

POLLUTION CONTROL BOARD: ASSAM
BAMUNIMAIDAM, GUWAHATI-781 021

Website : www.pcbassam.org

No. WB/LB-16/Pt-II/97-98/139

Dated Guwahati, the 21st June, 2019

QUOTATION NOTICE

Pollution Control Board Assam invites sealed quotations from the reputed manufacturers/ Authorized dealers/ suppliers for supply of Scientific Equipments. The document containing list of instruments along with detailed specifications of the items and terms & conditions may be obtained from the Board's Head Office during office hours from 01-07-19 till 18-07-19 on payment of Rs. 1000/- (Rupees One Thousand) only (Non-refundable) in the form of Bank Draft to be drawn in favour of "Member-Secretary, Pollution Control Board, Assam" payable at Guwahati. The documents can also be downloaded from our website www.pcbassam.org and cost of quotation document (DD of Rs.1000/-) should be accompanied with the quotation.

The quotation will be received upto 16:00 hours of 19-07-2019 and will be opened on 11.00 hours on 20-07-2019 in presence of the quotations or their representative.

Member-Secretary

Dated Guwahati, the 21st June, 2019.

Memo No. WB/LB-16/Pt-II/97-98/139-A

Copy to:

1. M/s. APS Advertising Pvt. Ltd. for information & necessary action. They are requested to publish the quotation notice immediately in one issue of the 'Times of India' (only Eastern edition) and submit the bill in duplicate to the undersigned for payment.
2. The In-Charge, Central Laboratory, PCBA for information and necessary action.
3. The Head of IT Div., Head Office, PCBA to upload the quotation notice along with the tender document in the Board's website.
4. The Account Branch of the Board for information & necessary action.
5. The Notice Board of the Pollution Control Board, Assam.
6. The Concerned File.

[Handwritten Signature]
21.06.2019

Member-Secretary

[Handwritten Initials]

[Handwritten Note]
S. Barua
24/6/2019

Tender Document

This document contains the following:

- i) Copy of quotation notice**
- ii) General Terms and Conditions of Bid**
- iii) Terms and Conditions for Submission of Bid**
- iv) Application Form**
- v) Undertaking**
- vi) Bid Form**
- vii) Detailed specification of the instruments.**
- viii) Schedule of Earnest Money to be deposited along with Tender (Annexure-IV)**
- ix) Check List.**

GENERAL TERMS AND CONDITIONS:

1. Bidder must pay for the tender document, without which tender will not be accepted.
2. The Board takes no responsibility for delay or non receipt of Tender Document sent by post either way and also reserves the right to accept; or reject any or all the tenders in part or full without assigning any reason thereof.
3. Bidder is expected to follow all the instructions mentioned in the bidding documents. Failure to furnish required information or submission of a bid not substantially irresponsive to the bidding document will be the bidder's risk.
4. This tender notice, Tender forms, Specification etc are also available on PCBA's website www.pcbassam.org. Bidders using down loaded tender forms must submit a separate tender fee by Demand Draft alongwith the technical part of the bid. The tender without requisite tender fee will be rejected.
5. This call of tenders does not bind the Board to place order. The tenders submitted in response to this invitation be rejected without assigning any reason.
6. The Board at its discretion may extend the last date of submission of tender and opening of tenders. The final authority for acceptance of a Tender will rest with the Chairman, Pollution Control Board, Assam who does not bind himself to accept the lowest tender and is vested with the authority to reject any or all of the tenders received without assigning any reason.
7. The warranty period is between twelve months to thirty six months depending on the item and starting from the date of successful commissioning of the instrument.
8. Any overwriting, erasures and interlineations should be initiated by the bidder, without which such bid will not accepted.
9. In case, the date of opening of tender is declared as Public Holiday, the tender shall be open on the next working day as the same time.
10. The bidder should be a manufacturer/authorized dealer or supplier and must submit Authorization certificate with tender documents in case of dealer or supplier.
11. Outside bidder should send the tender through Registered post. Board is not responsible for not receiving any tender within the last date of submission of tender. However, local bidder can drop their tender in the tender box kept in the office for the purpose.
12. Documents, literature, diagrams/Leaflets, samples etc. enclosed in the tender shall become the property of the Pollution Control Board, Assam without any payment.
13. Canvassing in any form will disqualify the Bid.
14. The Tender Notice **No. WB/LB-16/Pt-II/97-98/139 dated 21.06.2019** should be invariably be quoted in the bid and for further correspondence in this regard.
15. The courts at Guwahati shall have exclusive jurisdiction to entertain and try all matters arising out of this contract.
16. All the Tenders should be addressed to:

