	Equipment	Quantity
	<b>General equipment</b>	
1	Analytical balance (0.0001g accuracy)	2
2	Digital balance 500 gm (0.01 accuracy)	1
3	Hot air Oven	2
4	Muffle Furnace	2
5	Fume Hood	1
6	pH meter	1
7	Turbidity meter	1
8	conductivity and TDS meter	1
9	Magnetic stirrer	1
10	Vortex mixer	1
11	Hot plate	2
12	Water bath	1
13	Flash Point apparatus	1
14	Laboratory refrigerator	1
15	Deep freezer	1
16	Vaccum Oven	1
17	Automated Fat analyzer	1
18	Automated Fibre analyzer	1
19	Automated Kjeldhal analyzer	1
20	Flame Photometer	1
21	Lovibond Tintometer	1
22	Cooling Centrifuge	1
	<b>Analytical equipment</b>	
23	Nitrogen evaporator	1
24	Micro filtration assembly	1
25	Autotitrators	2
26	Water purification system	1
27	Digital butryo refractometer	1
28	Nitrogen generator	1
29	UV/Vis spectrophotometer	1
30	Microwave digestion system	1
31	FT IR with ATR & liquid cell	1
32	AAS [GTA/ FLAME/VGA]	1
33	Inductive Coupled Plasma Mass Spectrometer (ICP-MS)	1

34	UPLC with PDA, RID and FLD	1
35	GC with NPD, ECD and FID	1

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

#### **PART-B**

The Associated Civil and Electrical work has to be carried out as far as possible and as per the requirement of States/UTs. The work has to be carried out as per CPWD rates and where the item is not available in the CPWD schedule as per the Market rate.

Empanelled vendor has to carry out civil and electrical work in coordination with other vendors empanelled separately for setting up of microbiology laboratory.

#### **PART-C**

##### **Manpower to be provided:**

Successful bidder will have to provide full time three Skilled technical manpower for 03 years who will be responsible for the working of the instrument i.e. sample preparation, method validation, operation of instrument and data interpretation. The personnel will not claim to be an employee of FSSAI/State Laboratory. The person will work under the supervision of state laboratory head and carry out the required analysis of various samples received in the lab. He will also be responsible for providing training on the instrument to the laboratory staff.

Bidders will have to maintain backup of the manpower supplied in case of prolonged leave or any unforeseen circumstances.

In case the person provided by the bidder is found to be involved in any unlawful activity, the bidder will be liable to remove him immediately and provide a replacement. The decision of the state food lab would be final and binding to the bidder in this regard.

Note : Engagement of manpower and period of engagement will be at the sole discretion of **FSSAI/State Food Commissioners or any office designated by FSSAI**

3. **Delivery Period** – Delivery period for supply of items would be **180 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 supply, installation, testing and commissioning of the equipment to the satisfaction of the **FSSAI/ FSSAI/State Food Commissioners or any office designated by FSSAI** beyond the stipulated date:

- (a) The Bidder will inform **FSSAI/State Food Commissioners or any office designated by FSSAI** well in advance in writing the reasons for delay in supply and/or installation of the equipment.
- (b) **FSSAI/State Food Commissioners or any office designated by FSSAI** 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/State Food Commissioners or any office designated by FSSAI** 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/State Food Commissioners or any office designated by FSSAI**

5. **Consignee Details.** State Food Commissioners or any office designated by FSSAI
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) Average Annual financial turnover, during the last three years should not be less than Rs.05(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) Bidders are required to submit Bank Solvency Certificate issued not earlier than 31 March 2019.
  - (e) Bidder should have sufficient experience of setting up of Basic Laboratory(Work order/completion Certificate to be attached). **At least one work order of Setting up of Basic Laboratory should be of Government sector which should have been awarded during the last two years.** Satisfactory work certificate should only be enclosed in case of completed project.
  - (f) 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 II.**
  - (g) 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 III.**
  - (h) Bidder should provide general information as per **Annexure IV.** Any other details, as considered necessary may also be provided.
  - (i) 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 10 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 V.**

8. **Other terms and Conditions:**

(a) All the terms and conditions in respect of warranty/guarantee, CAMC/AMC, 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 <b>09 July 2019</b>
3	Time, date & place of opening of Technical Bids	1530 hrs on <b>09 July 2019</b> in Conference Hall, Food Safety and Standards Authority of India, FDA Bhawan, Kotla Road, New Delhi-110002
4	Schedule of Requirements and other Technical features as contained in Pat II of the RFP	Complied / Not complied
5	Bank Solvency Certificate (issued not earlier than 31 March 2019)	Enclosed / Not enclosed
6	Authenticated copy of PAN	Enclosed / Not enclosed
7	Authenticated copy of GST Regn.	Enclosed / Not enclosed
8	Tender Bid valid for acceptance up to 12 months from the date of opening of the commercial bid.	Accepted / Not Accepted
9	Experience Certificate of installation of analytical equipments(Work order/completion Certificate to be attached).	Enclosed / Not enclosed
10	Average Annual Financial Turnover during the last three Financial years 2018-19, 2017-18 and 2016-17, should not be less than Rs. 05(Five) Crore.	Enclosed / Not enclosed
11	Declaration form as per <b>Annexure I</b>	Enclosed / Not enclosed
12	Certificate of Guarantee/Warranty as per <b>Annexure II</b>	Enclosed / Not enclosed
13	An undertaking that the bidder has not been blacklisted/debarred by any State Govt./ Central Govt. Department/organization as per <b>Annexure III</b>	Enclosed / Not enclosed
14	General Information about the Bidder as per <b>Annexure IV</b>	Enclosed / Not enclosed
15	Compliance sheet as per <b>Annexure V</b>	Enclosed / Not enclosed

Stamp of the Firm

Signature of Bidder \_\_\_\_\_  
Name in Block letters \_\_\_\_\_  
Capacity in which signed \_\_\_\_\_  
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 :

**1. ANALYTICAL BALANCE**

Sl. No.	Specifications	Requirement	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
1	<b>Application</b>	Required to measures mass to a high degree of precision with a <b>weighing</b> capacity typically 200 g and a readability of 0.1 mg – 0.001 mg and protected by a draft shield or an enclosure.		
2	<b>Operational Requirements</b>	It should have <ul style="list-style-type: none"> <li>• Microprocessor based single pan top loading analytical balance with high accuracy and precision.</li> <li>• Reading of the weight by digital display</li> <li>• Balance with transparent case.</li> <li>• Weighing with automatic and manual start and provision for data interface.</li> </ul>		
3	<b>Technical Specifications</b>	<ul style="list-style-type: none"> <li>• Weigh accurately up to 3rd decimal place.</li> <li>• Fully automatic time and temperature controlled internal calibration and balance should be capable to adjust itself Auto zero setting.</li> <li>• Weighing capacity up to 200g Readability 0.1 mg Repeatability 1 mg or less. Setting time 1.5 secs.</li> </ul>		
4	<b>Balance should have</b>	<ul style="list-style-type: none"> <li>• Fast dismantling chamber for easy clean up</li> </ul>		
5	<b>Environmental factors</b>	<ul style="list-style-type: none"> <li>• Safety for electromagnetic compatibility.</li> <li>• The unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of 80%.</li> </ul>		
6	<b>Accessories</b>	<ul style="list-style-type: none"> <li>• All necessary accessories should be provided with unit.</li> </ul>		

7	<b>Calibration certificate</b>	Certificate from a ISO 17025 accredited lab for 3 different weights.		
8	<b>Operation and training component</b>	<ul style="list-style-type: none"> <li>The supplier will have to carry out successful Installation at the laboratory premises (where ever the system has to be installed) and provide on – site comprehensive training for a minimum of two scientific personnel operating the system till customer satisfaction</li> </ul>		
9	Certificates Performance and safety standards (specific to the device type);Local and/or international	<ul style="list-style-type: none"> <li>Should be FDA/CE/BIS approved product.</li> <li>Manufacturer and Supplier should have ISO 13485 certification under ISO 9001 for quality standards.</li> <li>Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements(or equivalent BIS Standard)</li> <li>Certified to be compliant with IEC 61010-1, IEC 61010-2-40 for safety</li> </ul>		
10	Supplier/ Manufacturer	<ul style="list-style-type: none"> <li>Must be ISO certified for quality</li> </ul>		
11	Service Support Contact details (Hierarchy Wise; including a toll free/landline number)	<ul style="list-style-type: none"> <li>Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/adhoc) to be declared by the manufacturer;</li> </ul>		
12	Recommendation s or warnings	<ul style="list-style-type: none"> <li>Any warning signs would be adequately displayed</li> </ul>		
13	<b>Warranty</b>	<ul style="list-style-type: none"> <li>Warranted for 03 years after satisfactory installation and working excluding consumable parts and accessories.</li> </ul>		
14	Service contract clauses, including prices	<ul style="list-style-type: none"> <li>List of all spares and accessories (including minor) with part numbers and price, required for maintenance and repairs in future after guarantee/warranty period should be attached;</li> </ul>		
15	Operating manuals, service manuals, other manuals	<p>Should provide 2 sets(hardcopy and soft-copy) of:-</p> <ul style="list-style-type: none"> <li>User, technical and maintenance manuals to be supplied in English language along with machine diagrams;</li> <li>List of equipment and procedures required for local calibration and routine maintenance;</li> <li>Service and operation manuals</li> </ul>		

		(original and copy) to be provided;		
		<ul style="list-style-type: none"> <li>Advanced maintenance tasks documentation;</li> <li>Certificate of calibration and inspection</li> </ul>		

## 2. **DIGITAL BALANCE 500 GM**

Digital Precision Balance along with Standard Weight Box of E2 Class (1 Weight Box) traceable to National / International Standards should offer the followings features:

SI. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
1.	Design	Type – Top loading Precision Balance of 1200gm Capacity		
2.	Range (weight)	0.01gm - 1200gm		
3.	Accuracy	0.01gm		
4.	Readability	0.001gm		
5.	Repeatability	0.001gm		
6.	Linearity	0.002gm		
7.	Response time	1.5 s		
8.	Calibration	automatic/internal		
9.	Display	Touch Screen		
10.	Stabilization Time	2 Seconds (typically).		
11.	Calibration certificate	From NABL accredited calibration laboratory should be supplied along with the eqp.		
12.	Specifications of Weight Box traceable to international standards (1 no)	<ol style="list-style-type: none"> <li>1 mg - 200 g, E2</li> <li>Accuracy class acc. to OIML R111: E2</li> <li>Nominal mass value: 1mg to 200g. Up to 500 mg as wire weights</li> <li>Susceptibility: 0.002 – 0.004</li> <li>Material: special steel, non-magnetizable, density 8.0 g/cm<sup>3</sup>, highly corrosion-</li> </ol>		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
		resistant, knob weights highly polished and laser marked, in wooden case. 6. Dust Cover		
13.	Warranty	Minimum 03 years warranty		

### 3. HOT AIR OVEN

Hot air oven should offer the followings features:

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
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 (WxDxH)	1. Interior (mm) 400x360x420 2. Exterior (mm) 577x642x760		
7.	Temp. Range	Ambient +10°C to +250°C		
8.	Temperature Accuracy	±0.5°C		
9.	Temperature Protection	Automatic over temperature alarm based protection system.		
10.	Timer function	Choice of time (On/Off condition) for automatic setting.		
11.	Temp. Control	Microprocessor control with LCD/		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
		LED display.		
12.	<b>Convection system</b>	Gentle drying and heating with superior temperature uniformity.		
13.	<b>Certification, Document and Installation</b>	Traceable calibration certificate from NABL accredited calibration lab. Installation has to be carried by the skilled team with IQ, OQ and PQ documents and on site validation to be carried out to ensure proper working of the oven as per specification.		
14.	<b>Capacity</b>	60-70 Ltrs.		
15.	<b>Warranty</b>	Minimum 03 years warranty against all manufacturing defects.		

#### 4. MUFFLE FURNACE

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
		<ol style="list-style-type: none"> <li>1. 1200 degree with 23 liter capacity or more</li> <li>2. Double Shell case, Stainless Steel</li> <li>3. High Purity insulation material with efficient low thermal insulation</li> <li>4. Bench top model</li> <li>5. Vertically lift break switch/side lift break with front loading</li> <li>6. Door: positive break switch Inside</li> <li>7. Chamber Size: 245-280 mm x 340-400 mm x 230-250 mm (WDH)</li> <li>8. Maximum temperature: 1200°C Standard continuous temperature 1050 °C or more</li> <li>9. Heating Rate: The furnace should be fast heating type with maximum attainable temperature should reach in 110 mins or better</li> <li>10. Temperature control: Should be microprocessor based &amp; at least 8 segment programmable 3216P1 or equivalent controller with necessary safety features. Programmable</li> </ol>		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<p>Temperature controller with heating rate control from 10 deg. min-1 to 100 deg.min-1 preferable</p> <p>11. Temperature Accuracy: <math>\pm 5^{\circ}\text{C}</math> over the whole temperature range of operation and in the entire muffle</p> <p>12. Safety: Over Temperature protection should be added</p> <p>13. Gas purging: Gas purging facility (inert gas inlet and outlet)</p> <p>14. Weight : less than 80 kg</p> <p>15. The furnace should be CE certified with suitable power supply</p> <p>16. Installation, training and commissioning: Vendor must ensure satisfactory installation and commissioning of the system at CFL, Kolkata. A detailed training on handling, operation and applications must be provided to at least 5 scientists. Installation services must include IQ/OQ/PQ</p> <p>17. For validation vender should have its 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.</p> <p>18. Warranty: Comprehensive warranty with spares for 03 years from the date of installation of the instrument should be covered.</p>			

#### 5. Fume Hood With Heavy Duty High Suction

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<p>Fume Hoods with floor mounted systems designed to meet the challenges when working with chemicals, chemical fumes and other flammable materials etc. with a high degree of efficiency.</p> <ul style="list-style-type: none"> <li> <b>Exterior Design and Structure</b> <p>Fume hoods should be designed such that automatic bypass airflow to the suction system with double walled construction to provide easy maintenance and access to concealed service fixtures and utilities like water, gas, vacuum and electricity connections.</p> </li> <li> <b>External Dimensions</b> (W x D x H) mm: 1500 x 900 x 2300 </li> </ul>			

