

Tender Document for Purchase of Laboratory Equipments for IIFPT, Thanjavur

No. IIFPT/PO/Equipments/2019-20/02



Issued by
INDIAN INSTITUTE OF FOOD PROCESSING TECHNOLOGY

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INDIAN INSTITUTE OF FOOD PROCESSING TECHNOLOGY
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No. IIFPT/PO/Equipments/2019-20/02

Date: 16.04.2019

Tender Notification No.2/2019 Dated: 16.04.2019:

Sealed tenders are invited by the Director, Indian Institute of Food Processing Technology, Thanjavur under two bid systems from reputed manufacturers/dealers/authorized Indian Agents for the supply of following laboratory equipments to this Institute **Tender form, list of the equipments with detailed specification, last date for submission of the tender document, opening of tender, other terms and conditions of procurement etc. are available at our website: www.iifpt.edu.in.** Tender form details can be downloaded from the website directly.

SI No.	Equipment Name	SI No.	Equipment Name
1	Probe Sonicator	14	Automatic Kjedhal apparatus
2	Multi head magnetic stirrer	15	Vacuum freeze dryer
3	Cooling centrifuge	16	Virgin coconut oil plant
4	Fluorescence microscope	17	Automatic dietary fiber analyser
5	Homogenizer	18	Engineering supply erection and commissioning of pilot ice cream plant
6	Liquid nitrogen dewar	19	Oxygen transmission rate analyser
7	Liposome extruder	20	Tensile strength tester
8	Cold storage facility	21	GC- MS / MS
9	Data logger	22	Viscometer
10	Dryer – Low humidity low temperature	23	Cookies dropper
11	Freezing dryer	24	Freeze dryer
12	Anaerobic chamber	25	Automated water analyser
13	Multi head food 3 D Printer	26	Automated Milk analyser

SD/-
DIRECTOR

INSTRUCTIONS TO THE TENDERERS:

1. Sealed tender for each item separately superscribing the name of the equipment should be sent to this office along with non-refundable tender processing fee of Rs.500/-+GST 18% by demand draft drawn in favour of “Director, Indian Institute of Food Processing Technology, Thanjavur” payable at Thanjavur. **Last date for receipt of completed Tender document is 10.05.2019 (Friday) by 3.00 P.M.**
2. It is the responsibility of the tenderer to check any Corrigendum issued for any correction or modifications uploaded subsequently in the website www.iifpt.edu.in, the same shall be taken into account while submitting the Tender.
3. **Pre-Bid for item no. 4,6,7,10,16,18,19 and 20 for which a presentation by the authorized manufacturers/distributors/dealers can be done by their authorized representatives of the concerned equipment on 23.04.2019 by 10.00 AM at IIFPT, Thanjavur.**
4. Technical Bid consisting of all technical details regarding make and model of all the equipment, sub items, additional items, brochures and write-ups including the terms and conditions should be mentioned in both the technical and financial bids.
5. Financial Bid indicating item-wise price for the items mentioned in the Technical Bid may be indicated in the following manner.
 - i. **For Equipments manufactured in India:**
 - a. Price of the equipments quoted Ex-works including the GST.
 - b. GST and other taxes if any which will be payable on the goods if offer is accepted.
 - c. Charges towards inland transportation, insurance and other local services required for delivering the goods at the desired destination should be specified in the price bid.
 - d. Installation/ commissioning should be completed within twenty days from the date of receipt of equipment at the Institute IIFPT, Thanjavur without charges failing which the liquidated damages clause shall apply.
 - ii. **For Equipments manufactured abroad:**
 - a. Price quoted in FOB or CIF or CIP or FCA should have necessary break-up.

- b. Installation / commissioning should be completed within twenty days from the date of receipt of equipment at the Institute IIFPT, Thanjavur, failing which the liquidated damages clause shall apply.
6. The technical bid and the financial bid should be sealed in a separate cover duly superscribed and both these covers are to be put in a single cover which should be sealed and duly superscribed. Tender processing Fee of Rs.500.00+ GST 18%, EMD either by Bankers Cheque or DD or Bid Security Declaration may be furnished in the prescribed format along with the technical bid. Exemption in payment of Tender Processing Fee / EMD would be allowed to those having valid registration as per Government norms.
7. **Technical bids will be opened on the following dates.**
- | | | |
|--------------|-----------------------------|---------------------------|
| For item no. | 1 to 11, 13 & 15 | on: 13.5.2019 at 11.00 AM |
| “ | 12, 14, 16, 17, 18, 19 & 20 | on: 14.5.2019 at 11.00 AM |
| “ | 21 to 26 | on: 15.5.2019 at 11.00 AM |
8. **Tenders received after the due date and time due to postal / courier delay will be rejected.**
9. In case, any holiday is declared by the Government on the day of opening, the tenders will be opened on the next working day at the same time. Director, Indian Institute of Food Processing Technology, reserves the right to accept or reject any or all the tenders without assigning any reason whatsoever.
10. **Warranty: Minimum two years from the date of installation. Charges for providing additional warranty during third year and annual maintenance contract / comprehensive maintenance contract during fourth year may be indicated separately.**
11. **Performance Security: 10% of cost of the instrument for 26 months by means of Crossed Bankers Cheque or Demand Draft drawn in favour of the Director, IIFPT or Bank Guarantee or Joint Fixed Deposit from a commercial bank in favour of the Director, IIFPT, Thanjavur.**
12. **IIFPT, Thanjavur is registered with Department of Scientific and Industrial Research, Government of India and therefore concessional Customs Duty, GST and IGST are leviable on all imports covered under Notification No.51/96-Customs dated 23.7.1996, Notification No.45/2017 Central Tax (Rate) and Notification No.47/2017-Integrated Tax (Rate) dated 14.11.2017.**

13. It should be clearly stated in your offer whether the duties and taxes are extra over the prices quoted, failing which it will be presumed that the prices are inclusive of taxes and duties and no claim on this account would be entertained for statutory variations at the later date.

**FIRM MAY ALSO ATTACH COPY OF THE FOLLOWING DOCUMENTS DULY
ATESTED ALONG WITH THE TECHNICAL BID:**

- a. Firms registration, PAN and GST No.
- b. Authorization letter issued by the Manufacturer / Principal
- c. Income Tax statement for the last three years
- d. Copy of the users list, copy of the purchase order for having supplied similar equipments, performance certificate issued by the end-users and contact details.

TERMS AND CONDITIONS:

1. Modifications in the tender documents after the closing date are not permissible.
2. The successful bidder after getting the order shall have to supply the equipment ordered within the time frame set in the purchase order. The rate quoted shall be valid for six months.
3. Merely quoting the lowest rate does not mean that order shall be given to that firm. The competent authority will finally decide on the basis of quality and performance of past installations.
4. Rates once finalized shall not be enhanced or reduced during the process of procurement.
5. After the receipt of the purchase order, if the bidder at any stage doesn't honour the purchase order for whatsoever reason(s), it would be declared that such firm would be disqualified from bidding for any purchase or contract from IIFPT for a period of one year.
6. Price shall also be quoted for supply in INR (FOR IIFPT, Thanjavur), but in that case either concessional Customs Duty or GST can be claimed for which necessary certification of registration received from DSIR, New Delhi would be provided.
7. If any disputes arises between IIFPT and the firm with reference to the procurement / contract, IIFPT will decide and its decision will be binding on the firms.
8. The price quoted should be valid for 180 days.

9. **Payment Terms:**

- a. **Payment towards supply of indigenous items shall be made by the purchaser within thirty days after completion of prompt supply followed by satisfactory installation besides receipt of performance security. Necessary invoice or claim of the supplier should be drawn in the name of The Director, IIFPT, Thanjavur.**
- b. For imports, LC will be established for importing the equipments if it is requested by the supplier. 90% of the LC amount would be released against the import documents

by our bankers and remaining 10% would be released after completion of supply followed by satisfactory installation. All the bank charges abroad shall be to the beneficiary account i.e. the supplier and all bank charges in India, shall be to the account of the opener i.e. purchaser.