**THE MEMBER SECRETARY,
POLLUTION CONTROL BOARD, ASSAM
BAMUNIMAIDAN, GUWAHATI-781021**

2.0 SUBMISSION OF BID

1. The bid must accompany Annexure-I with Techno Commercial part of Bid and and Annexure-II & III along with 'Price' part of the Bid duly filled in and signed by the Bidder along with the seal of the Firm.
2. The Bidders are requested to quote-total price of each instrument separately indicating the Govt. levies, freight, insurance, installation charges and other expenditure item-wise F.O.R. PCBA, Guwahati. The bidders are expected to examine the bidding documents carefully and are deemed to have received and read all documents. It shall be the responsibility of the bidders to request the copies of any missing documents. Failure to do so will be at bidders risks.

BIDDER CAN QUOTE THE RATES FOR ALL THE INSTRUMENTS OR SOME OF THE INSTRUMENTS AGAINST ONE TENDER DOCUMENT. HOWEVER, SEPARATE PRICE BID AND TECHNICAL BID SHOULD BE SUBMITTED FOR EACH ITEM CLEARLY MENTIONING THE ITEM CODE NUMBER, ITEM NAME ON THE TOP OF THE ENVELOPES WITH SENDERS NAME AND ADDRESS. THE POLLUTION CONTROL BOARD, ASSAM, RESERVES THE RIGHT TO ACCEPT THE TENDER IN FULL OR IN PART. THE BID FOR EACH ITEM SHOULD BE IN SEPARATE SHEETS/PAGES AND ITEM CODE NUMBER SHOULD BE WRITTEN ON THE TOP OF EACH BID. EMD SHOULD BE SUBMITTED SEPARATELY AGAINST EACH ITEM. ITEM-WISE TECHNICAL SPECIFICATIONS AND PRICES SHOULD BE IN SEPARATE ENVELOPS i.e.

THERE SHOULD BE SEPARATE ENVELOPE FOR EACH ITEMS INCASE BIDDERS DESIRES TO QUOTE MORE THAN ONE ITEM. TENDERERS SHOULD COMPLY THE ABOVE INSTRUCTION.

3. For the authorized Indian Suppliers, supplying foreign Origin/manufactured items, they are allowed to quote in Indian Rupees on FOR destination basis. However, the Board will not enter into any Trade Agreement such as high Sea Sale/deed etc. The Concessional Custom Duty and Excise Duty Exemption certificate will be supplied. In that case, the normal custom duty applicable should be borne by the supplier. The entire responsibility/charges upto destination should be borne by the supplier. Therefore excise duty and custom duty excluded price should be quoted. Taxes, other levies, insurance, Octroi, freight etc., if any should be indicated separately, No C/D forms will be issued against VAT/CST.
4. It may be noted that mere quoting lowest rates will not entitle any firm to get the order. The quality of the item being offered, the past performance supply etc. will also be taken into consideration. Prior to award of purchase order the buyer can call any details, explanation, regarding technical & financial aspect, including demonstration of the instrument/equipment.
5. The Tender is to be submitted "single stage-3 envelopes system" i.e. the first sealed envelope will contain the earnest money, the second sealed envelope will full information required to judge pre-qualification, earnest money, complete details and specifications of the instruments offered including the leaflets and

catalogues, list of credentials with documentary evidence i.e., purchase order etc., PAN No., Vat/Sales Tax Registration No., Affidavit for not being black listed, Commercial Terms & Conditions etc. It shall be marked "**Pre-qualifications, technical and commercial Bid No. WB/LB-16/Pt-II/97-98/139 dated 21.06.2019 due on 18.07.2019 for supply of Scientific Equipments.**" The third envelope will contain **only price quoted by the bidder** in the form given at Annexure -II of this document and shall be clearly marked "**Price Bid No. WB/LB-16/Pt-II/97-98/139 dated 21.06.2019 for instruments & equipment**". All the above envelopes must be separately sealed and shall be kept in one envelope bearing the address of Pollution Control Board, Assam and superscribed with bold letter "**Tender for the Item no. ...**". The senders' address should be mentioned in all envelopes.

6. The list of instruments/equipments and their approximate quantity is given at **Annexure-V** and the detailed specification of the Instruments are given in the tender documents (Page No. 12-35). The quantity mentioned in the tender documents may be increased or decreased at the discretion of the Competent Authority in the Pollution Control Board, Assam without assigning any reason.
7. Item Code number(s) should be mentioned invariably on all envelopes.