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<p><b>Internal Dimensions</b> (W X D X H) mm 1200 x 750 x1200</p> <p><b>Outer body</b> should be made of Power Coated Electro Galvanized Steel (P.C.G.I).</p> <p><b>Air Flow Type:</b> Constant Air Volume (CAV) type with automatic by pass.</p> <p><b>Interior Construction and Liners:</b> Standard Model with thick Water/Heat/Fire Resistant Phenolic Resin Lamination</p> <p><b>Work Surface (Worktop):</b></p> <p>Work surface made of Granite.</p> <p>Support Base with storage cabinet.</p> <p>Detachable base storage cabinet to accommodate the fume hood at its top.</p> <p>The storage cabinet at base to store chemical or apparatus and fitted with exhaust port connected internally to, work in tandem with the main exhaust system.</p> <p><b>Electric Supply Socket:</b> Two sockets to be located on the side panel for optimum convenience of using small electrical devices inside the cabinet</p> <p><b>Front Counterbalanced Sash/ Shutter:</b> A vertical rising sash/ shutter consist of a thick toughened transparent glass/ window for a clear inside view. The sash should be counterbalanced for smooth and light weight operation for easier access to work zone and enhanced user safety.</p> <p>Sash (Shutter): Vertical rising movement with toughened transparent glass</p> <p>Sash (Window): Made of 6-8 mm thick toughened transparent glass</p> <p><b>Apparatus Holding Grid:</b> Apparatus holding grid for easy clamping/ holding to various laboratory glassware's and accessories.</p> <p><b>Sink With Water Tap Connection:</b> The worktop with a PP sink for drainage with a water tap for remote handling.</p> <p><b>Service fixture:</b> Colour coded remote valves with degree</p>			



Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<p>nozzle (one set of water and one set for air/gas) Nitrogen Valve with degree nozzle and Vacuum Valve with degree nozzle</p> <p><b>Baffle Arrangement:</b> Three point suction system (for light, normal &amp; heavy fumes) with baffle to ensure smooth and immediate exhaust of fumes.</p> <p><b>Exhaust Blower &amp; Motor: Blower:</b> Centrifugal Type, Motor : 1.0 HP motor ( 3 phase, 50Hz, AC Supply) with phase MCB. Direct Driven, totally enclosed fan-cooled (TEFC), Squirrel Cage Induction Motor</p> <p><b>Interior Illumination:</b> Inner Chamber should be fitted with vapor proof incandescent lamp for clearer and brighter chamber vision</p> <p><b>Manual and documentation:</b> All the manuals necessary for operating and servicing the equipment (including details of electronic circuits) will have to be provided along with the instrument.</p> <p><b>Warranty Declaration:</b> Bidders must give the comprehensive on-site warranty for 03 years from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that “everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document.</p>			

## 6. pH METER

pH / ORP Meter should offer the followings features:

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
1.	Benchtop GLP Model pH cum ORP meter with digital pH			

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	electrode having built-in temperature sensor with Clogging Prevention System (CPS) technology, glass body, and spherical tip.			
2.	pH Range	-2.000 to 16.000 pH		
3.	pH Resolution	0.001 pH, 0.01 pH		
4.	pH Accuracy (@25°C/77°F)	±0.01 pH, ±0.002 pH		
5.	pH Calibration 5 points (Standard mode)	1.68, 4.01 (3.00†), 6.86, 7.01, 9.18, 10.01, 12.45, and two custom buffers; 3 points (Basic mode) 4.01; 6.86; 7.01; 9.18; 10.01		
6.	pH Temperature Compensation ATC	-5.0 to 100.0°C; 23.0 to 212.0°F		
7.	mV Range	±1000.0 mV; ±2000.0 mV		
8.	mV Resolution	0.1 mV		
9.	mV Accuracy	±0.2 mV (±999.9 mV); ±1 mV (±2000 mV)		
10.	Temperature Specifications	1. Temperature Range -20.0 to 120.0 °C 2. Temperature Resolution 0.1 °C 3. Temperature Accuracy ±0.5 °C 4. °C/°F Yes		
11.	pH Electrode Diagnostics	Glass and reference junction diagnostics, out of calibration range , probe condition, response time		
12.	Logging	up to 1000 records organized in: Manual log-on-demand (Max. 200 logs), Manual log-on-stability (Max. 200 logs), Interval logging (Max. 600 samples; 100 lots)		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
13.	Connectivity	1 micro USB port for charging and PC connectivity, 1 USB port for storage		
14.	Environment	0 to 50°C (32 to 122°F), RH max 95% non-condensing		
15.	Battery Type/Life	Built-in rechargeable battery /8 hrs.		
16.	Accessories	<ol style="list-style-type: none"> <li>1. Cradle and Electrode Holder,</li> <li>2. Compatible pH and ORP electrode with inbuilt temperature sensor</li> <li>3. Buffer solutions for pH 4, 7 and 10</li> <li>4. Cleaning solutions, battery Charger</li> <li>5. Dust Cover</li> </ol>		
17.	Warranty	03 years including probe		

## 7. TURBIDITY METER

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p><b>Range:</b> 0 - 1000 NTU</p> <p><b>Automatic Range Selection:</b> 0.01 to 19.99 NTU, 20.0 to 99.9 NTU, 100 to 1000 NTU</p> <p><b>Accuracy:</b> ± 2% of reading ± 1 digit for 0 – 500 NTU ±3%of reading ±1 digit for 501 – 1000 NTU</p> <p><b>Response Time:</b> less than 6 seconds</p> <p><b>Calibration:</b> 4 points</p> <p><b>Calibration kit</b> set 3 sample vials</p> <p><b>Resolution:</b> 0.01 NTU (0 to 19.99 NTU), 0.1 NTU (20 to 99.9 NTU), 1 NTU (100 to 1000 NTU)</p>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p><b>Display:</b> Digital LED</p> <p><b>Connectivity:</b> RS232 interface</p> <p><b>Light Source:</b> Infra Red Emitting diode</p> <p>Power supply 4 x 1.5V 'AAA' alkaline batteries</p> <p>Warranty period: 03 years</p>			

8. **CONDUCTIVITY AND TDS METER (DIGITAL) WITH ELECTRODE**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p><b>Range;</b>- Conductivity:0-200 mS; TDS: 0-200ppt; <b>Temp.:</b>10-90 C.</p> <p><b>Resolution:-</b> Temp.:0.1; <b>Conductivity</b> :0.01<math>\mu</math>s to 200.0m S/cm  <b>TDS:</b>0.01 ppm to 0.1 ppt.</p> <p><b>Accuracy:</b> T emp.: <math>\pm</math> 0.5 °C; <b>Conductivity:</b> <math>\pm</math>1% full-scale;  <b>TDS:</b><math>\pm</math>1% full-scale; Calibration: One point per range</p> <p><b>Ready indicator</b> let you know when readings are stable</p> <p>Selectable cell constant</p> <p><b>Auto-ranging across</b> 5 Conductivity and TDS ranges Up to 5-point push button calibration</p> <p><b>Non-volatile memory</b> holds up to 100 data points</p> <p><b>Integral electrode holder</b></p> <p><b>Warranty</b> 03 years on meter against manufacturing defect and 06 months for electrode.</p>			

9. **MAGNETIC STIRRER**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<p><b>Work plate Dimensions</b>(mm)-- 135(5 inch)</p> <p><b>Work Plate Material</b>-- Stainless steel with ceramic coated</p> <p><b>Max. Stirring Quantity:</b> [H<sub>2</sub>O], 1---20 Litre</p> <p><b>Speed and Temperature Display</b> –LCD</p> <p><b>Heating Power in Watt</b>—550</p> <p><b>Max. Work plate Heating Temperature[ C]</b>-- 340 C</p> <p><b>RPM</b>--100- 1500 with speed accuracy <math>\pm 2</math> % with digital display</p> <p><b>RS232 Interface</b>—yes</p> <p><b>External temperature sensor</b> PT1000 is available for hotplate model, real-time controls medium temperature.</p> <p><b>PID temperature technology</b> precise controls heating process, rapidly reaches target temperature and enhances control accuracy.</p> <p><b>Brushless DC motor</b> maintenance free and explosion proofed, accurately control speed</p> <p><b>Separate safety circuits</b>, fixed safety temperature of 360 , Automatically stops heating once exceed secure temperature</p> <p><b>HOT warning</b> indicates residual hotplate temperature.</p> <p><b>LCD display</b> would show “Hot” when hotplate temperature over 50°C warning point, even if switched off</p> <p><b>Electrical Requirements</b> –As per Indian Standard</p> <p><b>Warranty:</b> 03 years onsite comprehensive warranty onsite full comprehensive free warranty.</p>		

10. **VORTEX MIXER**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p>Speed range of 0-3000 rpm.</p> <p>Movement: Orbital type movement.</p> <p>Heavy metal base with rubber feet.</p> <p>Variable speed control.</p> <p>Choice of continuous operation and touch activated operation.</p> <p>Low speed operation should be possible in touch activated operation.</p> <p>Should have attachments for flask, test tube and 1.5 ml Eppendorf tubes.</p> <p>Low noise operation type</p> <p>200-240Vac 50Hz power supply</p> <p><b>Warranty</b> 03 years</p>			

11. **Hot Plate**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p>Hot Plate with:</p> <p>Glass ceramic heating top</p> <p>Ideal for heating samples and concentrated acids</p> <p>Max. heating plate temperature upto 400°C</p> <p>Should include a separate Temperature Control Unit with PTFE or any acid resistant cord connection</p> <p>Heating area approx. 200x200 mm</p> <p>Heating plate dimension approx. 300x300 mm</p> <p>Accessories to be include if any</p> <p>Warranty: 03 years</p>			

## 12. WATER BATH

Circulating water bath should offer the followings features:

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
1.	Temperature Range	Working temperature range from +20°C to+99.9 °C		
2.	Diplay	Bright LED-Display with cutting-edge microprocessor technology with PID temperature control		
3.	Temperature Range Diplay	Bath volume ~10-12 liters (one)		
		Bath volume ~18-20 liters (one)		
4.	Power	Power switch integrated in keypad		
5.	Temperature Stability / Uniformity @ 37°C	High temperature stability of $\pm 0.2$ °C or $\pm 0.02$ °C		
6.	Adjustable shaking frequencies	Adjustable shaking frequencies from 20 to 200 RPM		
7.	Maintenance	Convenient bath drains to easily clean and maintain bath		
8.	Top cover	Lift-up bath cover		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
9.	Accessories	<ol style="list-style-type: none"> <li>1. Stainless Steel Basket for 20 Bottles 0.25 l / 0.5 l - 2 nos</li> <li>2. Stainless Steel / Polypropylene Test tube rack, for 15-21 tubes of 23-25 mm, 25 -60 tubes of 12-16 diameter( each) 1nos.</li> <li>3. All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment.</li> <li>4. Dust Cover</li> </ol>		
10.	Alarms	Audible alarms for Dry-running protection and over temperature		
11.	Timers	Optimize scheduling with auto-on and auto-off timers		
12.	Warranty	03 years warranty against all manufacturing defects.		

### 13. FLASH POINT APPARATUS

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Instrument designed in strict accordance with the test method ASTM D93, Method A and B.</li> <li>• Microprocessor controlled unit with digital easy to read display of the results.</li> <li>• Ignition :-Electric ignition and should also provide an automatic reignition facility.</li> <li>• Thermal detection (with metal sample temperature probe) of the flash to eliminate interference from water or silicone containing compound.</li> <li>• Cooling : - Facility for built-in cooling connection.</li> <li>• Automatic correction for standard barometric pressure vis-à-vis with final result.</li> <li>• Unit should have diagnostic program to check every key component and assembly and calibration facility.</li> <li>• Unit should automatically determine flash point in strict compliance with the appropriate test method.</li> </ul>			



Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<ul style="list-style-type: none"> <li>• Heating should be microprocessor controlled at the specified rate; the ignitor is activated and dipped at precisely the correct temperature and frequency.</li> <li>• Safety device for fire protection with alarm.</li> <li>• Resistance check box for temperature calibration with calibration certificate.</li> <li>• The unit should be operable on 230v / 50 Hz.</li> <li>• The system should be ISO 9001 quality standard and supplied with operation manual.</li> <li>• Merely copying our specifications in the quotation shall not make the parties eligible for consideration of the quotation. A quotation has to be supported with the printed technical leaflet/literature of the quoted model of the item by the quoting party/manufacturer and the specifications mentioned in the quotation must be reflected/supported by the printed technical leaflet/literature.</li> <li>• Calibration : The firm must ensure that the equipment supplied is fully calibrated as per specification requirements and also source of future calibration at New Delhi &amp; their frequency of calibration needed</li> <li>• Spares : Vendor should quote recommended spares for two years alongwith the equipment for smooth functioning of the equipment.</li> <li>• Spare Parts : Availability of spare parts of the equipment/instrument must be guaranteed for a period of at least seven years from the date of supply.</li> <li>• After Sales Services: It should be clearly mentioned in the quotation whether the after sales services during and after the completion of warranty shall be provided directly by the supplier or their authorized agent/ representative. Terms of the after sales services, if any, may be mentioned in the offer. However, in both the cases the original supplier shall be responsible for poor performance/services.</li> <li>• Inspection: The inspection of the system will be done by our technical expert in the presence of firm representative.</li> <li>• Users List : The list of users specifically for the same model/make of the quoted item ( not the list of general users) along with the complete name, address &amp; contract numbers of the user organizations/persons may be submitted with the quotation along with the performance certificates from all/some of them.</li> <li>• Training: Our Scientist/Technical persons should be trained by the supplier at the project site free of cost. NOTE:- Firms having equipment wherein single mother unit can be used for carrying out Flash Point by Abel Flash Point using interchangeable analyzer unit shall be considered, if otherwise found suitable vis-à-vis price factor &amp; performance. Other specification requirement for Abel Flash Point apparatus is enclosed.</li> </ul>		

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Certifications: <ul style="list-style-type: none"> <li>• Product certification: CE / US FDA / BIS certified.</li> <li>• Quality Certification: ISO certified.</li> <li>• Should provide calibration certificates from NIST traceable calibration solutions by any agency every year during warranty &amp; CMC period. Calibration cost will have to be borne by the supplier.</li> </ul> </li> <li>• Comprehensive warranty with spares for 03 years from the date of installation of the instrument should be covered.</li> </ul>			

#### 14. LABORATORY REFRIGERATOR

Laboratory Refrigerators should offer the followings features:

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
1.	Design	<ol style="list-style-type: none"> <li>1. Vertical with wheels</li> <li>2. Frost free, CFC free, Automatic Defrost</li> <li>3. 4 – 5 Height adjustable shelves</li> <li>4. Internal LED Lighting</li> <li>5. Single Triple-Pane Glass Door with ergonomic handle Key Lock</li> <li>6. Automatic door closing</li> <li>7. Fan forced air circulation to ensure stable &amp; uniform preservation environment.</li> </ol>		
2.	Controller	<ol style="list-style-type: none"> <li>1. Microprocessor Temp. Control Controller with 0.1°C resolution</li> <li>2. Controller to Display data about the unit and used to control temperature</li> <li>3. Control panel should be at eye level with Digital Temperature display &amp; Alarms</li> </ol>		
3.	Construction	Electro-galvanized steel with white, oven baked epoxy-polyester, anti-microbial, powder-coated finish with 304 Stainless Steel inner chamber		
4.	Capacity	300 - 350 Liters		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
5.	Temperature	1. Range: +1 C to +10 C 2. Uniformity: ±3°C		
6.	Alarm	Open door, High/Low temperature, Clogged condenser filter		
7.	Warranty	Comprehensive warranty of 03 years		