LIST OF EQUIPMENTS WITH DETAILED SPECIFICATIONS:

1. Probe Sonicator:

TECHNICAL SPECIFICATIONS FOR PROBE SONICATOR	
Features	Specifications
Display	Digital Microprocessor Controlled Programmable System
System type	Standard Detachable Anti-corrosive
Frequency	20kHz
Temperature	10-80 °C
Volume range	5-200 ml
Time range	30 sec to 1 hour
Programs setting	5Nos, Cyclic On/Off Timer

2. Multi head magnetic stirrer

TECHNICAL SPECIFICATIONS FOR MULTI HEAD MAGNETIC STIRRER		
S.No.	Features	Technical Specifications
1	No. of heads	6 heads minimum
2	Speed	Variable up to 1500 RPM depending on load
3	Capacity	10 - 1000mL each
<ul style="list-style-type: none"> • Each head should have separate control unit • Variable speed magnetic stirrer -speed regulator having facility of soft start & restart 		

3. Cooling Centrifuge

TECHNICAL SPECIFICATIONS FOR COOLING CENTRIFUGE	
Features	Specifications
Display	Digital For setting RPM, time and temperature
Speed(max)	20000-22000 x g
Temperature	-10 °C to 40°C
Safety system	Rotor identification or indication Lid interlock to prevent cover opening during centrifugation Overcurrent overheating safety cutoff for motor protection
Control system	Dynamic brake and imbalance detector with cutoff
Angle rotors	Rotors for 2 ml, 15 ml & 50 ml
Number of tubes	For 2ml – minimum 24 Nos For 15ml & 50ml- minimum 6 Nos each
Certification	US FDA

4. Fluorescence microscope

TECHNICAL SPECIFICATIONS FOR FLUORESCENCE MICROSCOPE		
S.No.	Features	Specifications
1	Stand	Rugged and sturdy inverted stand with low positioned co-axial coarse and fine focus (with 1 micron scaling) knobs with harmonic focusing. It should have built-in electronic power supply for 12V / 100W. Illuminator with conveniently positioned ON/OFF switch and regulating knob. It should have appropriate port and provision for mounting a digital scientific (or SLR) camera. This port shall have two beam splitting positions for (1) observation only and (2) part documentation part observation. The stand shall be compatible with Upgradation to a motorized stage.
2	Optics	The microscope should be suitable for bright field / phase contrast /DIC / Epifluorescence techniques. Microscope should have infinity color- corrected system (ICS) optics with high contrast and resolution.
3	Nosepiece	Focusable Sextuple revolving objective nosepiece (should accommodate up to 6 objectives). The nosepiece should have slots for DIC sliders.
4	Microscopic stage	Large stage plate with attachable stage of travel range of at least 120 mm X 75 mm. Universal Mounting frame: Shall be able to hold petridishes of size 35-60 mm and specimen slides.
5	Observation tube	Binocular tube 45° with field of view of 23 mm with swiveling eyepiece tubes with I.P.D. adjustable range at 55-75 mm.
6	Illumination (for bright field)	Built-in illumination with LED lamp (easily changeable) including appropriate power supply for 90-250V range. Shall include all types of filters for 340-400nm UV regions; 400-700 nm colour regions and over 700 nm infrared regions of the spectrum. Excitation filters (UV, V, B and G- filters) and emission filters/ barrier filters (blue or pale yellow in the U-block; green or deep yellow in the B-block; and orange or red in the G-block) with suitable dichromatic beam splitter.
7	Condenser	Long working distance condenser with appropriate aperture value with turret comprising aperture diaphragm for bright field, phase stops Ph1, Ph 2 and Ph 3, DIC prisms. Shall be compatible with all the filters for epifluorescence as well. Covering 5x-100x range for objectives

8	Objective	Long working distance objectives with high contrast and resolution common for bright field, fluorescence, phase contrast and DIC technique. Magnification: 5x/10x/20x/40x/100x; Type: plan achromat/flour/apochromat
9	Eyepiece	Wide field focusing eyepieces with 23mm field of view with soft rubber eyecups and should be suitable for spectacle wearers. Eyepieces should be suitable for graticule insertion.
10	DIC attachment	Complete DIC module with appropriate sliders, polarizer and analyzer that is compatible with quoted objectives. DIC module shall be compatible with plastic petridishes and 96-well plates-6well plates
11	Fluorescence illumination	The reflected light path should be apochromatically corrected. LED fluorescence illumination with a life time of more than 25000 hrs Suitable for DAPI,GFP/FITC, TRITC/ Rhodamine
12	Camera	Peltier cooled CCD/CMOS camera having dual mode Mono and colour with higher resolution (≥ 5 MP) and pixel size approximately- 3.4 μm X 3.4 μm Exp. Time: 1msec to 600sec or better
13	Fluorescence filter assembly	6 position reflector turret. The filters should be easily insertable and removable in the reflector by Push & Click method.

5. Homogenizer

TECHNICAL SPECIFICATIONS FOR HOMOGENIZER	
Features	Specifications
Materials	Stainless steel (Food grade)
Display	Digital
Calibration	Automatic
Timer	Digital
Speed	Min 5000 rpm to Max. 25000 rpm
Pressure	100-200 MPa
Control system	Electronic control
Extension arm length of probe	150-180 mm
Volume	10-500ml (Homogenization)
Viscosity maximum	5000 MPa
Temperature	5- 40 °C
Accessories	Dual number of probes

6. Liquid nitrogen dewar

TECHNICAL SPECIFICATIONS FOR LIQUID NITROGEN DEWAR	
Features	Technical Specifications
Capacity	30-35 liter
Static evaporation rate	0.1 to 0.2 liter/day
Static holding time	≥ 280 days
Neck opening diameter	2 - 3 inches
Tank width	17-20 inches
Tank depth	17-20 inches
Tank height	24 – 26 inches
Accessories	Suitable canister, side rubber rings, bottom pad and trolley
Vacuum warranty	Minimum 5 years

7. Liposome extruder

TECHNICAL SPECIFICATION OF LIPOSOME EXTRUDER

- Capacity: ≤ 5 mL to ≥ 25 mL
- Product temperature control
- Controllable extrusion flow rate
- Use of compressed air for pressure
- O rings for sealing cylinder jacket
- 100 nm or 200 nm membrane

8. Cold storage facility

Technical Specifications for Cold Storage Facility

1. Capacity : 2 MTS
2. Temperature : 0 - 15°C
3. Humidity : 0 – 95 %
4. CO₂ level measurement (optional) : 0 – 9999 ppm
5. Product Type : Grains / Perishables
6. Display : Needed for T, RH (CO₂ levels also if its measurement is included)
7. Automatic controller for temperature and RH control
8. Type of Room Insulation : RPUF
9. Type of Refrigeration System : Split
10. Type of Condenser : Air Cooled System
11. Type of Compressor : Hermetic / Scroll

9. Data Logger

1. Multichannel Automatic Data Logger with Data Storage System

2. Data Logger:

3. 48 Analog Channels and 12 flexible Digital Channels
4. Operating temperature range – 45 deg C to 70 deg C
5. Display : LCD 2 Line by 16 characters and windows based software.
6. Analog input channel voltage should be at least $\pm 30V$

7. Data Storage System:

8. Operating system: Windows 10
9. Processor: Intel Core i7
10. Ram: 8GB
11. Hard Disk: 1TB

12. Sensor:

13. Temperature Sensor
14. Range: -40 degrees to +60 degrees C
15. Resolution: 0.1 Degrees Celsius
16. Accuracy: $\pm 3\%$ of full scale reading.
17. Operating Temperature: -40 degrees to +60 degrees C
18. Power Requirement: +5 Volts DC
19. Power Consumption: -4mA
20. Humidity range : 0 to 100% RH
21. Output: 0 – 1V for 0 to 100% humidity