Technical & Commercial part of the tender will be opened at **11.00 AM on 20.07.2019** in the office of the Pollution Control Board, Assam, in presence of the representatives of the Tenderers who would like to present. Sealed Price part of Technically and Commercially acceptable tenders will be opened on a later date in the presence of purchase committee of the Board.

8. The EARNEST MONEY shall be in the form of Demand Draft only in favour of "MEMBER SECRETARY, POLLUTION CONTROL BOARD, ASSAM" payable at GUWAHATI. Tender shall not be entertained where a Tenderer has not furnished adequate earnest money as specified in the Annexure -IV. In case of non-supply within stipulated time or the instrument supplied is found defective and not attended by the supplier, the Earnest Money deposited by the supplier will be forfeited.
9. The Firm who seek exemption from depositing earnest money being small scale industry or being registered with NSIC, DGS&D and other Government agencies which entitles them for exemption must submit the valid Registration Certificate covering the instrument offered by them along with the permissible value. The copy of Government Notification granting exemption from deposit of EMD must be submitted along with the techno- commercial part of tender along with the bid. (EMD Exemption will be granted only to those items specified in the certificate of Registration).
10. Unsuccessful bidders bid security will be discharged/ returned without any interest in the same form after the concerned purchase is finalized and that of successful bidders will be discharged without interest after the successful installation of the instrument.
11. The validity of Tender would be for a minimum period of 180 days from the date of opening of Tenders. A Bid valid for a shorter period may be rejected by the Board as non responsive.

12. The rates should be quoted both in words and figures. If there is discrepancy between words and figures, the amount mentioned in words will prevail.
13. The Bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person duly authorized to the contract. The letter of authorization should bear the signatures of only the authorized person of the firm. All pages of the Bid, except for un-amended printed literature shall be initial by the person or persons signing the bid.
14. To assist in the examination, evaluation and comparison of bids the buyer may, at its discretion, ask the Bidder for a clarification of its bid. However, no change in the price or substance of the bid shall be sought, offered, re-permitted.
15. The specifications are clearly mentioned in the document and the Bidder are requested to submit Bid only if their offer comply with these specifications. BIDS CARRYING THE STATEMENT LIKE "SPECIFICATION AS PER TENDER DOCUMENT" SHALL NOT BE ENTERTAINED. THE PRODUCT SPECIFICATIONS SUPPORTED BY TECHNICAL LITERATURE AND LIST OF USERS MUST BE ENCLOSED.
16. The nomenclature of the instruments and spares will be invariably same in Proforma Invoice, Invoice, Packing list and in other relevant papers in case the Bidder is allotted the purchase order.
17. With the submission of the Tender, the Bidders are deemed to accept the terms & conditions of the Tender.
18. The Supplier should attach a copy of financial bid (without cost/price figures) along with the technical bid to assess the item/components quoted in the bid.
19. The installation and commissioning of the instruments is the entire responsibility of the supplier. It must be done either by the principal/supplier or their authorized agents within one week of the receipt of the instruments by the Board.
20. The Bidder must sign each and every folio of the Tender.
21. The bidder should attach a separate list for the consumable/spares required for smooth operation of the instrument at least for three years (as optional items) and two copies of trouble shooting manuals, electric circuits etc. along with the bids.
22. The bidder should provide a complete list of spares and consumables required for operation and maintenance of the instruments along with bids.
23. The instrument for which Tenders are invited will have to be supplied as per terms & conditions laid in the purchase order. In case of non-observance of the order will be cancelled.
24. If the instrument supplied is found defective/unsatisfactory condition/short supply/other than specifications in the Purchase Orders, the same will have to be replaced at the suppliers' risk and cost. The Board will not pay freight and other charges for replacement.
25. The prices must be quoted item-wise i.e. basic price, taxes, packing forwarding, handling and installation charges etc. The charges must be quoted clearly and not in vague terms like "As Actual" "Approx" etc.
26. The warranty/guarantee of the instrument/equipment should be clearly mentioned in the Bid.

27. MOST IMPORTANT

PLEASE NOTE THAT ANNEXURE-I OF THIS DOCUMENT MUST BE ENCLOSED WITH THE FIRST PART OF BID i.e. "TECHNICAL/COMMERCIAL BID AND ANNEXURE-II AND III WILL BE KEPT IN THE SECOND PART OF BID i.e. PRICE BID.