#### 15. VERTICAL DEEP FREEZER(-25 °C)

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p><b>Interior:</b> Full stainless steel which can be easily cleaned and eliminates any possibility of contamination</p> <p><b>Cooling Type :</b> Direct cooling</p> <p><b>Capacity:</b> 250 L or higher with a combination of sealed 5-7 pullout drawers / shelves of different sizes e. that can be adjusted for storage flexibility</p> <p><b>Temp Range :</b> - 10 ~ - 25 °C</p> <p><b>LED Display</b> for temperature and temperature history which can be downloaded via a USB port</p> <p>Frost Free</p> <p><b>Refrigerant :</b> CFC – Free</p> <p><b>Easy to read,</b> LED control panel and alarm status with integrated diagnostics</p> <p><b>Acoustic Safety alarms:</b> Should be equipped with for High/low temperature, door ajar and malfunction alarms</p> <p><b>Built in Voltage stabilizer/battery</b> back-up for 48h or more Castors for easy movability</p> <p><b>Optional Accessories:</b> RACKS FOR 50 MM BOXES (INCL. DIVIDERS), RACKS FOR 75 MM BOXES (INCL. DIVIDERS)</p>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
Comprehensive Warranty: 03 Years			

**16. VACCUM OVEN WITH DIGITAL PID CONTROLLER AND VACUUM SYSTEM**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p><b>Useful volume</b> : 300 × 300 × 300 mm</p> <p><b>Shell Construction:</b> High quality fabrication of S.S body with double wall arrangement and M.S panel board with neat powder coat painting</p> <p><b>Door:</b> Specially designed SS door and inner door</p> <p><b>Insulation:</b> Alumina fiber insulation</p> <p><b>Skin Temperature:</b> Maintained just above ambient</p> <p><b>Number of Trays:</b> Two SS Trays</p> <p>Heating elements: Heater provided around the chamber</p> <p><b>Operation:</b> Single phase / AC Power: 2.5 KW</p> <p>Maximum Temperature: 250°C</p> <p>Temperature control: TAIE PID programmable temperature indicator</p> <p>Accuracy: ±1°C</p> <p>Indications: Main indicator and Output indicator</p> <p>Control Switches: Mains on, output on and output power selection</p> <p>Vacuum: Min 10<sup>-1</sup> Torr</p> <p>Vacuum Indication: Analog Dial Gauge</p> <p>Vacuum pump: Vacuum pump oil free</p> <p>Timer: Special timer for vacuum system</p>			

**17. AUTOMATED FAT ANALYZER**

<b>Specifications</b>	<b>Requirements</b>	<b>Please Specify whether the quoted model/items meets the specification (Yes/No)</b>	<b>Specify Make and Model</b>
	<ul style="list-style-type: none"> <li>• Must be capable of quantitative separation of total fats from food.</li> <li>• Must be based on official 'RANDALL' method accepted by AOAC.</li> <li>• The system must have capability to perform un-attended operation and must be programmable.</li> <li>• Sample Positions: 6</li> <li>• Measuring Range: 0.1 – 100 % fat</li> <li>• Sample Volume (size): 0.5 to 15 gm</li> <li>• Accuracy: ± 1%</li> <li>• Solvent Recovery: 90%</li> <li>• Temperature: 100 – 280°C or more</li> <li>• Should be provided with suitable solvent recovery system.</li> <li>• The following safety features must be inherently available in the supplied system               <ul style="list-style-type: none"> <li>• Automatic door lock and sealing during extraction.</li> <li>• Automatic over- temp. control/protection facility.</li> <li>• Equivalent or ATEX classified components for internal exposed valves, IP 65 for other</li> <li>• internal electronics, IP55 for Liquid and Dust protection, Pressurized electronics cabinet.</li> </ul> </li> <li>• All material in contact with solvents can be PTFE or suitable high-grade material.</li> <li>• The system should be CE &amp; ISO 9001 certified.</li> <li>• The system should be supplied with at least 12 glass/aluminum extraction cups (preferably 150 ml.), 24 dozen of suitable cellulose thimbles (preferably 33 Ø x 80 mm), at least 6 viton seals, 1 sample tray, 1 boiling stones, 1 cup stand and 1 recovery flask.</li> <li>• The system should be essentially supplied with a six-position hydrolysis system for defatting of high fat samples.</li> <li>• The bidder should quote for all required accessories, spares, etc. required for the standalone operation of the system.</li> <li>• The equipment along with all its accessories must have 2 years comprehensive warranty.</li> <li>• Comprehensive Warranty: 03 years from date of satisfactory functioning</li> </ul>		

**18. AUTOMATED FIBRE ANALYZER**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<ul style="list-style-type: none"> <li>• The system must be closed and microprocessor controlled, capable of performing all operations</li> <li>• extraction, rinsing &amp; filtration of samples for analysis of crude fiber, acid detergent fiber, neutral detergent fiber, etc.</li> <li>• Should have agitate/heat Switch &amp; temperature/timer/clock controller for process parameter input and results readout.</li> <li>• System should be based on either crucibles or filter bag technology.</li> <li>• Should have possibility of analyzing 6/12/24 samples at a time</li> <li>• Sample size: 1 gm.</li> <li>• Measuring range: 0.1 to 100%</li> <li>• Reproducibility: ±1%</li> <li>• In case of fiber bag system 1000 filter bags should be quoted along with the system.</li> <li>• In case of crucible-based system, the following accessories must be essentially quoted for               <ul style="list-style-type: none"> <li>(i) Cold extractor</li> <li>(ii) 24 Crucibles of P2 porosity</li> <li>(iii) Crucible stand for 6/12 crucibles</li> <li>(iv) 2 crucible holders</li> <li>(v) 2 nos. each of acid tank, alkali tank, NDS tank, ADS tank</li> </ul> </li> <li>• In case of crucible-based system the following accessories must be essentially quoted for               <ul style="list-style-type: none"> <li>(i) Heat sealer for filter bags; marker acetone resistant block.</li> <li>(ii) 12 nos. of glass spacer; drip tray; complete fiber bag incineration module along with 12 nos. of quartz crucible; tubing connection set; automatic alpha amylase dosing unit; and 12 place sample carousels.</li> </ul> </li> <li>• The bidder should quote for all required accessories, spares, etc. required for the standalone operation of the system.</li> <li>• The equipment along with all its components and accessories must have 03 years comprehensive warranty.</li> </ul>		

**19. AUTOMATED KJELDHAL ANALYZER**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p>The automated nitrogen analyzer should consist of Distillation unit with built in colorimetric titration; Digester and Scrubber units. The detailed required specification is as under:</p> <p><b>A. Digester</b></p> <ul style="list-style-type: none"> <li>• Tube holding capacity: 20</li> <li>• Temperature: ambient to 450°C</li> <li>• Temperature Stability: + 1°C</li> <li>• Digestion Time range: 1 - 999 minutes or more</li> <li>• Should have programmable time &amp; temperature ramping and audible alarms.</li> <li>• Should be provided with automatic motorized lifting of tubes from the heating unit.</li> <li>• Bidder must supply exhaust unit, rack, stand, lid, 40 nos. of digestion tubes 250 ml. and all other required accessories for standalone operation of the digester.</li> </ul> <p><b>B. Scrubber system</b></p> <ul style="list-style-type: none"> <li>• The material of construction of the scrubber should be of high endurance materials like borosilicate glass or high-quality stainless steel.</li> <li>• Must have possibility of cleaning as per GLP i.e. having condensation, neutralization, adsorption and redox reactions.</li> <li>• Suction should be regulated/adjustable to achieve efficient digestion.</li> <li>• All supplied reagent containers must be 2 lts. capacity and must be made of high-quality borosilicate glass.</li> </ul> <p><b>C. Automatic Distillation and Titration Unit</b></p> <ul style="list-style-type: none"> <li>• Should be completely programmable for all controls like cooling water, dilution water, sodium hydroxide, receiver solution, automatic calculation, automatic emptying of tube,</li> <li>• titration vessel, etc.</li> <li>• Should have built-in colorimetric titration system and allow use of a wide range of</li> <li>• indicators.</li> <li>• Should have possibility for bypassing automatic titration system to allow manual titration.</li> </ul>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<ul style="list-style-type: none"> <li>• Should have 7" color touch screen LED/LCD/VFD display</li> <li>• Nitrogen measurement range: 0.1 - 200 mg or more.</li> <li>• Recovery: 99.5%.</li> <li>• Should be provided with burette having 30 ml volume and must have possibility of automatic refilling during analysis.</li> <li>• Minimum dispensing volume: 2 - 3 µl.</li> <li>• Reproducibility: + 1% of RSD.</li> <li>• The system should be able to store the recorded data and must have facility for downloading the same using an USB port or through Wi-Fi.</li> <li>• Additionally, it should be possible for transferring weights and retrieving data using suitable software which is compliant to traceability.</li> <li>• The system should have safety sensors and audible warning systems.</li> <li>• Should be provided with exchangeable splash head to reduce carry-over effects.</li> <li>• The system should be provided with suitable password protection to prevent tampering of programmes and data.</li> <li>• The system must be compliant to ISO 17025, GLP, AOAC, ISO, IDF.</li> <li>• The system shall have the possibility to track performance of the system and warns if analysis results changes over time. It is desirable to have component traceability feature in the system for effective maintenance of the system.</li> <li>• The instrument shall be delivered with a Verification Test document that certifies that instrument has been performance tested in factory (confirming analysis performance).</li> <li>• The systems should be supplied with Kjeltabs (5000 nos.), 4 tanks of 20 lts. along with level sensors for each of them.</li> <li>• Warranty: The equipment along with all its accessories must have 03 years comprehensive warranty.</li> <li>• The bidder to quote for any required accessory, spares, etc. required for the standalone operation of the system.</li> </ul>		



**20. SPECIFICATIONS FOR FLAME PHOTOMETER**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Range Na+: 0 to 199.9 ppm, K+: 0 to 9.99 ppm, Li+: 0 to 9.99 ppm</li> <li>• Sensitivity 0.1 ppm Na+; K=100 units</li> <li>• Specificity less than 0.5% interference when concentrations are equal to test sample concentrations</li> <li>• Reproducibility less than 0.5% C.V.</li> <li>• Linearity less than 1%</li> <li>• Display dual display; 3-1/2-digit LED, 12.5 mm (1/2")</li> <li>• Fuel supply high-grade propane/butane mixture regulated at approximately 30 psi</li> <li>• Air supply 6 liters/min at 12 psi; oil and moisture free</li> <li>• Recorder output 0.05 to 5 V (switchable)</li> <li>• Certifications:               <ul style="list-style-type: none"> <li>• Product certification: CE / US FDA / BIS certified.</li> <li>• Quality Certification: ISO certified.</li> <li>• Should provide calibration certificates from NABL accredited agency every year during warranty &amp; CMC period. Calibration cost will have to be borne by the supplier.</li> </ul> </li> <li>• Equipment should be FDA / CE certified or equivalent standard of repute. It should be ISO 9001:2000 or other equivalent quality certification.</li> <li>• All electrical peripherals required for smooth functioning e.g. voltage stabilizer should be provided with the equipment.</li> <li>• Warranty: Comprehensive warranty with spares for 03 years from the date of installation of the instrument should be covered.</li> </ul>			

**21. LOVIBOND TINTOMETER**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Measuring principle: Visual, in terms of Lovibond® units</li> <li>• Modes: Transmittance, reflectance Range 0.1 - 79.9 Red, Yellow; 0.1 - 49.9 Blue; 0.1 - 3.9 Neutral</li> <li>• Resolution: 0.1 Lovibond® unit</li> <li>• Optical system: 11 glass-filled nylon racks containing a graduated range of Lovibond® colour glasses</li> </ul>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Viewing system Fully adjustable, prismatic with integral blue filter for light standardization</li> <li>• Light source 2 x 12 Volt, 10 Watt tungsten halogen lamp Illuminant approximates to daylight</li> <li>• Path length Up to 153 mm (6")</li> <li>• Power pack 12 Volt ac, switchable to suit 220/110 Volt supply Approvals CE Instrument housing Fabricated sheet steel with a tough, textured paint finish</li> <li>• Conformance filters and certified colour reference solutions representing a range of Lovibond® colours, for quick and simple quality control checks on instruments and operators.</li> <li>• Certifications: <ul style="list-style-type: none"> <li>• Product certification: CE / US FDA / BIS certified.</li> <li>• Quality Certification: ISO certified.</li> <li>• Should provide calibration certificates from NIST traceable agencies during warranty &amp; CMC period. Calibration cost will have to be borne by the supplier.</li> </ul> </li> <li>• DQ, IQ, OQ, PQ Documentation during installation.</li> <li>• 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.</li> </ul> <p>Warranty: Comprehensive warranty with spares for 03 years from the date of installation of the instrument should be covered.</p>			

## 22. COOLING CENTRIFUGE

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p>A Multi-functional, general purpose e High speed refrigerated bench top centrifuge for sedimentation of samples with easy lift and safety lid</p> <p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>• Temperature operation range: -15 to +40°C</li> <li>• Maximum speed: 15000 rpm (20000 RCF) or better</li> <li>• Should have LCD display</li> <li>• Should have low access height</li> </ul>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<ul style="list-style-type: none"> <li>• CFC free refrigerant</li> <li>• Should have maintenance free brushless drive motor</li> <li>• Should have automatic rotor recognition facility</li> <li>• Automatic imbalance detection</li> <li>• Should have motorized lid lock system</li> <li>• Fixed Angle Rotors for:               <ul style="list-style-type: none"> <li>• 50 ml Falcon tube</li> <li>• 15 ml Falcon tube</li> <li>• 1.5-2.0 mL Eppendorf tubes and adaptors for 0.2 and 0.5 mL tubes</li> </ul> </li> <li>• Other items (rotors/adapters) required for improving the applicability/system performance should to be quoted as optional.</li> <li>• Optimum safety according to national and international regulations (IEC 1010)</li> <li>• Warranty: The equipment along with all its accessories must have 03 years comprehensive warranty.</li> <li>• The bidder to quote for any required accessory, spares, etc. required for the standalone operation of the system.</li> </ul>		

**23. NITROGEN EVAPORATOR**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<ul style="list-style-type: none"> <li>• Holds Test Tubes with Suitable Racks (with up to 30 ml capacity) for handling 1ml to 30ml solvents</li> <li>• Uses Nitrogen Gas as Evaporator with Efficient Nitrogen Consumption.</li> <li>• Closed system with exhaust facility and Evaporation process driven by gas vortex shearing Action.</li> <li>• Temperature controlled Water Bath.</li> <li>• Temperature               <ul style="list-style-type: none"> <li>• Accuracy: +/-1°C</li> <li>• Temperature range: Ambient to 99 °C</li> </ul> </li> </ul>		