22. Optional :

23. CO₂ sensor : range of 0 to 9999 ppm
24. Printer : wireless

10. Dryer - Low humidity low temperature

Specification for Low temperature low humidity dryer

Sl. No	Particulars	Specification
1.	Type	Low Temperature Low Humidity Tray Dryer
2.	Drying Capacity	150 to 200 kg/h
3.	Temperature	Maximum 5 ± 2 °C above ambient temperature
4.	Humidity	Maximum 40 ± 2 % RH
5.	Process Air flow	500 to 600 CMH
6.	Process Pressure	700 to 800 Pa
7.	Process Power	1 to 1.5 kW
8.	React Air flow	180 to 220 CMH
9.	React pressure	700 to 800 Pa
10.	React Power	0.3 to 0.5 kW
11.	Heater Power	7 to 10 kW
12.	Power Supply	415V, 50 Hz, 3 phase AC supply

11. Freeze dryer

Temperature	:	-85 deg C
Voltage	:	230V AC
Display	:	Digital
Frequency Hertz	:	50 Hz
Ice Capacity	:	1.5 kg
Warranty	:	1 year
Chambers	:	6 no.
Vacuum pump	:	Direct drive with 100 LPM capacity

Additional features

- Easy to use separate stainless steel chamber/condenser
- Hermetic type refrigerating compressor
- Double stage oil sealed rotary pump
- Digital vacuum and temperature indicators

- Accessories: Microprocessor for automatic control system
- Equipment should be movable with trolley
- Shelf materials should be processed in a wide range of product containers with provision for sealing under vacuum or inert gas

12. Anaerobic chamber

Specifications for Anaerobic Chamber

Main Workstation Capacity:

- Up to 100 plates of 90mm X 15mm
- Additional inoculation space for regular working.
- One power supply ports inside the chamber.

Inter lock Capacity:

- Up to 20 plates of 90mm X 15mm
- Auto Inter lock cycle.

Other features:

- Construction: Non Corrosive Acrylic Resin Sheet
- Auto excess pressure control system.
- Easy Gloves System.
- Front slope viewing panel
- Condensate controller technology.
- Auto excess pressure control system.
- Heater for dehumidification.
- Temperature ambient to 45 deg C.
- Temperature Controller with Display.
- Inbuilt Trim-point for temperature calibrations
- Humidity controller with display.
- Proper valve for purging, both for main chamber & Interlock chamber.
- Foot switch operation for Purging & Spot lamp operation.
- UV Light provision inside the main chamber.
- Two Utility connection (Nozzles) ports
- Catalyst and Detox.
- Activated Detox to absorb smell
- Inspection Spot-lamp
- Anaerobic indicator strips as an indicator

Accessories:

1. Mix gas cylinder with gas 'A' grade and suitable regulator – 1 no.
2. Nitrogen gas cylinder with gas 'A' grade and suitable regulator – 1 no.

13. Multi head food 3D Printer

TECHNICAL SPECIFICATIONS-MULTIHEAD FOOD 3D PRINTER

S.No.	Requirements	Specifications
1	Technology	Extrusion type
2	Printer head type	Cartesian
3	No. of printing heads	4 Note: All the print heads should draw material from an individual source tank which in turn should be connected to a common source tank
4	Axis movement of each print head	X/Y 0.01 mm; Z 0.02 mm
5	Print head volume	At least 80 cm ³
6	Nozzle size	0.4 mm to 1 mm (at least 4 variations)
7	Print speed	3 mm/s to 80 mm/s
8	Layer resolution (X,Y&Z)	0.3 mm-1 mm
9	Software	Inbuilt (Cura, Pronterface, Simplify3D, Slic3r)
10	Input format	.stl, .obj
11	Output format	G code
12	Print mode	Provision has to be given to operate each print head separately and together
13	Materials to print	Food material (paste/ colloid/ dough/ gel)
14	Temperature controls	Each print head and all the source tanks temperature should be varied and maintained between 30° C-60° C
15	Power supply	110 V/ 230 V AC, 50/60 Hz
16	3D printer material	All parts in contact with the material supply should be made of food grade material

14. Automatic Kjeldhal Apparatus

Kjeldhal Apparatus Specifications

- Should include digestion, distillation, and titration units
- Capacity -6*250 ml digestion tubes
- Rapid and precise heating via aluminium block
- Temperature range-ambient-450 deg c
- Stability of ± 0.5 deg c; precision of $\pm 0.5^{\circ}\text{C}$ with automatic temperature calibration
- Digestion timer 1- 999 minutes in 1 minutes steps

- Digital readout of set temperature and countdown with ramping of at least 4 ramps per program
- 20 and above selectable programs needed
- Complete with lift, sample rack, drip tray, suction cap and test tubes
- Availability of a dedicated water jet pump to develop vacuum with facilitates the acid fumes suction for operator and environmental safety
- Automatic distillation procedures alkali addition and distillation time
- Built in steam generator and safety thermostat
- Safety sensors including electrical shutdown when accessing inside, test tube sensor and cooling water flow rate detector.
- Alarm messages and audible signal should be include
- Rust and corrosion resistant
- Titration set up units and accessories also supply

15. Vacuum freeze dryer

Sl. No	Parameters	Range/Rating
1.	Condenser capacity	2.5 – 5 kg
2.	Condenser temperature	-50 to -85 °C
3.	Power Supply	230V, 50Hz
4.	Method a) Number of shelves (Removable type) b) Connections (round-bottom flasks/ wide-neck bottles/ ampoule distributors)	a) Min 3 shelves b) Min 6 connections
5.	Type	Benchtop
6.	Computer Connection	USB/Ethernet
7.	Additional Features	<ul style="list-style-type: none"> • Vacuum control • Pressure rise test • Defrost function • Product temperature • Display • Interfacing software
8.	Accessories	Computer and Supporting accessories

16. Virgin Coconut Oil Plant

S.No	Description	Quantity
1.	<p>Coconut Dshelling Mchine(optional) Head- double head station Capacity-200-600 kg/hr Mode of operation-semiautomatic or manual Material of construction-Mild steel with powder coating Application-separates coconut shell from the kernel With suitable motor assembly and all standard accessories</p>	1 No
2.	<p>Pairing or peeling machine(optional) Head- single or double head station (optional) Capacity-200-600 kg/hr Mode of operation-Manual Material of contact –AISI SS 304 Application-remove brown skin from the coconut kernel With suitable motor assembly and all standard accessories</p>	1 No
3.	<p>Coconut shredder (optional) Capacity-100 kg/hr Material of contact –AISI SS 304 Application-machine must be cut small pieces of coconut kernel With suitable motor assembly and all standard accessories</p>	1 No
4.	<p>Pulverizer Capacity-100kg/hr Application-shredded coconut milling Type of feed-Manual Feed hopper and sieve with SS finish Type of milling-pin mill or blade type Spare two set of different sieves will supply Material of contact- SS 304/316 standard Material of construction-Mild steel with powder coating Optional-powder collected by cyclone collector Power supply-3 phase /440 v 50 Hz With suitable motor assembly and all standard accessories</p>	1 No
5.	<p>Coconut Milk Extractor Capacity-100 kg/hr Type of extraction method- Single screw type Head-single head Operating temperature- below 25 deg C- Milk discharge through SS 304 standard Perforated mesh strainer separate port for residue collect Feed-product size 4mm Material of contact- SS 304/316standard Material of construction-Mild steel with powder coating Machine efficiency-70-80 percentage Power- 2 hp Motor assembly and fittings</p>	1 No

6.	<p>Vibratory Stage Filter Separate the unwanted materials and filter to collect the pure coconut milk Type of operation-vibratory motor Material of contact SS 304/316 standard Material of construction-Mild steel with powder coating Round type mesh screen-2 nos Filter mesh-SS 304 grade cloth mesh Hole Size of the screen -100 micron With suitable motor assembly and all standard accessories</p>	1 No
7.	<p>Vertical Storage Tank – Application-coconut milk storage Holding capacity- 50liters Tank orientation-Vertical or horizontal Shape - cylindrical Material of construction-AISI SS 304/316 standard Operating temperature- 20 -30deg C Top opening and bottom drain provision Feed type- auto/manual With suitable motor assembly and all standard accessories</p>	1No
8.	<p>Vertical Storage Tank – Application-coconut oil storage Holding capacity- 50liters Tank orientation-Vertical or horizontal Shape - cylindrical Material of construction-AISI SS 304/316 standard Operating temperature- 20 -30deg C Top opening and bottom drain provision Feed type- auto/manual With suitable motor assembly and all standard accessories</p>	4Nos
9.	<p>Clarifier Application –coconut milk separation Material of construction-AISI SS 304 standard Capacity-100 liters /hr With suitable standard accessories Power-1-2 Hp</p>	1 No
10.	<p>Tubular Centrifuge Capacity-100 liters/hr Application-separate the cream from the coconut oil Material of construction-AISI SS 304 standard Bowl speed-15000 rpm Total bowl capacity-5.5 liters Bowl dirt holding capacity-5.25 liters Max centrifugal forcer-15,600g Bowl dismantled by manual for cleaning purposes With suitable motor assembly and all standard accessories</p>	1 No