28. THERE IS NO NEED TO ENCLOSE THE ENTIRE TENDER DOCUMENT (SUPPLIED BY THE BOARD) WITH YOUR BID. ONLY ANNEXURE-I,II AND III NEED TO BE ENCLOSED AS PER INSTRUCTION STIPULATED IN PARA 23 AND OTHER RELEVANT PARAGRAPHS OF THIS BID.

29. Payment Condition:

Full payment will be released on supply and installation of the system on good and satisfactory condition and furnishing performance security/performance Bank Guarantee equivalent to 5% of the purchase order value till warranty period. The performance security in the shape of Bank Guarantee be furnished by the principal supplier or their authorized agent from any Nationalized Bank. No proposal for advance payment will be allowed in any case. Proposal for advance payment, document and payment through bank will not be considered. Hence no preference will be given for such advance payment proposals.

30. Annual Maintenance Contract:

The bidder should quote the charge for annual maintenance contract after the warranty period for the instrument listed in **Annexure-V** of this tender document at serial No. 12, 19, 20, 22, 23.

Annexure-I

APPLICATION FORM		
(To be filled by the bidder)		
1)	Name and full address of the Bidder including Telegraphic Address/Telex No. and Fax No. E-mail.	
2)	Name and Designation of the Head of the Firm/supplier and his Telephone No.	
3)	(i) In case the supplier is located out of ASSAM specify the Address/ Authorised Distributor's or Agent's Address in Assam, if any.	
	(ii) Name, Designation, Address Telephone & Fax Numbers of the Authorised Person who may be Contacted during the process of the purchase concerned under this document (Applicable for all the suppliers)	
4)	Item Code Number(s) & description of item quoted for.	
5)	Whether Earnest Money Deposited (Amount: Rs.)	
6)	If yes, Demand Draft No, Date and Name of issuing Bank.	
7)	Validity of Tender	
8)	If the tender documents are accepted in full (Yes or No)	
9)	Income Tax Clearance Certificate attached (Latest) (Yes or No) with PAN Number.	

Place:
Date :

Legally Binding Signature with stamp

BID FORM**No.**

Details showing quantity, specification and other details of the instruments offered (to be filled by the bidder and must be kept in "Price Bid" part of the Tender)

SI No and Item code Number of instruments as per our tender Document	Name of Instrument	The Specification offered by the Bidder	Difference in Specifications of tender document and that of Bid, if any	Unit Price (in Rupees excluding rates at col. no. 6)	Taxes and other expenditures (Sales Tax, C.S.T, freight, cost of installation & training (in case of indigenous items)etc.	Total Amount in Rupees FOR PCBA, Guwahati
1	2	3	4	5	6	8

NOTE:- If this sheet is not sufficient to accommodate the bid the additional sheets containing the same proforma but all such sheets including this one must be signed by the Bidder along with the seal. This Annexure must enclose in the Proforma Invoice price bid for item wise. Separate Bid form should be attached against each item, quoted for.

Signature with date & stamp of the bidder

UNDERTAKING

DATE _____

TENDER NOTICE NO _____

TO

**THE MEMBER-SECRETARY
POLLUTION CONTROL BOARD, ASSAM
BAMUNIMAIDAM, GUWAHATI,781021.**

Sir,

Having examined the conditions of Tender Document and specifications of the instruments, the receipt of which is hereby acknowledged. We, the undersigned, offer to supply, install and commissioning the following:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13

(Please add additional pages, if required). The above supply, installation and commissioning shall be in conformity with the specifications and conditions of supply.

We undertake if our bid is accepted to deliver the instruments quoted by us, we shall deliver and install within the period indicated by us in our offer, failing which, we have no right to claim the offer.

We agree to abide by this bid for a period of 120 days from the date fixed for Bid opening and it shall remain binding upon us and may be accepted at any time before expiration of that period.

We are submitting a Demand Draft for Rs.....in favour of "Member Secretary, Pollution Control Board, Assam", towards the Earnest Money.

This Bid, together with your written acceptance thereof in your notification of award shall constitute a bidding contract between us.

We understood that you are not bound to accept the lowest or any bid you may receive.

Dated this.....day of.....201

Signature of authorized Person, Name with Stamp & full Address.