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Each manifold row will work independently.</li> <li>• Accommodates 50 sample tubes of different volumes and each 10-position row can work independently</li> <li>• Gas flow: 140 L/min.</li> <li>• Pressure Regulator range: 0-30 psi adjustable</li> <li>• Solvents that can be evaporated include acetone, acetonitrile, dichloromethane, ethyl acetate, methanol etc</li> <li>• Display: LED/LCD Display</li> <li>• Keypad: Feather touch operation</li> <li>• Operating Voltage: 220V,50Hz</li> <li>• Time range: 1 to 99 min Operation: Simultaneous automated concentration of multiple samples and unattended operation, automatic gas shut off and operational diagnostics.</li> <li>• Pressure display in Digital with Bar/PSI/KPA unit selection</li> <li>• The evaporator directs the gas flow into the sample tubes at a precise angle. Facility to record and print test records via computer</li> <li>• System should be CE certified.</li> <li>• Real time data and data storage facility via computer or USB</li> <li>• Following accessories should provided               <ul style="list-style-type: none"> <li>• Evaporation tubes- 500 Nos</li> <li>• Gas connection tubes – 20 m.</li> <li>• Power cable – 1No</li> <li>• Fuse -10 Nos</li> </ul> </li> <li>• Warranty: The equipment along with all its accessories must have 03 years comprehensive warranty.</li> <li>• The bidder to quote for any required accessory, spares, etc. required for the standalone operation of the system.</li> </ul>			

**24. MICRO FILTRATION ASSEMBLY**

Sl. No.	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
1.	Application	Used for the collection and preparation of samples, mobile phases, and buffers to obtain the highest quality results from downstream analysis		
2.	All-Glass Filter Holder	With borosilicate glass funnel and base, anodized aluminum spring		

		clamp, silicone stopper, coarse-frit glass filter support and PTFE-faced funnel and base for 1. 47 mm disc filters 2. 90 mm disc filters 3. 25 mm filters		
3.	Stainless Steel Vacuum Filter Holders	Analytical Filter Holders For 25 and 47 mm disc filter.		
4.	Filtering Flasks	Side arm connects to vacuum source with 3/8in. I.D. hose. 1 L and 4 L flasks accept no. 8 perforated stopper. 125 mL flask accepts no. 5 stopper.		
5.	Filter Forceps	Highly polished stainless steel forceps blades with beveled, unserrated tips to prevent damaging the membrane filter.		
6.	Oil less vacuum pump	flow rates of up to 37 L/min		
7.	Membrane Filters	Filters 47mm, 90 mm and 25 mm for a) Aqueous solvents b) Hydrophobic solvents		

## 25. AUTOTITATORS

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Auto- titrator should be microprocessor controlled</li> <li>• Should be PC compatible</li> <li>• Should have memory storage of 50 programmes</li> <li>• Should able to change the burette quickly</li> <li>• Should have GLP compliant selectable report formats</li> <li>• Should have quick method and reprocessing of results</li> <li>• Should be able to modify to perform as a Karl Fischer Titrator with KF conversion accessories.</li> <li>• Should perform acidimetry, alkalimetry, redox, precipitation, complexometry and non-aqueous titrations.</li> <li>• Should provide all required electrodes for performing the above titration</li> </ul>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Key board should be soft touch and alphanumeric</li> <li>• Display should be LCD</li> <li>• Calibration should be automatic and two point calibration for user entered buffer values.</li> <li>• Power input to be 220V/230V 50 Hz ac supply</li> <li>• The unit shall be capable of operating in ambient temperature in the range of 10- 45°C and relative humidity of 5 to 80%</li> <li>• Should comply to USP and DIN standards</li> <li>• Warranty: The equipment along with all its accessories must have 03 years comprehensive warranty.</li> <li>• The bidder to quote for any required accessory, spares, etc. required for the standalone operation of the system.</li> </ul>			

**26. WATER PURIFICATION SYSTEM**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<b>Water Purification system</b>	Table top Water Purification System (Tap Water Feed) should be capable of produce water for use in HPLC solvents, Microbiology and reagent grade with the help of pre-treatment module; RO Module, DI Module, Storage tank, UV Oxidation Chamber, Polishing module and final membrane filter 0.22um		
Pre-treatment System	Should consists: <ul style="list-style-type: none"> <li>• 5 micron,1 micron and Activated Carbon wrapped type depth filter</li> </ul>		

	<ul style="list-style-type: none"> <li>• Pressure gauge with regulator</li> <li>• The unit should have automatic low/high pressure cut-off</li> </ul>		
Reverse Osmosis with Electro Deionization Stage:	<ul style="list-style-type: none"> <li>▪ Pre-treatment cartridge with auto-scaling compounds, 0.5 micron filter and activated carbon or better.</li> <li>▪ Prefilter combination to protect the RO Membranes life or better.</li> <li>▪ RO Module with high performance thin film composite membrane with salt retention rate up to 98%. The retention rate for dissolved organic compounds, particles &amp; colloids &amp; bacteria exceeds 99%</li> <li>▪ Deionization Module: Mixed bed resin module utilized for a reduction of the inlet conductivity. Used for inorganic applications.</li> <li>▪ Conductivity measurement is to be done after RO, DI &amp; Polishing module to monitor the performance of Individual cartridge.</li> <li>▪ Should have suitable back wash programme before every operation or better</li> </ul>		
Storage Tank:	<ul style="list-style-type: none"> <li>• 30 L or better Storage Tank with UV Lamp, Air filter, CO2 Trap &amp; Level Sensor.</li> <li>• The tank should made of pure water resistant Poly Ethylene material with an outlet to drain the tank totally and a pressure sensor for the tank level control</li> <li>• The storage tank should be 100% drainable.</li> </ul>		
General requirements	<ul style="list-style-type: none"> <li>▪ Online UV oxidation chamber: UV Light Energy at 185 nm &amp; 254 nm wavelengths.</li> <li>▪ TOC Measurement: Online continuous TOC measurement with Live Display.</li> </ul>		

	<ul style="list-style-type: none"> <li>▪ Sterile Filter with 0.22 µm or better with Autoclavable option for re-use</li> <li>▪ System should meet reagent water quality standards including ASTM Type 1, CLSI and ISO 3696 Type</li> <li>▪ System should have flexible remote dispenser to dispense water whenever needed</li> <li>▪ System should have built-in automatic self-cleaning mechanism to extend the life of cartridge</li> <li>▪ Automatic flushing and recirculation in standby mode to maintain consistent peak water purity</li> <li>▪ User can collect RO Quality water from the Storage tank &amp; ultrapure water from flexible dispenser</li> <li>▪ Should have cartridge change indicator</li> <li>▪ The system should incorporate a fully comprehensive, graphic colour LCD display to provide system status, performance parameters, routine maintenance status and alarms of troubleshooting, tank level status and automatic warning of reordering of consumables and</li> <li>▪ Provision for digital display to indicate status of operation, resistivity or conductivity, temperature and also alarm system in case of malfunctioning.</li> </ul>		
<p>Pure Water Specification: (Type-2)</p> <ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Production Rate : 10 LPH or better</li> <li>• Conductivity : &lt;2µs/cm at 298K (25°C) or better</li> <li>• pH at 298K (25°C) =&gt; 6.6 or effectively neutral</li> <li>• Total silica max 3ug/L or better</li> </ul>		
<p>The Ultrapure Product Water should of the following specifications: (Type-1)</p>	<ul style="list-style-type: none"> <li>• Flow Rate : 1.0 L/min or better</li> <li>• Should have conductivity @ 25 Deg C : 0.055 µs/cm or better</li> <li>• Should have resistivity</li> </ul>		



	<p>@ 25 Deg C : 18.2 M - cm or better</p> <ul style="list-style-type: none"> <li>• TOC : &lt; 1 ppb or better</li> <li>• Bacteria : &lt;1 cfu/ml or better</li> <li>• Particles &gt;0.1µm : &lt;1 per ml or better</li> <li>• pH at 298K (25°C) = &gt; 6.6 or Effectively neutral</li> </ul>		
Certification required for sign off	<ul style="list-style-type: none"> <li>• IQ/OQ compliance</li> <li>• Calibration certificates for titrator</li> </ul>		
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.		
Warranty	Comprehensive warranty with spares for 03 years from the date of installation of the instrument should be covered. This will include yearly calibration start-up / commissioning routine servicing, regular maintenance, preventive maintenance of equipment and components and break down repairs as and when occurring, ensuring that system does not remain out of service for a period more than 24 hours in case of major breakdowns and 6-8 hour in the case of minor breakdowns due to any unforeseen break down. The institution will provide Water / Electricity power, etc. for maintenance work. The successful tenderer shall keep the essential spares at site during the Contract Period to avoid the delay in attending faults / maintenance.		
Service contract clauses, including prices	List of all spares and accessories (including		

	minor) with part numbers and price, required for maintenance and repairs in future after guarantee/warranty period should be attached;		
Operating manuals, service manuals, other manuals	Should provide 2 sets(hardcopy and soft-copy) of:- <ul style="list-style-type: none"> <li>• User, technical and maintenance manuals to be supplied in English language along with machine diagrams;</li> <li>• List of equipment and procedures required for local calibration and routine maintenance;</li> <li>• Service and operation manuals (original and copy) to be provided;</li> <li>• Advanced maintenance tasks documentation;</li> <li>• Certificate of calibration and inspection</li> </ul>		
Certificates Performance and safety standards (specific to the device type);Local and/or international	<ul style="list-style-type: none"> <li>• Should be FDA/CE/BIS approved product.</li> <li>• Manufacturer and Supplier should have ISO 13485 certification under ISO 9001for quality standards.</li> <li>• Electrical safety conforms to the standards for electrical safety IEC 60601-General requirements (or equivalent BIS Standard)</li> <li>• Certified to be compliant with IEC 61010-1, IEC 61010-2-40 for safety</li> </ul>		
Supplier/ Manufacturer	<ul style="list-style-type: none"> <li>• Must be ISO certified for quality</li> </ul>		
Service Support Contact details (Hierarchy Wise; including a toll free/landline number)	<ul style="list-style-type: none"> <li>• Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/adhoc) to be declared by the manufacturer;</li> </ul>		
Recommendations or warnings	<ul style="list-style-type: none"> <li>• Any warning signs would be adequately displayed</li> </ul>		

**27. DIGITAL BUTRYO REFRACTOMETER**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
For checking purity and adulteration of fats and oils			
System	Automated Operating LCD screen directly without manual alignment, can connect PC with RS232 interface		
Display	The required data to be displayed on the screen, including: the date, temperature, refractive index, concentration, and amended in accordance with the current temperature		
Measurement Range (Automatic Temperature Controlled)	<ul style="list-style-type: none"> <li>• Concentration 0;95%</li> <li>• Refractive Index 1.32422 –1.7000</li> </ul>		
Minimum Indication	Butyro 0.1% RI 0.00001		
Measurement Accuracy	Butyro $\pm 0.5\%$ (at 40°C) RI $\pm 0.0003$ (at 40°C)		
Precision (Reproducibility)	RI $\pm 0.00005$ Butyro $\pm 0.05$		
Measurement Temperature	<ul style="list-style-type: none"> <li>• 10 to 50°C</li> </ul>		
Ambient Temperature Sample	<ul style="list-style-type: none"> <li>• 10 to 40°C</li> </ul>		
Volume Measurement Time	Less than 5 sec		
Sample Volume	> 0.1 ml		
Calibration certificate			
Accessories	Reference Material Oil minimum 10 ml		
Operation and training component	<ul style="list-style-type: none"> <li>• The supplier will have to carry out successful Installation at the laboratory premises (where ever the system has to be installed) and provide on – site comprehensive training for a minimum of two</li> </ul>		

	scientific personnel operating the system till customer satisfaction		
Certificates Performance and safety standards (specific to the device type);Local and/or international	<ul style="list-style-type: none"> <li>• Should be FDA/CE/BIS approved product.</li> <li>• Manufacturer and Supplier should have ISO 13485 certification under ISO 9001for quality standards.</li> <li>• Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements(or equivalent BIS Standard)</li> <li>• Certified to be compliant with IEC 61010-1, IEC 61010-2-40 for safety</li> </ul>		
Supplier/ Manufacturer	<ul style="list-style-type: none"> <li>• Must be ISO certified for quality</li> </ul>		
Service Support Contact details (Hierarchy Wise; including a toll free/landline number)	<ul style="list-style-type: none"> <li>• Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/adhoc) to be declared by the manufacturer;</li> </ul>		
Recommendations or warnings	<ul style="list-style-type: none"> <li>• Any warning signs would be adequately displayed</li> </ul>		
Warranty	Comprehensive warranty with spares for 03 years from the date of installation of the instrument should be covered.		
Service contract clauses, including prices	<ul style="list-style-type: none"> <li>• List of all spares and accessories (including minor) with part numbers and price, required for maintenance and repairs in future after guarantee/warranty period should be attached;</li> </ul>		
Operating manuals, service manuals, other manuals	<p>Should provide 2 sets(hardcopy and soft-copy) of:-</p> <ul style="list-style-type: none"> <li>• User, technical and maintenance manuals to be supplied in English language along with machine diagrams;</li> <li>• List of equipment and procedures required for local calibration and routine maintenance;</li> <li>• Service and operation manuals (original and copy) to be provided;</li> </ul>		

	<ul style="list-style-type: none"> <li>• Advanced maintenance tasks documentation;</li> <li>• Certificate of calibration and inspection</li> </ul>		
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**28. NITROGEN GENERATOR**

<b>Specifications</b>	<b>Requirements</b>	<b>Please Specify whether the quoted model/items meets the specification (Yes/No)</b>	<b>Specify Make and Model</b>
	<ul style="list-style-type: none"> <li>• Flow rate : 750 nml/min</li> <li>• Purity : 99.999%</li> <li>• Delivery pressure: Up to 5 barg (75 Psig)</li> <li>• Method of Purifications : Pressure Swing Adsorption Technology</li> <li>• Input pressure for model without compressor : 7 barg min (110 PSI) / Non condensing and oil free Air</li> <li>• N2 purity : &lt; 0.1 ppm Total Hydrocarbons (if Option is installed) - 50°C DP (- 58°F)</li> <li>• Internal tank : 8L to 32 L depending on the model</li> <li>• Sound level &lt; 70 dbA (if compressor installed)</li> <li>• Particle filtration level: 50 µm</li> <li>• Fittings: 1/4" Swagelok for outlet N2 and Inlet Air (if compressor is not installed)</li> <li>• User interface: Pressure setting, system status, user parameter / Touch screen / LCD graphic display</li> <li>• Power consumptions (watt): 100 W</li> <li>• Power requirements: 230 V / 50 Hz – 230V/60Hz</li> <li>• Warranty: The equipment along with all its accessories must have 03 years comprehensive warranty.</li> <li>• The bidder to quote for any required accessory, spares, etc. required for the standalone operation of the system.</li> </ul>		

## 29. UV/VIS SPECTROPHOTOMETER

UV-Visible Spectrophotometer should offer the followings features:

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
1.	Wavelength Range (nm)	190-1100		
2.	Wavelength Accuracy (nm)	0.8 or better		
3.	Light Source	Xenon flash lamp and Preferred/Deuterium and Tungsten Halogen lamp		
4.	Detector	Photo Multiplier Tube/Silicon Photo Diode		
5.	Sample holder	Should have reference and sample curette positions.		
6.	Wavelength Repeatability (nm):	0.2 or better		
7.	Spectral Bandwidth (nm)	0.5 to 2.0 or better		
8.	Photometric Mode	Absorbance, Transmittance (%) , intensity		
9.	Detector	Should have reference and sample curette positions.		
10.	Scan/Skew Speed	Min 2500 nm/min or better		
11.	Photometric Accuracy	$\pm 0.005$ Abs at 1 Abs		
12.	Interface	USB preferred or LAN		
13.	Accessories	<ol style="list-style-type: none"> <li>1. Cuvettes: glass 6 nos. and quartz 4 nos. of variable capacities for liquid samples</li> <li>2. Optional: Magnetic stirring controller, stirring head and magnetic stirring bar for 10 mm path length curette stirring capability to single</li> </ol>		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
		cell and multi cell holders for low viscosity liquids 3. Dust Cover		
14.	Computer System	High Speed branded computer system with laser jet printer		
15.	Software	Window based complete multitasking software. Compatible software for data acquisition and data analysis in all the spectrophotometric wavelengths and modes 18. Minimum One Years		
16.	Warranty	Comprehensive for 03 years (more on lamp) and option for up gradation to be specified		
17.	Scope of supply	The instrument should supply with Basic instrument, 1 Inch matched Glass sample cell, basic user manual, a multi adapter for round and rectangular vials, CD with manual and procedure manual in .pdf format. Power cords		

### 30. MICROWAVE DIGESTION SYSTEM

A latest model of microwave digestion system should enable rapid digestion for different inorganic/organic samples like; Different types of FSSAI food and food products, Fish and Fishery products, tea, seasoning powder, biscuits etc.