11.	Micro Filter Capacity-100-300 liters /hr Application-to remove micro residue particles from the coconut oil Material of contact-AISI SS 304 standard Material of construction-Mild steel with powder coating No of plates-6 With suitable assembly and all standard accessories	1 No
12.	Deep Freezer Capacity-500-800 liters Cabinet type Temperature range— -25 deg c Freezer with top working space Type of door opening- top opening With suitable motor assembly and all standard accessories	1 No
13.	Pumps, Piping Fittings and utilities interconnected to all equipments through AISI 304 Pipes and fittings, valves, unions will be provided for product line	5 Nos.
14.	Conveyors for suitable plant to elevate and suitable transport to further processing (optional)	1
15.	Electrical Control Panel- Each equipments, motors and pumps should be placed separate on/off push buttons with indication lights- master emergency push buttons ,panel shall be fabricated as per ISI Standards each equipments have separate on /off push buttons should be fixed near the position	

17. Automatic Dietary Fiber Analyser

SPECIFICATION-DIETARY FIBRE ANALYZER

*Sample holders/seaters - 6 Nos

* Water Bath; Bath tank made of Stainless Steel with Plate to holdshaking clamps

*Sample capacity or volume ; 250 ml

* Heater: Immersion Heater with thermostat

* Temperature controller : Microprocessor based PID Digital temperature controller

* Temperature Range : Ambient to 95° C

* Temperature Accuracy : + 1%

* Stirring: 0 to 120 strokes / minute,Can operate continuously 12 -24 hrs with stirring involving reciprocal shake

* Speed setting : control the speed adjustment depends up on the samples

* Speed Indication : Digital Display with LED indication

* Beakers seated on SS clamps

* Structure: Acid prone parts made of stainless steel Both tank and platform made of stainless steel. Other parts of MS powder coated with anti corrosive epoxy finish.

* Safety features facility should be included

1. Over temperature protection
2. Auto error Indication,
3. Sensor break protection,
4. Heater cut off feature with buzzer indication and alarm,
5. Acoustic signals with visual
6. display,
7. Auto tuning facility

* Filtration Unit designed to filter the enzymatic digested solution

* Crucible: Sintered Silica Glass Crucible

* Pore Size : P2 porosity disc

* Suction Pressure Pump : Vacuum suction pressure pump for rapid filtration

* Sample loading : Individual sample loading with independent mechanical control

* Washing : Uniquely designed expansion vessel for washing

* Control valves: Individual control valves for vacuum and filtration.

* Includes Essential Accessories like Spray Bottle, Crucible Rubber, Extractor Rubber, Teflon bush & nylon bush

18. Engineering supply erection and commissioning of pilot ice cream plant

S.No	Description	Quantity
1	<p>Pasteurizer Feed product- Ice cream mix Tank capacity-50 liters Type of heating –electrical heating system Material of fabrication-AISI stainless steel 304 Sheet thickness -2 mm Tank Insulation-glass or mineral wool Agitator and motor assembly with control speed Operating temperature -70-80 deg C With suitable pipe fittings inlet, outlet valve and electrical accessories</p>	1 No
2	<p>Ageingvat Feed product- Ice cream mix capacity-50 liters Material of fabrication- AISI stainless steel 304 Sheet thickness-2 mm Agitator and motor assembly with control speed Temperature controller and indication system Refrigerant unit-1 TR sealed unit With suitable pipe fittings inlet, outlet valve and electrical accessories</p>	1 No

3	<p>Homogenizer Capacity-50 liters per hour No of stages –two Application –ice cream processing Design pressure-200 bar Max Operating pressure-175 -185 bar Max operating pressure 1 stage-140 bar Max Operating pressure 2 stage-35 bar Type of operation-manual No of plunger-3 nos MOC of Fluid contact surface-AISI 304(SS) Material of fabrication-as per food applications Suction and discharge valve-AISI 304 Oil window and tool kit space should fixed along with machine Spare -1 set will given as free of cost With suitable pressure gauges, fittings and accessories O&M manuals Heavy duty Motor assembly and drive mechanism</p>	1 No
4	<p>Plate Heat Exchanger Fluid Process side ice cream fix Service side-chilled water Flow Process side 100LPH Service side-300LPH Inlet and outlet temperature Process side – (40 &6 deg C) Service side-1.5&12 deg c Material of plates- AISI 304 SS Gaskets-food grade Material of fabrication-AISI 304 SS Working pressure-4 kg/cm² With suitable fittings and instruments, temperature indicator</p>	1No
5	<p>Cooling Tower Type-induced draft No of fan-1 Fan -aluminum alloy or Fibre glass reinforced polyester Material of casing-Fibre glass reinforced polyester With suitable springler,tower and water basin should be met corrosion resistant and compact design Inlet and outlet connections-as per process line</p>	1 No
6	<p>Continuous Freezer Capacity-50 liters /hr Type of compressor-hermetic sealed Refrigerant-404 A</p>	1 No

	<p>Mix inlet temperature-+4 deg c Mix out temperature-(-5 to -8 deg c) Material of contact-AISI SS304 Water flow rate-1500 L/hr Water and product inlet/outlet nozzle-depends up on the process line With suitable dasher and mix motor assembly The following instruments and accessories should be included along with machine</p> <ul style="list-style-type: none"> • Digital Ice-Cream hardness controller • Hour meter • Temperature indicator • Anti freeze protection device • Speed variable device with indicator • S. S. diaphragm pressure gauge • Suction and discharge pressure gauges for refrigerant circuit. • Hot gas supply to freezing cylinder • Over load, low and high refrigerant pressures 	
7	<p>Hardener Product-ice cream mix Capacity-5 moulds*4 row Material of tank-AISI SS 304 Temperature controller-thermostat switch With inbuilt refrigerant unit and suitable accessories and digital temperature controller</p>	1 No
8	<p>Flavor Mixing Tanks SS filtration system CIP with pump system for whole plant Piping fittings and utilities like chilled water line interconnected to all equipments through AISI 304 Pipes and fittings, valves, unions will be provided for product line</p>	1 No
9	<p>Electrical Control Panel and Wiring - Each equipments, motors and pumps should be placed separate on/off push buttons with indication lights- master emergency push buttons ,panel shall be fabricated as per ISI Standards each equipments have separate on /off push buttons should be fixed near the position</p>	1 No
10	<p>Optional –Ice Cream Filling Machine 100-500 cups/hr Pneumatic or electrical operation Either Tub filling up to 1000ml or cone filing Operation- semi automatic Depends upon the plant capacity</p>	1 No

Detailed scope of work: The scope of work consists of the following major parts

- Engineering design
 - Procurement/Supply
 - Installation/Erection
 - Commissioning/Training
-
- Developing the process design, complete engineering design, manufacturing and/or supply of goods and service and ensuring best performance of individual equipment/systems/process plant as a whole.
 - The scope of work includes design, supply, installation/ erection, testing & successful commissioning to complete the pilot ice cream processing plant on rate contract. and handing over to client (IIFPT).
 - Supply of items listed in BOM as per the indicated specifications.
 - Execution of the project including structural work, mechanical/services, utilities, supply, erection, installation, testing, commissioning and trial run including proper grouting for machineries.
 - General installation i.e. positioning and installing all the processing, utility and service of equipments should be done at your own cost.
 - Supply and installation of all utility services and product piping including ancillary items (fittings and supports).
 - All piping shall be internally cleaned and flushed by Erector before and after erection.
 - Insulation and cladding of piping and equipment including supply of materials.
 - Interconnections of services and complete electrical wiring connected to control panel with equipments.
 - For full completion of the work, erector shall spend with his own expense to furnish all necessary erection tools, machine tools, power tools, materials and supplies required for unloading, transporting, erecting, testing and commissioning of all the equipments.
 - Electric works, civil works and water piping will be under the contractor scope
 - Supplier should be submit the all equipments O&M manuals to client after commissioning the plant

19. Oxygen Transmission Rate Analyser

Oxygen Transmission Rate Analyzer/oxygen Permeability Tester

Technical Specifications

Test range : 0.01 to 6000 cm³/m².day

Number of specimen : 1-3

Resolution : 0.01 cm³/m².day

Temperature range : 15 to 40°C

Temperature accuracy: ±0.1°C

Humidity range : 5-90% RH

Test gas : O₂

Thickness : ≤3mm

Specimen size : φ 100-110 mm

Optional features: Micro printer, software, control devices and indicators, accessories for package test, sample preparation kits and reference film etc.