ANNEXURE – IV**SCHEDULE OF EARNEST MONEY**

Item code No.	Name of Instruments/ Equipment	Units	Earnest Money amount is shown in Rupees. EMD should submit through Demand Draft in INR
1.	Analytical balance	1 no.	6,000.00
2.	Auto Clave	1 no.	1,000.00
3.	BOD Incubator	1 no.	2,000.00
4.	COD digester	1 no.	2,000.00
5.	Conductivity Meter	1 no.	1,000.00
6.	DO meter	1 no.	3,500.00
7.	Distillation/ Filtration Assembly with Vacuum Pump	1 no.	3,000.00
8.	Hot Air Oven	1 no.	1,000.00
9.	Microbiological Incubator	1 no.	2,000.00
10.	Horizontal Laminar Air Flow	1 no.	3,000.00
11.	pH Meter	1 no.	1,000.00
12.	UV Visible spectrophotometer	1 no.	10,000.00
13.	Turbidity Meter	1 no.	1,000.00
14.	Water Distillation Assembly	1 no.	1,000.00
15.	Water bath	1 no.	1,500.00
16.	Precision Balance	1 no.	3,000.00
17.	Portable Analyzer kit (DO, pH, Temperature & Conductivity)	1 no.	5,000.00
18.	Binocular Microscope	1 no.	3,500.00
19.	PM ₁₀ Air Sampler	1 no.	3,000.00
20.	PM _{2.5} Air Sampler	1 no.	15,000.00
21.	Stack Monitoring Equipments	1 no.	5,000.00
22.	TKN Digestion and Distillation Unit	1 no.	8,000.00
23.	Ion Meter	1 no.	6,000.00

ANNEXURE – V**Location of Delivery and Installation of instruments/Equipment**

Sl.No.	Item code No.	Name of Instruments/ Equipment	Qty	Location
1	1.	Analytical balance	1 no.	Central Laboratory, Guwahati
2	2.	Auto Clave	1 no.	Central Laboratory, Guwahati
3	3.	BOD Incubator	1 no.	Central Laboratory, Guwahati
4	4.	COD digester	1 no.	Central Laboratory, Guwahati
5	5.	Conductivity Meter	1 no.	Central Laboratory, Guwahati
6	6.	DO meter	1 no.	Central Laboratory, Guwahati
7	7.	Distillation/ Filtration Assembly with Vacuum Pump	1 no.	Central Laboratory, Guwahati
8	8.	Hot Air Oven	1 no.	Central Laboratory, Guwahati
9	9.	Microbiological Incubator	1 no.	R.L.O. Silchar
10	10.	Horizontal Laminar Air Flow	1 no.	R.L.O. Sivasagar
11	11.	pH Meter	1 no.	R.L.O. Sivasagar
12	12.	UV Visible spectrophotometer	1 no.	Central Laboratory, Guwahati
13	13.	Turbidity Meter	1 no.	Central Laboratory, Guwahati
14	14.	Water Distillation Assembly	1 no.	Central Laboratory, Guwahati
15	15.	Water bath	1 no.	Central Laboratory, Guwahati
16	16.	Precision Balance	1 no.	Central Laboratory, Guwahati
17	17.	Portable Analyzer kit (DO, pH, Temperature & Conductivity)	1 no.	Central Laboratory, Guwahati
18	18.	Binocular Microscope	1 no.	R.L.O. Sivasagar
19	19.	PM ₁₀ Air Sampler	1 no.	Central Laboratory, Guwahati
20	20.	PM _{2.5} Air Sampler	1 no.	Central Laboratory, Guwahati
21	21.	Stack Monitoring Equipments	1 no.	Central Laboratory, Guwahati
22	22.	TKN Digestion and Distillation Unit	1 no.	Central Laboratory, Guwahati
23	23.	Ion Meter	1 no.	Central Laboratory, Guwahati

Item code No.: 01

ANALYTICAL BALANCE (MICRO BALANCE)

Readability	0.001 mg in the range of 40 to 50 grams.
Weighing Range	40 grams to 50 grams
Tarring Facility	Entire range
Repeatability	0.002 mg upto 50 grams.
Sensitivity Drift	Maximum ± 0.00015 %
Display	LCD
Calibration adjustment	Built in and also external calibration with 50 gm class 1 wieight we
Power Supply	Should operate on 230 ± 10 volts, 50 Hz, AC
Weight Required	0.1 mg, 1 mg, 10 mg, 100mg, 1gm, 5 gm, 10gm, 50gm.
Other requirement	<ol style="list-style-type: none">1. The instrument should be supplied with Instruction / operation / maintenance manual and dust cover.2. Calibration Certificate from NIST certified (or Equivalent) Laboratory should accompany the analytical balance.