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
Application	A latest model of microwave digestion system should enable rapid digestion for different inorganic/organic samples like; Different types of FSSAI food and food products, Fish and		

	Fishery products, tea, seasoning powder, biscuits etc		
General	The instrument should have a superior pressure venting so as to prevent any loss of volatile metals and should have homogeneous microwave field to avoid sample burning		
System	Microwave digestion system should have temperature and pressure controlling/monitoring system. The system should be software controlled. Different types of rotors available for the digestion of the different type samples should also be quoted. Necessary consumables and maintenance parts should also be quoted to run instrument trouble free		
Instrument	<p>The system should be a stand alone work station and should have</p> <ul style="list-style-type: none"> <li>• The System should have the feature of simply choose a method and it automatically recognizes the vessel type, counts the vessels and determines all of the parameters necessary for a fast, complete digestion</li> <li>• Should have provision that user can set the desired parameters for digestion</li> <li>• Should have Automatic Microwave power application depending on the load</li> <li>• Auto sensing of temperature and pressure inside the vessel</li> <li>• Be capable of processing different amounts of samples (from 0.3 g up to 10g) in the same run assuring the same conditions of temperature and pressure</li> </ul>		
Display	The Instrument should have the high-resolution, colour touch screen, acid resistant, LED/LCD screen should serve as controller and display. Should be provided training videos for sample preparation vessel assembly, system use, and maintenance. Should have Data management – Easy access to stored methods, real-time data and results of past runs. Should be able to display the detailed methods, graphs of temperature and power against time and temperature of individual vessels.		
Interlocks	The system should have good interlocking system for safety and cavity door.		



Vessel	The system should be high throughput which can hold atleast 24 high pressure vessels. Must be supplied with digestion vessel racks and suitably handle different digestion volumes.		
System	The material of construction should be high purity TFM fluoropolymer. Vessel should be capable of handling volumes between 10 ml and > 25 ml, if required. It should be operated for maximum temperature capacity of 250°C or more and maximum pressure of 35 Bar or more. The system should be provided with temperature sensor (Thermocouple type/ Fiber optics/IR Sensor) which will measure real temperature of the vessels and control it. The vessels should have automatic venting and re-sealing system in case there is excess pressure development essential. After Digestion, vessels must be vent-able before uncapping the vessel for safety reasons. For ease of use, the vessels must not require the use of an energizing tool in order to reform seals prior to operation. Additional twelve numbers of vessels should be supplied along with the system.		
Microwave Power and output with uniform energy distribution	The Instrument should have single/dual magnetron 1500 W (or more of delivered energy, should provide the temperature needed (300 °C) for difficult samples and high-throughput vessel sets delivering unpulsed continuous power & precisely tuned wave guide. Disperses microwave energy uniformly throughout the cavity. No need for motor driven diffusers or attenuators. System software must automatically adjust the power delivery based upon sample load and pre-programmed control settings. Automatic Power control Technology delivers maximum energy to the sample, ensuring complete digestions. Controllable via microprocessor 230 V input, pulsed and unpulsed-essential 50 Hz, AC Operated. The Instrument should have “waveguide” between the magnetron (the microwave energy source) and the cavity. This waveguide fed system should provide maximum tuned transfer of microwave energy from the magnetron to the load in the microwave cavity. planes. This should result in		

	uniform heating of the sample load.		
Microwave Cavity	The microwave cavity should be heavy duty and have sufficient space to mount and dismount vessels individually and all parts inside the cavity should be totally microwave transparent. The Cavity should be constructed with non magnetic Rugged high-grade 316 solid steel cavity. The vessel assembly during a run should be visible from outside The coating inside the cavity should be acid/ chemical. resistant special polymer coating like fluoro-polymer / PTFE.		
Controls	<p>The Instrument should have a) Reliable Temperature and b) Pressure controls independent of each other</p> <ul style="list-style-type: none"> <li>• Automatic temperature control system, temperature sensor should be protected properly from any chemical attack, sensor should monitor and control all vessels simultaneously-essential</li> <li>• Automatic Pressure control: should have a pressure sensor which has a total capability of up to 500psi automatically control the pressure. It should be possible to remove the pressure device at a high pressure. The Vessels should act as self-regulators of pressure</li> </ul>		
Control	The control terminal should have high resolution LED/LCD Acid Resistant display. Touch screen which should have method storage capacity. All the features should be in built in the software. Should have provision for manual programming storage apart from pre-installed programme. Continuous display of temperature and power inside the reaction vessels is required.		
Safety	There has to be multiple levels of safety. A safe mechanism to tackle the unused or reflected microwave energy Capable of shutting off in the event of the A very loud noise or bang in the instrument. If the temperature of the vessel is near its highest tolerance limit. Have inbuilt exhaust system to cool the vessels and to drive away if any fumes in the cavity-essential		

Quality Standards	The manufacturer should be ISO 9001 certified for design and manufacture of microwave digestion system		
Certification required for sign off	<ul style="list-style-type: none"> <li>• IQ/OQ compliance</li> <li>• Calibration certificates for titrator</li> <li>• GLP-validated software for controlling the system</li> </ul>		
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.		
Warranty	Comprehensive warranty with spares for 03 years from the date of installation of the instrument should be covered. This will include yearly calibration start-up / commissioning routine servicing, regular maintenance, preventive maintenance of equipment and components and break down repairs as and when occurring, ensuring that system does not remain out of service for a period more than 24 hours in case of major breakdowns and 6-8 hour in the case of minor breakdowns due to any unforeseen break down. The institution will provide Water / Electricity power, etc. for maintenance work. The successful tenderer shall keep the essential spares at site during the Contract Period to avoid the delay in attending faults / maintenance.		
Service contract clauses, including prices	List of all spares and accessories (including minor) with part numbers and price, required for maintenance and repairs in future after guarantee/warranty period should be attached.		
Operating manuals, service manuals, other manuals	<p>Should provide 2 sets (hardcopy and soft-copy) of:-</p> <ul style="list-style-type: none"> <li>• User, technical and maintenance manuals to be supplied in English language along with machine diagrams;</li> <li>• List of equipment and procedures required for local calibration and routine maintenance;</li> <li>• Service and operation manuals (original and copy) to be provided;</li> <li>• Advanced maintenance tasks documentation;</li> </ul>		

	<ul style="list-style-type: none"> <li>• Certificate of calibration and inspection</li> </ul>		
Certificates Performance and safety standards (specific to the device type); Local and/or international	<ul style="list-style-type: none"> <li>• Should be FDA/CE/BIS approved product.</li> <li>• Manufacturer and Supplier should have ISO 13485 certification under ISO 9001 for quality standards.</li> <li>• Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent BIS Standard)</li> <li>• Certified to be compliant with IEC 61010-1, IEC 61010-2-40 for safety</li> </ul>		
Supplier/ Manufacturer	<ul style="list-style-type: none"> <li>• Must be ISO certified for quality</li> </ul>		
Service Support Contact details (Hierarchy Wise; including a toll free/landline number)	<ul style="list-style-type: none"> <li>• Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/adhoc) to be declared by the manufacturer;</li> </ul>		
Recommendations or warnings	<ul style="list-style-type: none"> <li>• Any warning signs would be adequately displayed</li> </ul>		

### 31. FT IR WITH ATR & LIQUID CELL

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Operation of instrument on 220-240 V / 50/60 Hz</li> <li>• Wave number measurement range of at least 7,800 to 500 cm<sup>-1</sup></li> <li>• Wave number accuracy – within ± 0.01 cm<sup>-1</sup></li> <li>• Resolution - 0.5 cm<sup>-1</sup></li> <li>• Signal to noise ratio – ( 5 cm<sup>-1</sup>, 1 min scan) 30,000 : 1</li> <li>• Optical system – Single / Double beam</li> <li>• Sealed and desiccated optics</li> <li>• Temperature controlled and moisture / humidity resistant KBr optics</li> <li>• Light– high intensity long life ceramic source</li> <li>• Standard interferometers and detectors</li> </ul>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<ul style="list-style-type: none"> <li>• Instrument alignment and performance to be immune to minor mechanical disturbances</li> <li>• Reliable calibration mechanism</li> <li>• Auto subtraction of CO<sub>2</sub> and H<sub>2</sub>O absorptions</li> <li>• Provision for investigation of both solid and liquid samples</li> <li>• Standard sample cell holders for both liquid and solid samples</li> <li>• Variable temperature Sample cells / Jackets for solid samples – 2 nos</li> <li>• Variable temperature Sample Cells / Jackets (KBr windows) for liquid samples – 5 nos</li> <li>• Variable path length accessories (spacers) for liquid samples – 0.02 mm, 0.05 mm, 0.1 mm, 0.5 mm, 1 mm (2 sets of accessories for each path length)</li> <li>• Single / multiple (horizontal) reflection Attenuated Total Reflectance (ATR) with ZnSe prism – as a demountable integrated unit (minimum range of 7800 – 550 cm<sup>-1</sup>)</li> <li>• Variable temperature Cell Holder with temperature controller with one NaCl external window and one KBr external window – for studying both solids and liquid samples, Heatable with temperature range: minimum -90 to +150 °C</li> <li>• Heatable cells with KBr windows for liquid samples – 2 nos</li> <li>• Heatable Spacers (2 sets as mentioned above) for variable path length</li> <li>• Heatable cells with KBr windows for solid samples – 2 nos</li> <li>• Suitable high quality vacuum pump (preferably oil free) for variable temperature cell</li> <li>• All essential accessories</li> <li>• Compatible Computer + Monitor + accessories – with latest RAM, suitable software and Windows installed</li> <li>• USB operational</li> <li>• Laser Printer</li> <li>• Compatible software for multiple users</li> <li>• Suitable capacity UPS with 30 min backup</li> </ul>		

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Complete installation and demonstration</li> <li>• Warranty: The equipment along with all its accessories must have 03 years comprehensive warranty.</li> <li>• The bidder to quote for any required accessory, spares, etc. required for the standalone operation of the system.</li> </ul>			

**32. AAS(GTA/FLAME/VGA)**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Atomic Absorption Spectrophotometer (GTA/FLAME/VGA), Computer Controlled with built-in flame emission mode, Unit for Flame (Air Acetylene and nitrous oxide- acetylene), Graphite Tube Atomizer (GTA), Chiller / Water circulating unit, Auto samplers for GTA and flame</li> <li>• Wave length range 190 – 800 nm wave length</li> <li>• Sensitivity at least 0.9 abs for 5µg/ml aqueous copper standard solution with air – acetylene flame</li> <li>• Optics: Double Beam dual blazed / holographic Czerny turner Monochromator <ul style="list-style-type: none"> <li>• Focal length At least 250 mm focal length</li> <li>• Resolution 1800 lines / mm</li> <li>• Width Automatic bandwidth of 0.2 to 1.0 nm</li> </ul> </li> <li>• Flame Atomizer: All titanium or equivalent burner with impact bead / Flow spoiler, premix Design <ul style="list-style-type: none"> <li>• Movement Automatic movement into the sample compartment</li> <li>• Affect from Acids /Organic solvent Unaffected from attacks by acid solution or organic solvents (e.g. Methyl isobutyl Ketone i.e. MIBK</li> <li>• Flame Alignment in liquid beam Fully automatic, optimized with motorized burner mount for vertical and horizontal burner adjustment</li> <li>• Nebulizer High precision able to provide manually adjustable uptake rates material of the nebulizer and related Venturi should be inert to acid solutions and organic solvents such as MIBK</li> </ul> </li> <li>• Flame Control Computer controlled ignition</li> <li>• Gas Control Computer controlled with oxidant and fuel gases monitoring to monitor constant fuel / oxidant ration ignition</li> </ul>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<ul style="list-style-type: none"> <li>• Safety Function Interlocking system to prevent ignition</li> <li>• Essential Interlock Monitor Burner type as well as its presence in position, air selector, flame sensor, liquid trap level, gas supply pressure and air supply anywhere in the network of gas tubings in the system</li> <li>• Automatic Lamp Selection Function Computer controlled Hollow Cathode Lamp selection and alignment Lamp Holder At least 8 lamp holder with built in power supplies for hollow cathode lamps and electrode – less discharge lamps or equivalent Operating Parameter setting Automatic Setting</li> <li>• Read Out /Display Display facility for absorbance as well as concentration, Display of errors or error codes, absorbance range at least up to 2.0 Abs. <ul style="list-style-type: none"> <li>• Scale Expansion Scale expansion at least up to 100x</li> <li>• Integration time Integration time should cover at least 0.2 to 50 seconds range</li> <li>• Measurement Measurements of mean, RSD and CV, Background only mode, Integration of peak height and peak areas.</li> </ul> </li> <li>• Accessories / Spares with Flame AA System <ul style="list-style-type: none"> <li>• Vapour Generation Assembly: Should be continuous flow based hydride / mercury vapour generator with option of using with or without a programmable auto sampler <ul style="list-style-type: none"> <li>• Precision Precision of better than or at least 1% at ppb levels of mercury, arsenic etc.</li> <li>• Absorption Cell The absorption cell's material should have no effect of the high heat of the flame and the cell for the analysis of mercury should be of a closed cell design</li> <li>• Flame Arrester Flame arrester should be provided in the tube which connects the assembly to the absorption cell</li> <li>• Cell Design holder. The design of the cell holder should give a firm and easily adjustable (for alignment) mounting on the burner head.</li> <li>• System accessories Complete with necessary reagent bottles, connectors etc.</li> </ul> </li> <li>• Hollow Cathode lamps 16 hollow cathode lamps. One lamp each for the elements: Arsenic, Antimony, Boron, Calcium, Chromium, Cobalt, Copper, Iron, 19 Nickel, Lead, Manganese, Mercury, Selenium, Tin, Vanadium and Zinc. Equivalent coded lamps will also be acceptable.</li> <li>• Air Compressor with Air Filter or equivalent Air Service Unit Complete with pressure regulator quite in operation, necessary tubing and connectors and should meet the air supply requirements of AAS operation. Oil Free Pump Oil- free pump and moisture</li> </ul> </li> </ul>		