Applications: food packaging materials including plastic films, multilayer film, extruded films, metalized film, aluminum foil and others.

Test instrument conforms to the following standards ISO 15105-2, ASTM D3985, ASTM F2622, ASTM F1307, ASTM F1927, GB/T 19789

20. Tensile Strength Tester

Tensile Strength Tester

Load capacity : 5 KN

Test machine : Double column

Test speed : 15-300mm/min

Specimen width : 25-50mm

Stroke : 500-1000 mm

Power supply : 220VAV 50Hz

Optional features: Micro printer, system, software, control devices and other testing Grip accessories

Measure tensile, peeling, deformation, tearing, heat sealing, adhesive, puncture force of plastic films, plastic flexible tube multilayer materials, soft package materials, adhesive tape, aluminum foil, non-woven fabrics, rubber, paper, etc.

21. Re-Tender for GC-MS / MS

GC-MS/MS (Triple Quadrupole) Head Space with fully automated SPME

GC system

A compact high sensitive GC-MS/MS system suitable for the analysis of Organo-chlorine pesticides, Organo-phosphorous pesticides, Synthetic Pyrethroids, PCBs and VOCs in food products and water at <1 ppb level with user friendly software. The system should have a Triple Quadrupole geometry, capable of carrying out MS and MS/MS experiments.

Column oven

The system should have All temperature and time functions controlled by microprocessor-controller and should show on the touch- screen display.

- Temperature: Operating Range Ambient +4°C to 450°C
- Heating rate: from 50 to 450 °C within 5 min.
- Cooling down rate: from 450 to 50 °C in less than 5 min.
- Temperature programming facility.
- Ramps : minimum 15 ramps with 16 plateaus or more
- Maximum inlet temperature ramp rate : 120 degree C / minute or better for all voltages
Should have oven power safety(power off when door is open)

Column

GC capillary column having dimensions; 30 meter length, 0.25mm I.D. and 0.25µm film thickness.

- Dimensions; 30m x 0.250mm x 0.25µm
- □HP-5MS/ DB-1MS or equivalent) (02 no.)
- DB-5/ HP-5 or equivalent (01 No)
- DB 1301 or equivalent (01 No)

Inlet

The system should have

- Programmable Temperature Vaporizer (PTV)/ One S/SL
- Temperature ramped split / splitless and large volume injection modes.
- Electronic pressure/ flow control.

- Pressure setting range 0 to 100psi or more

MS/MS System

The system should have

- **Mass range:** Qudrupole 10 to 1000 amu or more.
- **Mass resolution:** minimum 0.7 (width at half height).
- **Mass axis stability:** ± 0.1 amu over 24 hours or more
- **Linear Dynamic range:** minimum 6th order of magnitude.
- **Scan rate (electronic):** 20000 amu/sec or better
- **Ionization modes:** EI (Electron ionization) and CI (Chemical ionization) modes Ion source should have heating capacity of 350°C or more.
- CI: must be capable to operate with different reagent gasses & electronic flow control for reagent gasses.
- Collision cell gas pressure must be electronically/Software controllable.
- Collision energy must be variable.

Scan Modes:

- i. Should be able to do Scan, SIM, MRM/SRM, Parent ion scan, Product ion Scan, and Neutral loss scan-time segment based.
- ii. Simultaneous Full Scan-SIM or Full Scan/MRM or SRM whenever required.
- iii. SRM/MRM Speed: minimum of 800 MRM/sec
- iv. Minimum MRM dwell time of 0.5 milliseconds or better.
 - Installation checkout sensitivity must be better than –
 - Instrument detection limit: 4 fg or less octafluoronaphthalene (OFN)
 - EI Scan sensitivity : 1 μ l of 1 pg/ μ l Octafluoronaphthalene (OFN) should give S/N greater than 1000:1 in scan mode 1 μ l injection from m/z 50 to 300 for m/z 272.
 - EI MRM Sensitivity : 1 μ L of 100 fg/ μ L Octafluoronaphthalene (OFN) should produce the following minimum signal-to-noise for the transition from m/z 272 to m/z 222: 6,000:1 or better on 30 mt. column.
 - Turbomolecular pump: Air cooled turbomolecular pumps, Rotary vane fore-line pumps supporting the turbo- molecular vacuum pump
 - Noise reduction cover for fore line pump.
 - Software controlled auto-tune or manual-tune to enable quick start-up for quantitative analysis.
 - Independently heated GC / MS interface.
 - Extended dynamic range Electron Multiplier or off-axis high-energy detector with configuration to direct the charged ion of interest away from the neutrals with long life and better sensitivity.

- The instrument supplier has to demonstrate that the machine is suitable for the analysis of Organo-chlorine pesticides, Organo-phosphorous pesticides, Synthetic Pyrethroids, PCBs and VOCs in Fish, vegetables and water at < 1ppb level.

System Controller and Operating system

- Should have capability to run the mass spectrometer in all the modes specified in Scan mode.
- Data acquisition, integration, calibration, quantification and QC calculations must be automated
- Manual and Auto tune options should be provided.
- Automatic MRM/SRM method Development
- NIST latest release and 'MassWorks' for MS formula ID must be included in the offer.
- Pesticides and endocrine disruptors, PCB's, VOC's, Fatty Acid Methyl Esters, and artificial flavors. MRM Database for minimum 800 GC molecules
- 21 CFR part 11 & food safety compliance.

Mass Libraries –

Should have Latest version of Mass Spectral Libraries (NIST and Wiley Libraries)

- ❖ NIST MSMS
- ❖ Wiley Flavors/Fragrances (FFNSC)
- ❖ Wiley FAMES Fatty Acid Methyl Esters: Mass Spectral Database
- ❖ Wiley Tandem MSMS

Quantitative analysis- Qualitative analysis Features

- Imports information directly from the acquisition method
- Provides a curve-fit assistant to test all fits and statistics on curve quality
- Integrates with an automated, parameter-free integrator that uses a novel algorithm, optimized for triple Quadra pole data
- For fast method development, this software is used to quickly review the qualitative aspects of the data, such as the optimum precursor to product ion transitions.
- Qualitative Analysis program to present large amounts of data for review in one central location.
- Extract chromatograms
- View and extract peak spectra
- Subtract background
- Integrate the chromatogram
- Find compounds

Nitrogen Concentrator

The system should be provided with a suitable Nitrogen evaporator system of 20- 25 samples processing capacity in one batch along with proper fume hood system. The specification along with the model should be provided at the time of tendering.

Ultra sonicator

The system should be provided with a ultra sonic water bath system (3-5 lit) of extraction solvent cleaning purpose. The specification along with the model should be provided at the time of tendering.

Fully automated Auto sampler with Head space and SPME

Automated Multimode sampling and Concentration TD system to analyze trace VOC's, SVOC's in Liquids/ Solids/ Gaseous sample with provision to do multi tasking like Headspace- Headspace Trap, SPME-SPME Trap, Sorbent tubes (having minimum 40 tubes auto sampler) in a single system and in a single sequence without any manual change . Also provision to have sample recollection facility on tubes for further analysis. Should provide complete software for integration and operation.