Autoclave (Vertical Sterilizer)

Capacity : **Different capacity up to 40 liters.**

- The inner and outer chamber should be made of high grade stainless steel sheet.
- Sturdy construction of inner chamber with high quality of stainless steel.
- Double safety radial locking arrangement.
- Safety valve and pressure release valve.
- Analog pressure display.
- High quality electric heater.
- Should have microprocessor based digital temperature controller with LED display to set desired temperature.
- Temperature range: 121°C – 130°C
- Pressure gauge
- Pressure range: 1.2 Kg/cm² (15PSI) at 121°C.
- Alarm system after completion of command.
- Stainless steel aluminum carrier basket.
- Power supply 220 / 230 Volt, AC, 50 / 60 Hz.
- To be supplied with spare gasket (2 nos.), Electric cord.

BOD Incubator

Material Double / Triple walled construction with	<ol style="list-style-type: none"> 1. Outer body made of mild steel painted with white coated enamel. 2. Inner chamber made of stainless steel. 3. Castor wheel for easy movability. 4. Two / three adjustable perforated shelves (SS) will be provided. 5. Door with magnetic gasket with lock & key arrangement.
Capacity	10 CFT/285 Ltrs.
Insulation	75mm gap between the walls is filled with high grade super fine mineral glass wool / PUF for proper insulation and avoid thermal loss.
Temp Range	15°C - 60°C with an accuracy of $\pm 0.5^{\circ}\text{C}$ or better.
Temp control	Microprocessor based Digital controller.
Cooling	Hermetically sealed high performance CFC free compressor (emersion) with its protective device works efficiently to cool the chamber cooling coils are distributed evenly & lie in the air circulation path.
Blower	Air is circulated by a couple of self-cooling motor with fans to keep the temperature uniform throughout the inner chamber.
Power	220 / 230 Volt, AC, 50 / 60 Hz Mains

COD DIGESTER with aluminum heating block system:

Should feature Temperature and time controllable facility in the system. The digestion set should consist of thermo reactor, test tubes, air coolers, insert frames, air cooler stand, cooling trough, magnetic agitator, selective exchanger.

Heater block should have

- Over temperature protection standard
- Safe to operate – all expose parts are at low temperature.
- Housing in Aluminum
- Leakage protection(for acid)
- Constant temperature, precision surface heating over the entire base plate.
- Systematic spacing of the tubes(at least 8 tubes)
- Temperature range: 40- 400°C
- Separate controller with cable
- Borosilicate reaction vessel
- Reaction vessel capacity of 250 ml

Temperature and time controller:

- Temperature range: Up to 399°C
- With one parameter setting, the specified temperature and time sequence runs automatically.
- Safety functions to ensure that the equipment cut off in the event of short circuit or interruption of temperature sensor signal.
- Temperature control: PID characteristic, with anti-drift control
- Accuracy: ± 0.5 C of set temperature,
- Time control: 0-999min, with simultaneous display of set point and remaining time to run

CONDUCTIVITY METER**Technical Specification**

Control	Microprocessor with all function all function automatically
Modes	Conductivity, Temperature, salinity
Display	LCD, simultaneous display of Temperature and Conductivity
Conductivity Range	0.0 to 199.9 μ S; 200 to 1999 μ S 2.00 to 19.99 mS
Auto Ranging Resolutions for	0.1 μ S (0.0 to 199.9 μ S)
Respective determination ranges	1 μ S (200 to 1999 μ S) 0.01 mS (2.00 to 19.99 mS)
Accuracy	\pm 2% (at Full Scale)
Temperature Range	0.0 to 50 $^{\circ}$ C
Temperature Accuracy	\pm 0.50 $^{\circ}$ C
Resolution	0.1 $^{\circ}$ C
Offset	0.1 $^{\circ}$ C increments
Calibration	Up to 3 points (push button; 1 point per range)
Cell Constant	0.1 to 10 (Adjustable)
Salinity measurement	0 to 40% in direct display
Temperature Compensation	Automatic, at 0.0 to 50.0 $^{\circ}$ C Reference
Temperature	Factory set at 25 $^{\circ}$ C
Temperature Coefficient	Factory set at 25 $^{\circ}$ C
Inputs	BNC, Temperature Probe, Power, Reference etc.
Power	9V alkaline & online for 220 V
Accessories	Power chord, Operation and Service Manual (2copies each), Electrode stand (Preferentially Flexible), Breakers for calibration)
Warranty	2 years from date of installation and Operation