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<p>trap Corrosion Resistant Resistant to acidic vapour and the drain valve (if any) should be made of stainless steel of equivalent corrosion resistant material</p> <ul style="list-style-type: none"> <li>• Gas Regulators Nitrous – oxide gas regulator Nitrous Oxide Gas regulator (two stage) with heater, with necessary tubings and connectors. Necessary transformer should be provided to transform this supply to the requirements of the heater. The heater should work on 230±10volts 50 Hz AC power supply. Acetylene Gas regulator Acetylene gas regulator (two stage) with necessary tubing and connectors. Nitrogen Gas regulator Nitrogen regulator (two stage) with necessary tunings and connectors.</li> <li>• Graphite Furnace System: <ul style="list-style-type: none"> <li>• Graphite Tube: Atomizer Should be computer controlled fully enclosed graphite tube system consisting of stabilized temperature / total pyrolytic graphite plate form.</li> <li>• Gas Supplies: Provision of two gas supplies (programme selectable) with independent control over the gas supply through the furnace.</li> <li>• Heating Rate: Heating rate of at least 2000°C per second Cooling Time</li> <li>• Cooling time: 20 seconds</li> <li>• Temperature Range: Temperature range ambient to 2600°C or more in 1°C increments Feed back system</li> <li>• Feed back system for furnace temperature control, interlocks for water, gas, temperature, furnace door, graphite tube damage and mains power.</li> <li>• Temp. Programming: At least eight steps temperature programming facility with flexibility of programme selection, ramp time, gases, gas flow and read trigger for 20 each temperature step.</li> <li>• Control: Computer controlled with appropriate provision for print out of the furnace and sample parameters</li> <li>• Display: Calibration data / graphs, temperature profiles, signal graphics and the instrument status.</li> <li>• Memory: Memory should be able to store at least ten non volatile programmes</li> <li>• Ciller / Cooling Water Re-circulation Unit: Refrigerating water circulation unit of appropriate capacity. No discharge of water from this water circulation unit.</li> </ul> </li> <li>• DATA WORK STATION <ul style="list-style-type: none"> <li>• Application Software: <ul style="list-style-type: none"> <li>• Programme facility with multitasking software</li> <li>• Should provide complete control of instrument</li> </ul> </li> </ul> </li> </ul>		



Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<p>with instrument status display and its various accessories.</p> <ul style="list-style-type: none"> <li>• Provide accurate and reproducible time averaged, integration, non – averaged integration, multi level calibration.</li> <li>• Software should handle instrument linear absorbance reading, concentration, or emission intensity, integration time, built-in statistics, calibration equation control, slope of analytical curve using operator selective calibration standard</li> <li>• Built-in interface for computer connection and use of optional accessories.</li> <li>• Comprehensive quality control protocols facility including blank, multiple quality control standards, QA/QC audit trail and calibration failure.</li> <li>• Computer System: <ul style="list-style-type: none"> <li>• Make: Reputed brand such as HP/Compaq/IBM/ Dell</li> <li>• Processor: Intel core 2 duo processor 3.00 GHz or above</li> <li>• RAM: 4 GB ( upgradable up to 8 GB) HDD 500 GB ultra DMA or higher HDD ( 7200 RMP)</li> <li>• Monitor: 21” TFT – LCD Flat Colour</li> <li>• CD ROM: 52X CD- ROM</li> <li>• DVD-CDRW: 32X DVD-ROM and CDRW – combo Drive Max speed 48x24x48</li> <li>• Ports: 2 serial, 1 parallel and 2 USB front 6 rear USB2 PS/2 Port, 1 VGA integrated Port 1line in/out port</li> <li>• Key Board: 104 keys</li> <li>• Mouse: Optical mouse with pad</li> <li>• Ethernet: 32 bit auto selectable 10/100 MBPS</li> <li>• Graphics: Internet ready with integrated graphics</li> <li>• Sound: Integrated sound card and inbuilt stereo speakers</li> <li>• Printer HP Laserjet Printer 1200 x 1200 dpi 12 PPM black</li> </ul> </li> <li>• Operation Software: <ul style="list-style-type: none"> <li>• Preloaded Windows XP Professional operating system with Licensed CD</li> <li>• MS Office 2000 Standard with media, manual and Licensed CD</li> <li>• Preloaded Antivirus with latest version along with Licensed CD</li> </ul> </li> <li>• ADDITIONAL ITEMS <ul style="list-style-type: none"> <li>• Operation Kit: Manufacturers Standard Operation Kit</li> </ul> </li> </ul>		

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<p>including all required items, tubings, fittings for start up / regular operation of instrument.</p> <ul style="list-style-type: none"> <li>• Operation / maintenance: Manual Operation / maintenance Manual for each unit Analytical manual</li> <li>• Analytical manual: including applications for flame, VGA and graphite system Service Manual</li> <li>• Service manual: with one set of required tools for each system / unit</li> <li>• Trouble Shooting Charts, Spare parts Catalogue, Application Notes for trace metal analysis in food and water samples</li> <li>• Dust Cover One for each unit</li> <li>• Consumables: For three years operation for each of the following units: Flame AAS ( basic unit, burner system) Vapour generation assembly Graphite Furnace Atomizer Auto sampler</li> <li>• Operation and Maintenance Training: Two weeks training to be provided to two scientist on software training, operation, maintenance and troubleshooting aspects of instrument.</li> </ul> <ul style="list-style-type: none"> <li>• General Conditions of Supply <ul style="list-style-type: none"> <li>• The instrument and all its units should operate on 230 ±10 volts 50Hz power supply</li> <li>• All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English Language.</li> <li>• The supplier / manufacturer should have Indian Agent to provide after sales service.</li> <li>• The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier.</li> <li>• The Bidder should be a manufacturer / authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied two numbers of such equipment similar to the type specified in the past five years, which shall be in successful operation for at least 2 years as on the date of bid opening.</li> <li>• The bidder should furnish the information on past supplies and their satisfactory performance.</li> <li>• Bidders shall invariably furnish documentary evidence (client's certificate – at least two) in support of the satisfactory operation of the equipment as specified above.</li> <li>• Notwithstanding anything stated above the purchaser reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser.</li> </ul> </li> </ul>		

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
Comprehensive warranty with spares for 03 years from the date of installation of the instrument should be covered.			

**33. ICP-MS**

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p>ICP-MS should be compact, fully automated and computer controlled, capable of doing elemental analysis accurately &amp; precisely for Rare Earth Elements (REE) and Platinum Group Elements (PGE) in higher concentration, trace and ultra-trace (ppm, ppb, &amp; ppt ) levels and isotope ratios in diverse range of food matrices</p> <p>1. The system should have</p> <ol style="list-style-type: none"> <li>a. Computer controlled fully automatic ICP-MS system</li> <li>b. Simultaneous multi-elemental analysis in ppm, ppb and ppt levels with required sensitivity and stability of diverse range of food and water samples</li> <li>c. The system should be a space saving, compact model that can fit into allocated lab space with all the sub- systems and accessories.</li> <li>d. Corrosion-resistant exteriors should be provided</li> <li>e. Model number of the equipment proposed to be supplied to be clearly mentioned</li> </ol> <p><b><u>2. Sample Introduction system</u></b></p> <p>The system should have</p> <ol style="list-style-type: none"> <li>a. Nebulizer: Concentric Micro mist Nebulizer or Cyclonic glass spray chamber with low sample flow rate</li> <li>b. Spray Chamber: Peltier cooled spray chamber with an operating temp range from -6°C - +80°C to handle wide range of organic solvents</li> <li>c. System should come with Ar gas dilution capability to handle samples containing TDS of 25% .</li> <li>d. Peristaltic pump: Low pulsation high precision peristaltic pump</li> </ol>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p>with minimum of <b>Four</b> separate channels which can be controlled through the software.</p> <p>e. The system should have at least three dedicated gas channels to use varied collision/ reactions gases like He,O2,NH3,etc for effective removal of interferences in challenging sample matrices</p> <p><b>3.0 Plasma</b></p> <p>3.1 RF Generator:</p> <p>a. Computer controlled Radio Frequency Generator (Solid State): operating between 27 or 40 MHz Impedance Matching: Auto-tuning to get maximum coupling efficiency</p> <p>b. <b>RF range from 500-1600 watts (or more) variable capability for efficient and superior ionization when changed from aqueous samples to organic samples with automatic impedance matching.</b></p> <p>3.2 Torch: Easy mountable single piece quartz torch with shield torch</p> <p>a. Torch movement should allow for complete computer-control and auto tunable in x-y-z directions with independent movements in the three directions.</p> <p>b. Provision for Auto-alignment of the torch after routine maintenance with a reproducibility better than 0.1 mm in x-y-z directions</p> <p>3.3 Plasma Gas Control: Should have at least 3 Mass Flow Controllers (AMFC) or equivalent PC Controller for control plasma, auxiliary makeup, carrier gases. Gases used should be controlled with mass flow controller and fully computer controlled.</p> <p><b>4. Ion Extraction Interface</b></p> <p>The system should have</p> <p>a. Standard sample and skimmer cones with suitable orifice diameters to suit all application and to prevent clogging and minimize signal drift. It should be easily mountable and dismountable.</p> <p>b. Scope of supply of standard (Nickel) and optional (Platinum) cones should be clearly specified. (for any alternate material, bidder would need to prove sensitivity)</p> <p>c. Lens/ extraction cones or equivalent should be easy to maintain.</p> <p>5. Ion Focusing System</p> <p>The system should have</p>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<ul style="list-style-type: none"> <li>• Ion focusing system with efficient mechanism for removing all neutrals and photons from the Ion path.</li> <li>• Cell offering three modes of operation: Standard Mode, Collision Cell Mode and Reaction. Should have the flexibility to run all three modes in single run.</li> <li>• Switching of reaction and collision gases will be through software and automated. Unit will have the flexibility of applying both (collision, and reaction) gases using single method for removal of interferences. Mass Cut off facility or equivalent technology should be there to remove unwanted polyatomic interferences formed due to free atoms.</li> <li>• A reaction cell should be provided for poly atomic interference removal with Helium, Oxygen, Hydrogen &amp; NH3 mode.</li> <li>• Vendor should attach international published application notes for Arsenic analysis as per FSSR (2011), EU/USFDA where O2 or any other suitable gas is used to remove interference for ArCl which demonstrates mass shift mode.</li> <li>• Reaction cell assembly and octopole/ hexapole assembly (if requires cleaning any time in lifetime) should be quoted.</li> </ul> <p><b>6. <u>Three Quadrupole Assembly</u></b></p> <p>The system should have</p> <ol style="list-style-type: none"> <li>a. Quadrupole Mass Analyzer: A quadrupole mass analyzer to provide effective ion transmission, superior resolution and abundance sensitivity.</li> <li>b. Mass range: 5-260 amu or above</li> <li>c. RF Frequency : Fully Digital RF generator with frequency 2-3 MHz</li> <li>d. Abundance sensitivity:</li> <li>e. Low Mass Side: 5 x 10<sup>-7</sup></li> <li>f. High Mass side: 1 x 10<sup>-7</sup></li> <li>g. Scan Speed: Greater than &gt;3500 amu/s</li> <li>h. Mass stability: &lt; ± 0.05 amu over 8 hours of continuous operation.</li> <li>i. Resolution: Variable from 0.5 u to 1.0 u or better, user definable</li> </ol> <p><b>7. <u>Ion Detector Assembly</u></b></p>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p>The system should have</p> <p>a. Solid State dual stage dynode discrete over 9 orders of 10 orders or more magnitude of linear dynamic range in a single continuous scan</p> <p>b. Should be unique log amplifier circuit, features a high-speed analog mode for transient signals and a true nine orders dynamic range.</p> <p>c. Minimum dwell time / integration time of 100 <math>\mu</math>s (in both pulse count and analog modes).</p> <p>d. Dual-stage detector assembly should come as a standard with the system.</p> <p>E Detector data acquisition rate of 100000 counts /sec</p>			
<p><b>8. Vacuum System</b></p>			
<p>The system should have</p> <p>a. Efficient Vacuum system with turbo molecular pump and single external rotary pump for fast pump down and simple maintenance.</p> <p>b. In the event of vacuum failure, the entire vacuum system is to be automatically back-filled by inert gas to preserve the cleanliness of the system or an alternate system.</p>			
<p><b>9. Performance Specifications</b></p>			
<p>Guaranteed sensitivity specifications will be considered (To be demonstrated during Demo): Typical sensitivity values will not be considered</p> <p>a. Should be able to analyze Sn, Ni, Cu, Zn, Ba, Sb, Ni, B, Ag, Mg, Ca, Na, As, Cd, Cr, Hg, Pb, Se, Fe (but not limited to these elements) at a concentration of 0.05ppb with RSD of &lt;5% at standard conditions.</p> <p>b. Oxide ratio (%) CeO/Ce &lt; 2 %</p> <p>c. Double charged ratio &lt; 3 %</p> <ul style="list-style-type: none"> <li>Isotope-ratio Precision: 1%RSD</li> </ul>			
<p><b>10. Water Chiller</b></p>			
<p>The system should have a suitable re-circulating chiller changer of internationally reputed company for plasma component cooling.</p>			
<p><b>11. Auto Sampler / Diluter</b></p>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p>The system should have</p> <ul style="list-style-type: none"> <li>a. Highly effective auto sampler/ diluter compatible with operation along with ICP- MS without user intervention.</li> <li>b. Auto sampler with minimum 150 -200 vials holding capacity with 500 nos. of 15 ml capacity tubes (as consumable).</li> <li>c. Programmable complete with inert PTFE coated probe with PTFE inner tubing.</li> <li>d. Spare extension tube complete with 20 ml syringe for programmed auto dilution</li> <li>e. All accessories, racks, bottles, tubing assembly, waste container, dust cover etc.</li> </ul> <p><b>12. System Controller and Operating System</b></p> <p>The system should have</p> <ul style="list-style-type: none"> <li>a. Software control for automatic data acquisition and processing.</li> <li>b. Mass spectrometer tuning and calibration auto and manual</li> <li>c. Data Validation (IQ/OQ/PQ for Software)</li> <li>d. Self-diagnostics with option to set routine maintenance check alerts to raise alarms when preventive maintenance is due.</li> <li>e. Multi element analysis capability</li> <li>f. Isotope ratio and dilution</li> <li>g. Cool Plasma or other facility to eliminate polyatomic interferences.</li> <li>h. Remote diagnostics</li> <li>i. Software should control plasma, MS and other accessories like auto sampler</li> <li>j. The system software shall support the following calibration curve fit modes for Quantitative analysis:</li> <li>k. Linear least squares.</li> <li>l. Weighted linear least Squares</li> <li>m. Linear forced-through-zero least squares.</li> <li>n. Quantitative analysis including external calibration, additions calibrations, method of standard additions, isotope ratios and isotope</li> </ul>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<p>dilution's and semi quantitative analysis.</p> <p>o. On-line help with quick steps to reference entire instrument user manual.</p> <p><b>13. Computer</b></p> <p>a. Minimum Intel core i5/i7 processor, 2.0 Ghz or more, 19 or more LCD/TFT Monitor, 500 GB HDD, DVD Read/Write, 4 GB RAM,4 USB Port or higher configuration for use with the above system to be provided.</p> <p>b. Reputed Branded colour Laser jet printer and automatic back to back should be provided</p> <p><b>14. Multi vessel Microwave digestion system (Anton Par)</b></p> <p>The system should be provided with a suitable microwave digestion system of 20- 25 (<b>min 16 vessels</b> ) samples processing capacity in one batch.</p> <p>Rotors and tubes for digestion of large samples and smaller samples (mgs)</p> <p>along with proper fume hood system. The specification along with the model should be provided at the time of tendering.</p> <p><b>15. Exhaust unit</b></p> <p>Exhaust unit for the ICP-MS has to be supplied along with the System</p> <p><b>16. Standards with minimum expiry of two years</b></p> <p>a. Specially pure Analytical NIST traceable single element standard solutions(Minimum pack or 100ml each whichever is lower) for Sn, Ni, Cu, Zn, Ba, Sb, Ni, B, Ag, Mg, Ca, Na, As, Cd, Cr, Hg, Pb, Se, Fe should be supplied</p> <p>b. Multi element Calibration NIST traceable standards for ICP-MS - one set</p> <p><b>17. Power Supply</b></p> <p>The system should have UPS (minimum 20 KVA) of suitable rating with voltage regulation, spike protection and minimum 60 minutes back up for the supplied equipment.</p> <p><b>18. Accessories (to be quoted independently)</b></p> <p>The following Items, but not limited to, has to be supplied along with</p>		



Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p>the equipment</p> <ul style="list-style-type: none"> <li>a. Peristaltic pump tubing-sample intake – 100 No's</li> <li>b. Peristaltic pump tubing-Drain – 100 No's</li> <li>c. Tubing – Auto Sampler to Peristaltic Pump – 25 No's</li> <li>d. Micro mist nebulizer – 5 No's</li> <li>e. Plasma Torch – 5 No's</li> <li>f. Ni Sampling Cone – 4 No's and Pt Sampling Cone – 2 No's</li> <li>f. Ni Skimmer Cone – 4 No's and Pt Skimmer Cone – 2 No's</li> <li>g. Off axis lens – 5 nos</li> <li>h. Ion lens – 5 Nos</li> <li>i. Hyper skimmer cones/extraction system for HF digested sample.</li> <li>j. Vacuum Pump oils – 5 litres</li> <li>k. Argon Gas Cylinders-6</li> <li>l. Gas cylinder for Collision cell gases – Helium-1</li> <li>m. Gas cylinder for Reaction cell gases -Oxygen, Hydrogen &amp; Ammonia (&gt;99.99 % mixed or pure as per system requirement), whichever is applicable for individual system for elimination of interference species along with</li> <li>n. 3 stage Gas pressure regulators for each cylinder.</li> <li>o. Gas purification panel for Argon, Oxygen, Helium &amp; Hydrogen with appropriate plumbing.</li> <li>p. Optional: Any other accessory as felt required for the proper functioning of the equipment.</li> </ul> <p>19. Additional items</p> <ul style="list-style-type: none"> <li>a. Consumables for Five years operation of the system for main ICP unit, spare torches, nebulizer, tunings, and moisture trap are required to be quoted.</li> <li>b. Bidders should quote a startup package for 100 samples. In addition, the bidders should give a list of recommended consumables along with their source and budgetary prices.</li> <li>c. Operation kit comprising all required items pump tubings, transfer tubings, work coils etc. for startup/regular operation of instrument.</li> <li>d. Firm should also quote all essential pre-installation requirements and utility requirement for ICP-MS.</li> <li>e. Give the Detection limits (DL) chart for Sn, Ni, Cu, Zn, Ba, Sb, Ni, B, Ag, Mg, Ca, Na, As, Cd, Cr, Hg, Pb, Se, Fe (but not limited to these elements. Provide for as many elements as vendor can) and give the conditions at which the DLs are measured.</li> </ul>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
<p>f. Operation and maintenance manual for each unit in both hard copy and soft copy.</p> <p>g. Service manual with set of required tools for each system/unit.</p> <p>h. The system should have Server connectivity and should be capable of 21 CFR Part 11 and food safety compliance. The necessary validations will have to be carried out by the equipment suppliers.</p> <p>i. Methods library for all food matrixes, related software's and user manuals to be provided.</p> <p>PLEASE PROVIDE MAINTENANCE CHART FOR ALL OF THE COMPONENTS IN ICPMS SYSTEM.</p> <p>20. Operation and maintenance &amp; Training Component</p> <ul style="list-style-type: none"> <li>• The supplier will have to carry out successful installation at our laboratory premises and provide on – site comprehensive training for scientific personnel operating the system and support services till customer satisfaction with the system.</li> <li>• One trained personnel should be provided by instrument suppliers for four years who will be responsible for the working of the instrument and assist in standardization of. sample preparation, method validation, operation of instrument and data interpretation. The personnel will not claim to be an employee of the University. The personnel will work under Head of the Department. He will also be responsible for providing training of the instrument to the laboratory staff.</li> </ul> <p>21. IQ/OQ/PQ</p> <ul style="list-style-type: none"> <li>• IQ/OQ/PQ of the system is required</li> </ul> <p>22. Warranty</p> <p>a. Comprehensive Warranty of 03 years starting from date of satisfactory and faultless functioning of the equipment for 60 days.</p> <p>b. Annual calibration of the equipment shall be a part of the CMC. It shall also be mandatory to perform calibration after every major repair/breakdown.</p> <p>c. The vendor should have available for ten years guaranteed parts and CMC service</p> <p>d. The supplier or his authorized agent should have after sales</p>			

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
and service centre near f our laboratory location where the equipment is to be supplied.  e. Current user's / performance list with contact details (Customer Contact Name, contact no, mail ID and complete address) and date of installation to be provided for Minimum 5 installations of the model quoted or a comparable model of equivalent sensitivity in the country, preferably in Food sector along with the  f. Onsite technical performance evaluation of the quoted model of the equipment will be carried out for those who qualify in the technical bid.  23. Preinstallation requirements  • Provide all pre-installation requirements			

#### 34. UPLC WITH PDA, RID AND FLD

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
1	A complete UPHPLC System	A complete UHPLC System with Pump, PDA, FLD and RI detector. All units must be from the same manufacturer. Technical bids with compatible modules from another manufacturer will not be evaluated		
2	Pump	Solvent Delivery - High pressure quaternary solvent delivery system with single pump capable of switching between four solvents. <ul style="list-style-type: none"> <li>Flow rate range between 0.05 to 2.000 mL/min or better, in 0.001 mL increments</li> <li>Flow rate accuracy <math>\pm 1\%</math> of the set flow rate (0.500-2.00 mL/min)</li> <li>Flow rate precision 0.075% RSD or +/- 0.02 min RSD, 6</li> </ul>		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
		<p>replicates, based on RT (0.500 – 2.000 mL/min or higher precision</p> <ul style="list-style-type: none"> <li>• Operating Pressure 15,000 psi or better at 1.0 ml/min</li> <li>• Automatic Rinsing Kit</li> <li>• Gradient Mixer &amp; Reservoir Tray with preprogrammed and programmable Gradient curves (including linear, step, concave, and convex (4</li> <li>• Gradient Composition Accuracy +/- 0.5% absolute (full scale)</li> <li>• Gradient Composition Precision 0.15% RSD or +/- 0.04 min SD, whichever is greater, based on retention time</li> <li>• It must have a leak sensor as safety feature</li> <li>• Number of full length stroke by pump heads for 1ml/min flow &lt; 10 strokes</li> <li>• Effective System Delay Volume &lt; 400ul, independent of system backpressure (with standard mixer)</li> <li>• Plunger Seal Wash Integral, active, programmable</li> </ul>		
3	Vacuum Degassing unit	Online Degassing Unit should have minimum 4 number of flow lines/channels		
4	Auto sampler capacity with sample cooler	<ul style="list-style-type: none"> <li>• Auto sampler Injection</li> <li>• Injection Volume Range 0.1 – 20 uL, in 0.1 uL increments, partial or full loop mode, 20 uL loop standard; 2, 5, 10 and 20 uL Loops</li> <li>• Sample Carryover &lt; 0.005% or &lt; 2.0 nL, whichever is greater (with dual wash).</li> <li>• Injection volume setting minimum should be 0.1 µl &amp;</li> </ul>		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
		<p>Sample loss during injection is 0%</p> <ul style="list-style-type: none"> <li>• Sample Delivery Precision &lt; 0.3% RSD, full loop, 3 x overflow, 5-20 uL (default wash/purge conditions, degassed methanol: water 60:40 pre-mix, 1 mL/min, 6 replicates, propylparaben mix, 254nm)</li> <li>• The injection precision should be less than 1% RSD</li> <li>• Injector Linearity &gt;0.999 coefficient of deviation (from 2-10 uL, partial loop mode using 20 uL loop w/air gaps)</li> <li>• Number of samples to be processed automatically random access up to 100 numbers for &gt;1.5ml vials.</li> </ul>		
5	Columns	<ul style="list-style-type: none"> <li>• Analytical Columns – 2</li> <li>• C18 Analytical column (2.1 mm ID x 150 mm length, particle size &lt; 2µm)</li> <li>• Amino (NH2) Analytical column (2.1 mm ID x 150 mm length, particle size &lt;3µm)</li> <li>• Suitable Guard column and holders of 2 numbers required</li> </ul>		
6	Column oven	<ul style="list-style-type: none"> <li>• Column Temperature Control 5 deg. C above ambient to 80 deg. C, 1 deg. C increments.</li> <li>• Column Tracking &amp; Storage Device should be provided</li> <li>• Column Oven to house two or more columns</li> <li>• Safety measures: Solvent sensor, temperature fuse, temperature upper limit cut off.</li> <li>• Temperature accuracy: ±0.5°C</li> <li>• The Oven Compartment: Should hold two or more analytical columns should</li> </ul>		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
		<p>have option for the record of column information like number of injections and the composition of the last mobile phase used through column management device.</p>		
7	Photo Diode Array Detector	<ul style="list-style-type: none"> <li>• Wavelength range: 190 to 800 nm or better</li> <li>• No. of diodes: 512 or higher</li> <li>• Slit width: programmable 1-16 nm or lower</li> <li>• Light Source: Deuterium</li> <li>• The flow cell must be temperature controlled from ambient + 5°C to 40°C</li> <li>• Wavelength accuracy: <math>\pm 1</math> nm</li> <li>• Wavelength reproducibility: <math>\pm 0.1</math> nm</li> <li>• Drift should be less than <math>1 \times 10^{-4}</math> AU/hour, at 254 nm</li> <li>• Noise level: <math>\pm 0.5 \times 10^{-5}</math> AU or better</li> <li>• Linearity: More than or equal to 2 AU (ASTM method)</li> <li>• Optical resolution: 1.2 nm or better</li> <li>• Long Life Deuterium lamp (&gt; 2000 hrs).</li> <li>• Flow cell volume: 2-5<math>\mu</math>L or lower</li> <li>• Simultaneous Multi wavelength measurement at minimum four points.</li> <li>• Suitable peak purity software</li> <li>• Auto threshold for peak purity</li> </ul>		
8	Fluorescence Detector	<ul style="list-style-type: none"> <li>• Light source: Xenon lamp Longer Life (&gt; 2000 hrs).</li> <li>• Excitation Wavelength range: 200 nm to 800 nm or better</li> <li>• Emission Wavelength Range:</li> </ul>		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
		210-850 nm or better <ul style="list-style-type: none"> <li>• Dual wavelength simultaneous monitoring possible</li> <li>• Spectral bandwidth: 20 nm</li> <li>• Wavelength accuracy: <math>\pm 3</math> nm or better</li> <li>• Wavelength repeatability: <math>\pm 0.25</math> nm or better</li> <li>• Signal to Noise ratio for Water Raman peak should be <math>&gt; 1000</math>.</li> <li>• Pressure resistance approx 2 to 2.5 MPa</li> <li>• Flow cell volume: 2-15<math>\mu</math>L</li> </ul>		
9	Refractive Index Detector	<ul style="list-style-type: none"> <li>• Light source: LED source</li> <li>• RI Range: 1.00 to 1.75. RIU</li> <li>• Measurement range</li> <li>• Noise level should be <math>&lt; 3 \times 10^{-9}</math> RIU</li> <li>• Drift: <math>1 \times 10^{-7}</math> RIU/h</li> <li>• Compatible with flow rates Of 0.5-2.00 mL/min</li> <li>• Flow cell volume: 2.5 <math>\mu</math>L or lower</li> <li>• Leak sensors</li> <li>• Temperature control 30-45 °C or better</li> <li>• Automatic purge and automatic solvent recycle valves should be available</li> </ul>		
10	Data management system or software	<ul style="list-style-type: none"> <li>• With software facility for evaluation of data, control and operation of entire system.</li> <li>• System security to be provided by the software and not by the operating system</li> <li>• Software should contain a structurally validated, embedded oracle relational database</li> <li>• User accounts, user privileges and audit trails are maintained by the software database and not by the operating system</li> <li>• Compliance with cGMP/GLP &amp; 21 CFR part 11 Electronic signature &amp;</li> </ul>		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
		<p>Electronic Record rules</p> <ul style="list-style-type: none"> <li>• Software should have its own built in report publisher</li> <li>• Data that has been reviewed and approved may be locked to prevent further manipulations</li> <li>• Software should offer extensive custom calculation capabilities (Concentration, calibration curve, peak soothing, peak subtraction etc.) eliminating the need for external applications to meet the laboratory need.</li> </ul>		
11	Computer & printer	<ul style="list-style-type: none"> <li>• Processor type: Intel Core i7 Processor, 8 GB RAM</li> <li>• Memory size: 1 TB HD, CD-ROM or DVD + RW drive, USB port.</li> <li>• Operating system; Windows 10 Professional (64 bit) or most recent with license.</li> <li>• Monitor type: Wide Screen Monitor (Minimum 21")</li> <li>• Suitable colour laser printer with speed at 35 pages per minute.</li> <li>• Software supports for the equipment.</li> </ul>		
12	Power requirement	<ul style="list-style-type: none"> <li>• Power: 120-240 V AC, 50/60 Hz.</li> <li>• A suitable UPS of total rating more than the power consumed by the instrument. Suitable for minimum 60 minutes back up. It must support the whole instrument with computer.</li> </ul>		
13	Accessories	<ol style="list-style-type: none"> <li>1. Sample Vials 100 numbers with 1.5 ml or greater.</li> <li>2. Ultrasonic bath</li> <li>3. Stainless Steel Ultra Sonic bath with the capacity of 5 L or more,</li> <li>4. Time setting (min) 1-30min or continuous operation with LED and Push button (Should be IP 33 Protection class) for sonication of spare parts as well as</li> </ol>		



Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
		solvents. 5. Mobile Phase Filter Assembly 6. Mobile phase filter assembly (2 L) for aqueous and organic solvent 7. Aqueous and organic solvent compatible membranes 0.22 microns 100 numbers each 8. Oil free vacuum pump (1 no.) with 4 bar pressures or better should be Neoprene diaphragm based. 9. Fittings, Frits, ferules and Tubing's 10. Tubing cutter (2 no.) 11. Solvent bottles (12 no. each 1000 ml capacity) 12. Solvent filters (Glass & SS both, 08 no. each) 13. Compatible Manual syringes -10µl, 20, ( 02 no. each) 14. Standards for HPLC Calibration for PDA, RI and Fluorescence detector 15. Spare lamps for each detector 16. Consumables required for each detector must be provided 17. List of Spares/ consumables required for the smooth functioning of equipment		
14	Installation and Training	Site Training for 5-10 working days on operation and troubleshooting should be part of the installation and commissioning of the system.		
15	Warranty	<ul style="list-style-type: none"> <li>• The complete instrument and accessories should be under warranty for a period of three years from the date of installation.</li> <li>• Annual calibration of the equipment shall be a part of the Warranty. It shall also be mandatory to perform</li> </ul>		

Sl. No	Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
		<p>calibration after every major repair/breakdown.</p> <ul style="list-style-type: none"> <li>Onsite performance evaluation of the equipment will be carried out for those who qualify in the technical bid</li> </ul>		
16	Compliance Statement	<ul style="list-style-type: none"> <li>The supplier must submit technical brochures and proper application notes adequately explaining and confirming the availability of the features in the model of the equipment being quoted.</li> <li>The supplier must submit a table indicating the compliance of the features of the model of the equipment being quoted with those given in the indent.</li> <li>Features not matching – must be clearly indicated.</li> <li>Additional features and features in the quoted equipment which are better than those in the indent – may be clearly explained.</li> <li>Bids submitted without Technical specifications manuals of each module quoted will not be evaluated for technical compliance.</li> <li>All pre-installation requirements must be attached</li> </ul>		

**35. SPECIFICATIONS FOR GC WITH NPD, ECD and FID**

Gas chromatograph with capability of operating concurrently with two injectors or better and three detectors. The system should be quoted with all accessories required to make it fully operational and any other item required for stated applications be quoted as optional.

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
Oven	<ul style="list-style-type: none"> <li>• Upto 450 °C, Fast Oven with 120 °C/min ramp, –20 7ramps</li> <li>• Cool-down time from 450 °C to 50 °C within 5 minutes</li> <li>• Should be able to accommodate two or more injectors and three detectors</li> <li>• Automatic leak test of system through single key</li> </ul>		
Pneumatic Controls	0-140 psi or better, all Electronic Pneumatic Controls with 0.1 psi precision		
Injector ( 2 or more)	<ul style="list-style-type: none"> <li>• Should be capable of large volume injection Temperature ramped splitless, Split and Cold on-column modes 450 °C max. and 10 ramps.</li> <li>• Multimode/PTV with 250µL or better Injection Volume capability with complete solvent vaporizer system or Equivalent.</li> <li>• Injector must be able to operate with capillary &amp; wide bore columns <ul style="list-style-type: none"> <li>• Injector must be provided with Backflush system.</li> </ul> </li> </ul>		
Autosampler ( Liquid and Headspace)	<p><b>Robust Liquid autosampler</b> capable of injecting 100 samples or better with syringe capacity of 10- 500 µL</p> <ul style="list-style-type: none"> <li>• The type and volume of the syringe must be automatically detected by the system.</li> <li>• Must allow installation and automation of syringe featuring volumes from 0.5 to 100 µl.</li> <li>• Must be able to achieve combined multiple solvent rinsing with upto 4 different solvents.</li> </ul>		

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	<p><b>Head space autosampler</b> with a capacity 50 vials or better that support 10 &amp; 20ml vial capacity with Pnuematic control</p> <ul style="list-style-type: none"> <li>• Incubation Oven Temperature Range 50 to 200 °C in 1 °C steps</li> <li>• Syringe Temperature 50 °C to 150 °C in 1 °C steps</li> <li>• Incubation Oven Capacity 40 08 vials or better</li> </ul>		
Detectors	<ul style="list-style-type: none"> <li>• The GC must have complete integrated control of all parameters (no external control module) for the following detectors: FID, NPD and ECD.</li> <li>• Detector must be independently controlled and operational for maximum sensitivity</li> </ul>		
Flame Ionization Detector	<ul style="list-style-type: none"> <li>• Linear range : better than 10<sup>7</sup></li> <li>• Minimum detectable amount with makeup gases : 1.5 pgC/sec</li> <li>• Operating temperature limits: 450°C with standard ceramic/quartz flame jet</li> <li>• Auto flame out detection.</li> <li>• Acquisition rate 50 Hz or more.</li> </ul>		
Electron Capture Detector	<ul style="list-style-type: none"> <li>• Linear dynamic range : better than 10<sup>4</sup></li> <li>• Complete with <sup>63</sup>Ni source and low voltage heaters.</li> <li>• Minimum detectable amount: Less than 10 fg of lindane.</li> <li>• Operating temperature limits : 400°C</li> </ul>		
Nitrogen Phosphorus Detector	<ul style="list-style-type: none"> <li>• Minimum detectable amount: 100fg N/sec, 100fg P/sec</li> <li>• Linear dynamic range: better than 10<sup>4</sup></li> <li>• Operating temperature limits: 450 °C with standard jet</li> </ul>		
Gas Supplies	<ul style="list-style-type: none"> <li>• Required High purity Gas cylinders (2 No. Each)</li> </ul>		

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
Columns for Fast GC MS and GC Applications	<ul style="list-style-type: none"> <li>• Pesticide column (30m x 0.250mm x 0.25µm (HP-5MS / DB-1MS or equivalent) (04 no.)</li> <li>• Column for Fatty Acid Profiling with main concern of Trans Fatty Acid Application (02 No.)</li> <li>• Column for Cholesterol Application (02 No.)</li> </ul>		
<b>SOFTWARE AND HARDWARE ( Single point control of Software &amp; Hardware)</b>	<ul style="list-style-type: none"> <li>•</li> </ul>		
Library	NIST Traceable Library for pesticides and other compounds (>800 compounds or better).		
Software	<p>Complete system and software configuration must be 21 CFR Part 11 compliant. Software: Windows Based software with multitasking and capable of performing the following functions: Control the MS, acquire, store, process and reproduce the data. It must be able to control all the devices from same software. Software should allow monitoring of one molecular ion and upto four confirmatory ions. Quantification software for batch process must confirm the analytes as per regulatory requirements in food and environmental sample analysis as per the applications specified. All Flow Controller i.e. Carrier flow, Make-up flow, Hydrogen flow, Air flow etc. value should set through Software by PC. Head Space Auto Sampler, Automation and event control from PC through same software. IQOQ of the system as well as software must be provided.</p>		

Specifications	Requirements	Please Specify whether the quoted model/items meets the specification (Yes/No)	Specify Make and Model
	Software update upto five years		
Communication Hardware:	Latest Factory set, branded system with 22-23" Full HD Monitor with Printer - B/W - duplex - laser - Legal, A4 - 1200 dpi x 1200 dpi - up to 21 ppm – capacity with Network Card and Bluetooth facility.		
<b>IQOQPQ</b>	IQOQPQ of instrument and Software should be provided along with document.		
<b>Training</b>	Technical and application training to the personnel at site immediately after installation as per terms & conditions of tender.		
<b>Application Support</b>	The Application support for stated applications required during method development and validations.		
<b>Pre-Installation Requirements (PIR)</b>	Provide PIR of the system		

### **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. **Empanelment**. Bidder for empanelment will be selected from amongst the technically qualified bidder whose bid will be the lowest and all other technically qualified bidder will be given opportunity to match the L-1 price. Rate contract will be signed with only those bidders who will match the L-1 price.

4. **Effective Date of the Contract**. The contract shall be for a period of 03 years and should come into effect on the date of signature/acceptance 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 to **FSSAI/State Food Commissioners or any office designated by FSSAI** 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
<b>Part A</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
<b>Part B</b>		
1.	100% of the total cost of civil and electrical works	Running Bill after certification by Civil/Electrical Empaneled Engineer of FSSAI
<b>Part C</b>		
1.	Manpower	The payment in respect of manpower will be released on half yearly basis, after it becomes due.

5. **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 - .....”.

6. **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.”

7. **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) 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.

8. **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.

9. **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.

10. **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.

11. **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.”

12. **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 03 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 unavailability 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.

13. **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.

14. **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 II may be enclosed with the Technical Bid.**

15. **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.

16. **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 selected from amongst the technically qualified bidder and all other technically qualified bidder will be given opportunity to match the L-1 price. Rate contract will be signed with only those bidders who will match the L-1 price.
    - 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 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 entreated after the opening of tenders.
  - (l) 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 :-

- (a) Basic cost of the item/items:

**Cost Details**

S. No.	Equipment	Quantity	Price in INR
	<b>General equipment</b>		
1	Analytical balance (0.0001g accuracy)	2	
2	Digital balance 500 gm (0.01 accuracy)	1	
3	Hot air Oven	2	
4	Muffle Furnace	2	
5	Fume Hood	1	
6	pH meter	1	
7	Turbidity meter	1	
8	conductivity and TDS meter	1	
9	Magnetic stirrer	1	
10	Vortex mixer	1	
11	Hot plate	2	
12	Water bath	1	
13	Flash Point apparatus	1	
14	Laboratory refrigerator	1	
15	Deep freezer	1	
16	Vaccum Oven	1	
17	Automated Fat analyzer	1	
18	Automated Fibre analyzer	1	
19	Automated Kjeldhal analyzer	1	
20	Flame Photometer	1	
21	Lovibond Tintometer	1	
22	Cooling Centrifuge	1	
	<b>Analytical equipment</b>		
23	Nitrogen evaporator	1	
24	Micro filtration assembly	1	
25	Autotitrators	2	
26	Water purification system	1	
27	Digital butryo refractometer	1	
28	Nitrogen generator	1	
29	UV/Vis spectrophotometer	1	
30	Microwave digestion system	1	
31	FT IR with ATR & liquid cell	1	
32	AAS [GTA/ FLAME/VGA]	1	
33	Inductive Coupled Plasma Mass Spectrometer (ICP-MS)	1	
34	UPLC with PDA, RID and FLD	1	
35	GC with NPD, ECD and FID	1	
	Total		
36	03 Manpower as per Part C of Part II of RFP for 01st year		
	03 Manpower as per Part C of Part II of RFP for 2 <sup>nd</sup> year		
	03 Manpower as per Part C of Part II of RFP for 3 <sup>rd</sup> year		
37	Total Cost(Excluding Taxes and Duties)		

**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.
- (b) This project is a turnkey project. The bidder has to quote price for all the items mentioned above, separately. In case bidder fails to quote price for all the items, the bid will not be considered for evaluation.
- (c) Price quoted should be valid for minimum 36 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) Equipment delivery time will be 180 days from the date of issue of Supply order.
- (f) Please indicate separately any duties, taxes.

**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\_\_\_\_\_

**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.

### CERTIFICATE OF GUARANTEE/WARRANTY

- i. I/We certify that the standard guarantee/warranty shall be for a period of 03 years starting from the date of satisfactory installation, commissioning and handing over of the equipment and of the works conducted therewith covered under the Supply order in working order. During the guarantee/warranty period. I/we shall provide free “after sale service” and the replacement of any part(s) of the equipment or rectification of defects of work of the equipment will be free of cost. The replacement of the parts shall be arranged by us, at our own cost and responsibility. We undertake that the above guarantee/warranty shall begin only from the date of satisfactory and faultless functioning of the equipment for 60 days **at the place designated by FSSAI**. 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/State Food Commissioners or any office designated by FSSAI**

- 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, **FSSAI/State Food Commissioners or any office designated by FSSAI** 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 **at the place designated by FSSAI** 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 **at the place designated by FSSAI**. 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 **at the place designated by FSSAI** 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 **at the place designated by FSSAI**.

- ix. In case of extended guarantee/warranty, 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.

**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.)**

General Information about the Bidder

1	Name of the Bidder				
	Registered address of the firm				
	State		District		
	Telephone No.		Fax		
	Email		Website		
<b>Contact Person Details</b>					
2	Name		Designation		
	Telephone No.		Mobile No.		
<b>Communication Address</b>					
3	Address				
	State		District		
	Telephone No.		Fax		
	Email		Website		
<b>Type of the Firm ( Please relevant box)</b>					
4	Private Ltd.		Public Ltd.		Proprietorship
	Partnership		Society		Others, specify
	Registration No. & Date of Registration.				
<b>Nature of Bussiness ( Please relevant box)</b>					
5	Original Equipment Manufacturer			Authorized Dealer /Representative	
	Direct Importer			Others, specify.	
<b>Key personnel Details (Chairman, CEO, Directors, Managing Partners etc. )</b>					
6	in case of Directors, DIN Nos. are required				
	Name		Designation		
	Name		Designation		
<b>Bank Details</b>					
7	Bank Account No.		IFSC Code		
	Bank Name & Address		Branch Name		
	Tel No		Email ID		
8	<i>Whether any criminal case was registered against the company or any of its promoters in the past?</i>				Yes / No
9	<i>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.)</i>				
Date:		Office Seal		Signature of the bidder / Authorised signatory	

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

## COMPLIANCE SHEET

Specifications as per indent (point wise)	Compliance of the quoted model	<b>Compliance of alternate model, if any</b>	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.