SPME

On-fiber Derivatization – Desirable a) Crumbing and Describing tool b) Each 1000 nos of SPME fibres for pesticide residues & Fragrance flavor analysis, Head space Syringe -1 ml, 2.5ml and 5ml- Each 5 nos SPME kit -5 nos, SPME vial with cap and Septa 10 ml- 1000 nos, SPME vial with cap and Septa 20 ml- 1000 nos

❖ VERSION FOR LIQUIDS

Must be able to house up to 150 2-mL sample vials Must allow installation of two needle length syringes, so to be able to address any injection mode or injector type. Must allow installation and automation of syringes featuring volumes from 0.5 to 10000 µl. Must handle any Large Volume injection techniques.

❖ VERSION FOR HEADSPACE

Must allow housing of up to 60-positions sample trays Must allow headspace injection without using any transfer line or loop valve. Must include an incubation/ agitation oven, to be heated up to 200°C, and featuring 6 positions for 10/20 ml vials. The syringe must be heated and feature a gas line for purging with inert gas, when required. Must allow installation and automation of gas tight syringes featuring volumes from 1 to 5 mL. Minimum headspace injection volume of 0.1 ml. Must perform automated SPME. Must include SPME fibre conditioning module

Accessories

- GC capillary column having dimensions; DB-624, 30-meter length, 0.25mm I.D. and 0.25µm film thickness – 1No

- Required gas cylinders (with requisite certificate) for Helium and Argon or Equivalent (5 each) should be provided with accessories like Gas regulators and gas purification system etc.,
- Required Gas regulators and gas purification systems should be provided, installed and commissioned for all the gases used in the instrument including gas tubing, manifold.
- Gas purification panel with following cylinders and appropriate dual stage steel diaphragms regulators (two for each type of gas) :
 - i. Helium ($\geq 99.9995\%$) – 4No.'s
 - ii. Argon / Nitrogen (99.999%)-2No.'s
 - iii. Nitrogen (99.999%) – 2No.'s
- QuEChERS Kits (200 nos each) for Pesticides etc in different matrices:
- SPE Cartridges Silca & C18 (300nos each)
- Consumables for operation of the system for main unit are required to be quoted for analysis in multiples samples.
 - ❖ Column Ferrules- injector end and interface end (20 No. each).
 - ❖ Septa for injector (25 No.).
 - ❖ Appropriate nuts to fit capillary columns to the injector and MS interface (2 each).
 - ❖ Inlet liner for Splitless, Split (with glass/quartz wool at optimum position) and PTV (with glass/quartz wool at optimum position) (10 No. each)
 - ❖ O-ring for injector liner (20 No.)
 - ❖ Split vent trap (2 No.)
 - ❖ EI Filaments (5 No.)
 - ❖ CI Filaments (5 No.)
 - ❖ Column cutter (2 No.)
 - ❖ Gas tube cutter.
 - ❖ Oil mist trap for pump (2 No.).
 - ❖ Tool kit.
- Operation kit comprising all required items for startup/regular operation of instrument.

Computer System

- Latest compatible branded high speed computer with a suitable configuration, key board, mouse, and monitor should be provided (Specify computer speed, processor, RAM and graphics card details in the quotation)
- E Software package must include all necessary software for controlling, data acquisition, data processing, qualitative and quantitative analysis for complete equipment with its peripherals.

Processor : Core i7 8 generation
RAM : 16 GB

Hard disk : 1 TB
Monitor : 21.5 "
OS : Windows 10 pro (Optional)
Graphics Card : 4 GB (Optional)

Warranty & AMC

- The instrument should be guaranteed for a period of 2 years from the date of commissioning. During warranty period, if there is any repair to be carried out at the supplier's works, transportation cost of equipment/component besides repair / replacement charges, if any, should be borne by the supplier
- Latest model only should be quoted.
- Latest 2 No's of Performance certificates from reputed Institution/Laboratories are to be submitted
- Optional: Quote separately 1. AMC rate for another two years 2. Spares & Consumables rate for the AMC period
- Parent company only should provide AMC, Spares and other services
- Lifetime free instrument software up gradation must be provided.

22. Re-Tender for Viscometer

TECHNICAL SPECIFICATIONS FOR VISCOMETER

- Viscosity range cP(MPaS): 1 to 2M
- RPM: 0.3-100 or 0.3-200
- Accuracy of viscosity : $\pm 1.0\%$ of range
- Repeatability :: $\pm 2\%$
- Display Info:
 - Viscosity (cP or mPaS)
 - % Torque
 - Temperature ($^{\circ}\text{C}$ or $^{\circ}\text{F}$)
- Analog/digital outputs for recording torque and temperature
- Temperature off-set capability to : $\pm 1^{\circ}\text{C}$
- USB PC interface
- Optional: Adapter/accessory for measuring minimal viscosity ranges

23. Re-Tender for Cookies Dropper

Specification

1. Cookies dropping and wire cutting machine with rotating head operations controlled by programmable logic controller (PLC) with customized storage operating programs.
2. No of Nozzles – 5 nos
3. Dropper speed – 40 and above strokes / min
4. Wire cutter speed – 50 and above strokes / min
- 5 .Dropping Operations options
 - Twisting
 - Long dropping
 - Multi layer dropping
 - Straight dropping
6. Material of contact-Stainless steel
- 7 .Feeder – Heavy duty geared drive motor (adjustable the speed depends upon the production)
8. Conveyor – Motor and belt assembly should be fit for commercial production
9. Tray size – 350 * 500 mm
- 10 .Type of conveyor drive – Belt drive
- 11 .Power – 2 HP
12. cup cake or bean shapes dropping provisions nozzles are required
13. Display – Touch screen interface
14. Supply of two wire cut dies and stand by nozzles with machines

24.Re-tender for Freeze Dryer

Freeze Dryer

- Fully automated freeze dryer with compatible condenser for operation at temperature of -80°C.
- Ice Condenser, Cooling coil Ext. type MOC: SS 316
- Cold Trap Temperature: Up to -86° C
- Cold trap size: 460mm x 600mm, cylindrical, made of thick gauge 316 grade stainless steel
- Hermetically Sealed compressors with ½ HP or better
- Ice Condenser volume:80-100 litres
- Ice Condensing capacity: 10 to 12 Kg per cycle
- Inbuilt pre-freezing facility, freezing rack with trays
- External cooling coil for utilization of entire condenser surface area for better trapping of vapour.
- Drying Chamber: SS 316: Size 450 x 450 x 600 mm rectangular
- Front doors made of acrylic for easy visibility of the entire process

- Tray: SS 316: Size 450 x 450 x 20 mm – 6 nos
- 8 ports for drying round bottom flask with 8 quick seal valves
- Facilities to keep eppendorfs, plates as well as provision to attach round bottom flask in drying chamber
- High capacity external vacuum pump: Two stage direct drive Rotary oil sealed with output capacity of 500 LPM., 0.001 mBar (noise level less than 54dB) necessary hose, pipe, nozzles, connector, pump grease and vacuum oils are to be supplied
- Safety device to protect vacuum pump for higher temperature; oil and air back suction protection
- Vacuum regulation valve, vacuum cut off valve between Ice Condenser and Pump for safety, to facilitate pre-run of vacuum chamber.
- Vacuum pump start-up based on customer's choice of desired temperature.
- Ultimate vacuum 1×10^{-3} mbar, vacuum break solenoid valve to avoid suck back
- Shorter vacuum pulls down time of less than 15 mins for 100 millitorr, microbar
- Vacuum Indicator: Digital in HMI
- Vacuum level: 0.5 to 0.001 mbar (can be indicted in millitorr, micro bar or pascal also)
- Moisture sensor to detect presence of moisture in the chamber.
- Advance PLC based control system with 4.3" Color Touch Screen HMI.
- Color Touch Screen HMI will have Menu's and Sub menu's for setting various parameters namely temperature, Auto/ Manual, Time Delay, data export facility, etc.
- Online trend graph for temperature, vacuum Vs time possible.
- Data logging of temperature and vacuum is possible, the same can be exported to PC using USB drive.
- Temperature resolution: 1°C with high/low temperature safety and alarms
- Controls: Refrigeration ON/OFF, Vacuum ON/OFF both Auto as well as Manual modes of operation.
- Exterior: Epoxy powder coated mild steel.
- Facility for water drain.
- 2 Nos each of 150ml and 300ml wide mouth flask, 2 Nos each of 250ml and 500ml round bottom flask necessary cork, adaptors included in the supply.
- Power supply: 230 V, 50 Hz, Single phase.
- Suitable Stabilizer included.
- CFC/HCFC Cascade refrigeration system
- Accessories – Vacuum concentrator, Drying flasks for liquid samples,

25. Re-Tender for Automated Water Analyser

Automated water analyser (Multi parameter water quality Analyzer)

Multi-Parameter Water Quality Analyzer (pH/ISE/Conductivity/DO) The system will be used for analyses for water quality parameters such as Temperature, pH, Electrical conductivity (EC), Resistivity, Redox potential (ORP), Dissolve Oxygen (DO); TDS, water depth, Salinity etc. in the field. The multi-parameter water quality meter should be flexible enough to use for checking the quality of a broad range of water samples.

pH * Minimum –four point calibration *	Range	0 to 14 pH
	Resolution	0.1, 0.01 pH or better
	Accuracy	±0.002 pH or better
Dissolved Oxygen (DO)	Range	0 to 90.0 mg/L or better
	Resolution	0.01 mg/L
	Accuracy	±0.2 mg/L or better
Conductivity	Range	0 to 2.000,2.000 to 300.0 S/cm;μ 300.0 S/cm;μ to 4.000 mS/cm 4.000 to 40.00 mS/cm,40.00 to 500.0 S/*cm
	Resolution	0.05 % Full scale 0.01,0.1 μS/cm;0.001, 0.01, 0.1 mS/cm
	Accuracy	±1 % Full scale + 1 LSD
Salinity	Range	0.5 to 50 PPT or better
	Resolution	0.1 PPT
	Accuracy	±0.1
Total Dissolved Solids (TDS)	Range	0 to 300 mg/L or better
	Resolution	0.01, 0.1 ppm
	Accuracy	±1 % Full scale + 1 LSD
Temperature	Range	-5 to 105 °C
	Resolution	0.01°C
	Accuracy	+ 0.005

- ❖ System contains modular system with LCD touch screen with UV-VIS optics, Cuvettes, high resolution & sensitivity for using test kit.
- ❖ BOD analyser with thermo stat cabinet with digital multi meter for portable field measurement with sensors.
- ❖ A sensitive cable of 30 m length should be quoted with the system.
- ❖ Should be attachable and compatible to computer
- ❖ Other accessories and standard must be quoted with the system.

- ❖ Carrying case must be quoted with the system.
- ❖ Warranty minimum of 5 years.
- ❖ Non-volatile memory hold up to 5000 data points with time and Date stamp.
- ❖ Easily transfer data and keep meter software up-to-date with the USB and RS232 point and complimentary data analysis software.
- ❖ Stores up to 10 method allow for customized producers to differentiate between tests and/or users
- ❖ Four AA batteries (included) provide over 800 hours of operation or purchase the universal power adapter (sold separately) to use AC power.
- ❖ Perfectly Portable, Waterproof and protected to take anywhere with IP-67 rated housing.

Computer System

- Latest compatible branded high speed computer with a suitable configuration, key board, mouse, and monitor should be provided (Specify computer speed, processor, RAM and graphics card details in the quotation)
- E Software package must include all necessary software for controlling, data acquisition, data processing, qualitative and quantitative analysis for complete equipment with its peripherals.

Processor : Core i7 8 generation

RAM : 16 GB

Hard disk : 1 TB

Monitor : 21.5 "

OS : Windows 10 pro (Optional)

Graphics Card : 4 GB (Optional)

Warranty & AMC

- The instrument should be guaranteed for a period of 2 years from the date of commissioning. During warranty period, if there is any repair to be carried out at the supplier's works, transportation cost of equipment/component besides repair / replacement charges, if any, should be borne by the supplier
- Latest model only should be quoted.
- Latest 2 No's of Performance certificates from reputed Institution/Laboratories are to be submitted
- Optional: Quote separately 1. AMC rate for another two years 2. Spares & Consumables rate for the AMC period
- Parent company only should provide AMC, Spares and other services
- Lifetime free instrument software up gradation must be provided.

26. Re-Tender for Automated Milk Analyser

- ❖ Operation abilities: Mode of selection for type of milk –Cow, Buffalo, Mixed/Single curve with cleaning, calibration, System error list etc.
- ❖ Should be able to analyze Milk sample for Fat, SNF & Protein in the range of
 - ✓ Fat - 0.5-12% with accuracy $\pm 0.1\%$,Resolution: 0.01% and Repeatability : $\pm 0.05\%$
 - ✓ SNF- 6% -12% with accuracy $\pm 0.2\%$,Resolution: 0.01% and Repeatability : $\pm 0.05\%$
 - ✓ Added water -0% to 60% with accuracy $\pm 5\%$,Resolution: 1% and Repeatability : $\pm 0.5\%$
- ❖ Analysis speed required : 40 seconds per samples
- ❖ Display : LCD, Graphical Display
- ❖ Data Interface : SD Card and RS 232, Conformance : IP41 & Power consumption : < 20W
- ❖ Data Acquisition & Transfer: Data acquired from the Instrument should be able stored within the instrument using a transferable storage card. Data from the card should be able to be transferred to the locally available software through the available RS232C or through the Storage Card. All technical details required for transfer of data from the instrument to the locally available software should be made available by the supplier.
- ❖ Consumables & Accessories : Instrument should be supplied along with spares, consumables and accessories for 12 months of operation
- ❖ Manuals : Instrument should be supplied with Quick Guide, User Manuals
- ❖ Training and Installation: Training and Installation services should be offered along with the Instrument.

Computer System

- Latest compatible branded high speed computer with a suitable configuration, key board, mouse, and monitor should be provided (Specify computer speed, processor, RAM and graphics card details in the quotation)
- E Software package must include all necessary software for controlling, data acquisition, data processing, qualitative and quantitative analysis for complete equipment with its peripherals.

Processor : Core i7 8 generation
RAM : 16 GB

Hard disk : 1 TB
Monitor : 21.5 "
OS : Windows 10 pro (Optional)
Graphics Card : 4 GB (Optional)

Warranty & AMC

- The instrument should be guaranteed for a period of 2 years from the date of commissioning. During warranty period, if there is any repair to be carried out at the supplier's works, transportation cost of equipment/component besides repair / replacement charges, if any, should be borne by the supplier
- Latest model only should be quoted.
- Latest 2 No's of Performance certificates from reputed Institution/Laboratories are to be submitted
- Optional: Quote separately 1. AMC rate for another two years 2. Spares & Consumables rate for the AMC period
- Parent company only should provide AMC, Spares and other services

Lifetime free instrument software up gradation must be provided.

TENDER FORM:

I. Terms and conditions for furnishing tenders/quotations:

1. Tenders/quotations for technical and financial aspects should be **furnished separately in two closed envelopes** superscribing as **Technical Bid** for supply of quoted (Equipments name) and **Financial Bid** for supply of quoted (Equipments name) in the tender forms enclosed.
2. Both the technical and financial tender covers may be put in one cover and name of the equipment may be written on the outer cover also for each equipment/item.
3. Tender for each item should be furnished separately.
4. Last date and time of receipt of tender will be: **10.05.2019 (Friday) by 3.00 PM.**
5. Tenders received after the due date/time will not be accepted.
6. **Technical bids of the Tenders** will be opened in the presence of the bidders/ authorized representatives, on the following dates,

For item no.	1to11, 13 & 15	on: 13.5.2019 at 11.00 AM
“	12, 14, 16,17,18,19 & 20	on: 14.5.2019 at 11.00 AM
“	21 to 26	on: 15.5.2019 at 11.00 AM

7. In the event of any of the above date being declared as a holiday or closed day the bids will be opened on the next working day at the appointed time.
8. **Processing fee of Rs.500/-(Rupees: Five hundred only) + GST 18% should be furnished by DD drawn in favour of “Director, Indian Institute of Food Processing Technology” payable at Thanjavur along with Technical Bid which is non refundable. Technical Bids without processing fee will be rejected.**
9. Detailed specifications such as make and other distinguishing marks with respect to the standard/quality of the item(s) wherever necessary should be indicated in the tender.
10. If the article(s) is/are taxable the rate of tax should be indicated separately, otherwise it would be treated as non taxable item. The rate should be FOR destination for delivering the items at Indian Institute of Food Processing Technology and should include all charges such as packing, forwarding including loading/unloading etc. Insurance charges, if any,

are to be borne by the suppliers. The Tenders should be kept valid for a minimum period of six months from the date of its receipt.

- 11. The bid security i.e. Earnest Money Deposit @ Rs.10,000/- per item should be submitted along with the Technical Bid through crossed Bankers Cheque / DD drawn in favour of “Director, Indian Institute of Food Processing Technolog, Thanjavur. The bidders who are registered with the Central Purchase Organization / NSIC are exempted for it or bid security declaration in the format prescribed should be signed sealed and attached.**

TECHNICAL BIDS

(To be sealed in separate Cover)

Specification of the equipment / item (in detail) to be purchased

S.N	Details of Technical Specifications	Whether complied with YES/NO	If yes, please attach Tech literature of the equipment duly printed & clearly specify page No of Bulletin which specifically confirm this	If no, attach deviation statement	Remarks (if any)

N.B.:- 1. All the bidders are requested to provide true statement in the columns. Concealing of facts will liable to be rejected the tender completely. No communication will be made in this regard.

2. Category of classification of the goods in its packing as per IATA definition inclusive of nature of sensitivity and volume of cargo.

Signature of Tenderer with
office seal

BID FORM

PRICE SCHEDULE FOR DOMESTIC GOODS OR GOODS OF FOREIGN ORIGIN LOCATED WITHIN INDIA

1	2		3	4	5 price per unit					6	7	8
Schedule No.	Item description	Country of origin	Accounting unit & Quantity	Ex-factory/ ex-warehouse/ ex-showroom off- the shelf (a)	Excise Duty if any (b)	Packing and forwarding (c)	Transportation (d)	Insurance, other duties and taxes if any (other than sales tax) and incidental costs (e)	Incidental services (including supervision) (f)	Over all price (a+b+c+d+e+f)	GST tax payable, if contract awarded	Total price

Total bid price in Rupees: (in figures)
 (in words)

Signature of bidder
 Name
 Business address

Place:
 Date:
 Note:

1. Organization will be provided DSIR Certificate (Tax exemption certification) to the Firms if required, so Firms will quote their rates accordingly.
2. In case of discrepancy between unit price and total price, the unit price shall prevail.

PRICE SCHEDULE FOR GOODS TO BE IMPORTED FROM ABROAD

1	2	3	4	5					6	7	8	9	10
Schedule No.	Item Description	Country of origin	Accounting unit & quantity	Unit price FOB port of loading (a)	Unit price CIF at port of entry (b)	Inland transportation charges, insurance and other local costs incidental (c)	Incidental services including supervision (d)	Custom duty payable amount (e)	Overall unit price (a+c+d+e)	Indian's agent's name Commission	Total price	Indian agent's commission as a % of FOB price included in the quoted price	Shipment weight and volume

Total bid price in foreign currency: (in figures)
 (in words)

Signature of bidder
 Name
 Business address

Place:
 Date:
 Note:

- i. In case of discrepancy between unit price and total price, the unit price shall prevail.
- ii. Indian agent's commission shall be paid in Indian rupees only. No change due to exchange variation shall be allowed.

PERFORMANCE SECURITY GUARANTEE BOND

1. In consideration of IIFPT (herein after called the “IIFPT”} having agreed to exempt _____ (hereinafter called “the said contractor(s)”) from the demand under the terms and conditions of an agreement/(Purchase Order) No _____ dated _____ made between _____ and _____ for _____ for the supply of _____ (hereinafter called “the said agreement ”), of security deposit for the due fulfillment by the said contractor (s) of the terms and conditions contained in the said Agreement, on production of the bank guarantee for _____ we, (name of the bank) _____ (hereinafter refer to as “the bank”) at the request of _____ (contractor(s)) do hereby undertake to pay to IIFPT an amount not exceeding _____ against any loss or damage caused to or suffered or would be caused to or suffered by the government by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement or any reason of the contracts failure to perform said Agreement.

2. We (name of the bank) _____ do hereby undertake to pay the amounts due and payable under this guarantee without any demure, merely on a demanded from IIFPT stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by IIFPT by reason of breach by the said contractor(s)’ of any of the terms or conditions contained in the said Agreement or by reason of the contractors(s)’ failure to perform the said Agreement or roll out the services as per schedule V & parameters for failure of compliance of intellectuals property rights. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee where the decision of IIFPT in these counts shall be final and binding on the bank. However, our liability under this guarantee shall be restricted to an amount not exceeding _____.

3. We undertake to pay to IIFPT any money so demanded notwithstanding any dispute or disputes raised by the contractor(s)/Supplier/ Agency(s) in any suit or proceeding pending before any court or tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the contractor(s)/Supplier/ Agency(s) shall have no claim against us for making such payment.

4. We (name of the bank) _____ further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of IIFPT under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till expiry of 90days beyond the date on which the warranty period of the equipment(s) expire.

5. We (name of the bank) _____ further agree with IIFPT that IIFPT shall have the fullest liberty without our consent and without affecting in any manner our obligations there under to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by IIFPT against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act or omission on the part of IIFPT or any indulgence by IIFPT to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. We (name of the bank) _____ lastly undertake not to revoke this guarantee during its currency except with the previous consent of IIFPT in writing.

Dated the _____ day of _____ for _____

(Indicate the name of bank)

Bid-Securing Declaration Form

Date:

Bid No.

To (insert complete name and address of the purchaser)

I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

- (a) have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or
- (b) having been notified of the acceptance of our Bid by the purchaser during the period of bid validity (i) fail or reuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown) in the capacity of (insert legal capacity of person signing the Bid Securing Declaration).

Name: (insert complete name of person signing the Bid Securing Declaration)

Duly authorized to sign the bid for an on behalf of : (insert complete name of Bidder) Dated

on _____ day of _____ (insert date of signing)

Corporate Seal (where appropriate)

(Note: In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid)

TENDER DOCUMENT FOR PURCHASE OF LABORATORY EQUIPMENTS
TENDER NO. No. IIFPT/PO/Equipments/2019-20/02
CHECKLIST FOR THE TENDERER

Name and Address of the Tenderer:	List of Equipment Quoted
EMD/Bid Security Declaration	Tender processing fee
EMD should be in the form of DD drawn in any Nationalized Bank in favour of The Director, IIFPT, Thanjavur	Tender processing fee should be in the form of DD drawn in any Nationalized Bank in favour of The Director, IIFPT, Thanjavur
DD No.....	DD No.....
Dated.....	Dated.....
For Rs.....	For Rs.....
Drawn on.....Bank	Drawn on.....Bank
.....BranchBranch

***Supportive Documents must enclosed for fulfilling Eligibility criteria, to be submitted by the Tenderer**

1	Minimum three years experience in the field of supply of laboratory equipments	Yes/No
2	A bid form and price schedule	Yes/No
3	Bid Security	Yes/No
4	Registration Certificate/Certificate of incorporation, if any	Yes/No
5	Service Tax Registration	Yes/No
6	Copy of PAN./CIN No. of the Company	Yes/No
7	Self certification of full fledged office infrastructure	Yes/No
8	Lists of clients with reference in minimum five firms with name, designation and contact details	Yes/No
9	Authorized dealer Certificate from Manufacturer.	Yes/No
10	Brief on supply of laboratory equipments handled during last five years	Yes/No
11	List of offices/branches in India, with address and contact details	Yes/No
12	Contact Person Mobile No. & Land Line	Yes/No