Dissolved Oxygen (D.O.) Meter

Features	Water tight, impact resistant and corrosion resistant housing. Mains (230±10 volts/50 Hz) through charging transformer and battery (rechargeable) operated. Built-in storage pocket for Dissolved oxygen cell, stand/ carrying handle and shoulder strap.
Control	Microprocessor with functions automatically controlled
Modes	mg/l- % - °C
Display	mg/l, % : LCD 3½ digit ; °C: 3½ digit, both at least 10 mm high
Measuring Range	0.0 to 50 mg/liter, % saturation 0 to 600 %
Accuracy	0.5% ±2 digit of measuring value(0.01 level)
Temperature compensation	0 to 50 °C
Atmospheric Correction pressure	Automatically by integrated pressure sensor
Salinity Correction	0 to 40% salinity
Temperature Measurement range	0 to at least 50 °C
Accuracy	0.2 K ± 2 digit
Ambient Temperature	Up to 50 °C
Calibration	Should be automatic and precise in water vapour saturated air/ in water, saturated with oxygen.
Oxygen Electrode	Should be membrane covered amperometric oxygen electrode, suitable for the measurement of DO upto 2 m depths, should be zero current free and pressure resistant. Should be provided with calibration and maintenance kit and storage holder.

Additional item: System should be complete in all respects for D.O. measurements, and should be provided with Funnel set, stirring accessory, Fixing ring, operational manual, dust cover, power cable, 2 meter electrode cord, charger for battery (230±10) V 50 Hz and plug with spare and maintenance parts for 2 years of continuous operation.

FILTRATION ASSEMBLY WITH VACUUM PUMP

Filter Holder:

Material	Stainless steel lid, funnel, base, clamp and filter support.
Funnel	Stainless steel, 316 grade funnel , 47 mm dia, 650 ml capacity
Connections	Outer diameter of base outlet 10 mm
Operating pressure	Vacuum only

Vacuum pump:

Type	Vacuum pressure pump 1.2 cfm (34 lit/Min), free air capacity, piston vacuum pump type, vacuum hold, 27.2 inches, pressure 102 psi, wetted parts material PPSE/Stainless Steel, analog (vacuum pressure monitor), pump protection by FA 50 Filter, duty circle, continuous heavy duty.
Mains Voltage	230 ± 10 volts/ 50 Hz AC
Maximum Ambient Temperature (°C)	40

The Assembly should be complete with stopper, suction flask of 1 litre capacity, side arm flask(borosilicate), vacuum hose, stainless steel forcep, power cord with plug , and toggle switch.

HOT AIR OVEN

Specifications:	
Chamber	Stainless Steel (304 Grade)
Shelves	02/03 Nos. (S. Steel perforated adjustable shelves)
Size (inner)	18" x 18" x 18" (450x450x450mm)
Outer Body	Mild Steel with powder coated.
Door	Double Walled Insulated Door with heavy hinges and Door Lock.
Insulation	High Grade Glass wool insulation (75 mm)
Temp. Range	5°C above ambient to 250°C
Controller	Microprocessor based LCD Display Digital Temperature Controller cum Indicator with Date/Time Display.
Safety Features	An Additional inbuilt thermostat to be provided to Cut off power supply in case the Controller fails
Air Circulation	An Inbuilt Air Circulation Fan with Motor to maintain Temp. uniformity inside the Chamber.
Timer	Digital with range 0-24 Hrs. Automatic Timer.
Heaters	ISI Marked Heating Elements.
Power	220 Volts (\pm 10 Volts), Single Phase, 50 Hz.

Item Code No.: 09

Microbiological Incubator

- Microbiological Incubator with micro-processor based to work at constant temperature between 5 °C above ambient to 80 °C ± 0.5 °C provided with precise electronic temperature controller with digital read out.
- Heating elements placed in the ribs at the Bottom and sides.
- Sturdy and double walled inside chamber of Stainless steel. Outer chamber of powder coated **mild steel**.
- High Grade Glass wool/ PUF insulation.
- ISI marked Heating element.
- Air ventilation to be provided on the top of the unit.
- All the control switches and pilot lamps should be fitted on the front Panel.
- Tray should be adjustable and be supplied with stainless steel wire Mesh.
- Inbuilt air circulation fan with motor to maintain temperature uniformity inside the chamber.
- The chamber has the doors, inner full view glass door, outer metallic Door with positive locking.
- Operation : 230 \pm 10 V 50 / 60 Hz AC
- Size: 14"x14"x14"(350x350x350mm)

Laminar Air Flow(Horizontal)

Specification:

External dimension (LXWXH) approx..	48X35X58 (Inches)
Filters	High efficiency particulate air (HEPA) filters with a minimum efficiency of 99.99% at 0.3 micron
Pre filter	Washable type pre filter with high efficiency
Construction	Laminated finish / 18 gauge stainless steel
Air Flow	90 FPM (0.45m/s) \pm 10 FPM (0.05 m/s) average velocity measured 6 in (152.4mm) from the diffuser screen. Uniformity \pm 20% of average or better.
Noise Level	Low noise level
Motor/ Blower assembly	Direct drive, continuous heavy duty motor blower assembly to reduce noise & vibration and in dynamically balanced
Options	Electrical outlet, Magnetic pressure differential gauge, Mini pleat HEPA / ULPA filter, gas / vacuum/ Air inlet nozzle. Complete with laminated finish.

pH Meter

General Requirement:

Light weight, Bench top, Sensitive microprocessor controlled digital pH meter and corrosion resistant.

Range	
pH	0.0 to 14.00
mV	± 1600
Temperature, °C	0 to 100°C
Resolution	
pH	0.01
mV	0.1
Temperature, °C	0.1
Accuracy	
pH	0.01
mV	0.1
Temperature, °C	0.1
Display	Custom LCD
Temperature compensation	Automatic 0 to 100 °C
Buffer recognition	Automatic and Manual
Power calibration	9V battery and 230 VAC adapter. Minimum 3 stage (4.0, 7.0 and 10.0 pH) or multistage calibration with additional buffer solution of pH 2,5,8 7 & 9 etc.
pH buffer pouches	4.0, 7.0 and 10.0 pH(traceable to NABL)
Combined(pH + temp) electrodes	Two(One as spare)

The system should be complete with measuring electrode, calibration and maintenance kit, detailed operation and maintenance manual(English), dust cover, power cable and plug compatible with Indian sockets and spares and consumables for three years continuous use.

UV-Visible Spectrophotometer

1. PC Controlled Real Double Beam UV-Visible Spectrophotometer which measures sample and reference signal exactly at the same moment.
2. Wavelength range should be from 190 to 1100 nm. Abeyance
3. High scanning speed from 12,000 nm to 15,000 nm or more is preferable.
4. Internal holmium oxide filters for automatic wavelength calibration.
5. Quartz coated optics.
6. Automatic lamp changing should be programmable by the user and can easily be switched off through the software.
7. Should have second cell position directly in front of the detector areas for measuring turbid samples.
8. Light Source: Combination of Halogen and Deuterium lamp/High through put Xenon lamp.
9. Spectral bandwidth: 1.4 nm / 1.5nm.
10. Wavelength accuracy (Deuterium line at 656 nm): ± 0.1 nm.
11. Wavelength reproducibility (With holmium oxide filter): ± 0.02 .
12. Photometric display: - 8 A to 8 A.
13. Photometric range: 3 A to 3 A.
14. Baseline stability at 500 nm: 0.0001 (RMS).
15. System should be supplied with holder for round cells suitable for measuring ready-to-use Water testing kits.
16. Should be supplied with dedicated software for water analysis and routine kinetics.
17. All the high end optics in the Spectrophotometer should be covered with ten years long term warranty.
18. Suitable Branded desktop PC and DeskJet printer should be supplied for the operation of Spectrophotometer.

Turbidity Meter

Should be a laboratory and Portable, suitable for measurements even for coloured samples, and with the following specification.

Display	Digital (LED)
Ranges(NTU)	0-10, 10-100, 100-1000
Accuracy	±2% of full scale 1 & 1000 NTU ±1% of full scale 10 & 100 NTU
Reproducibility	Less than 0.1% of full Scale
Resolution	0.01 for 0-0.01 NTU
Stray Light	Less than 0.01 NTU on 0-10 range
Air Purge	0.1 cfm at 20 psi/max instrument air
Power Requirement	Should operate on 230 ± 10 volts, 50 Hz, AC
Construction	Epoxy-coated steel case should be complete with necessary, instructions manual, power cable and plug, and dust cover, Cuvettes and cuvette stand.

Water Distillation Assembly

Double Glass distillation unit with quartz heater in built temperature switch (AUTO CUT OFF system) to protect 3.3 borosilicate glass parts & Quartz Heater.

- Dust Water Output Cap.(Approx.): 20 Lit/hr.
- Electrical Requirements: 230-250 volts, single phase 2 x2.5 kW
Quartz heater for each boiler.
- Minimum Cooling Water Requirement: 1 Lit/ Min.
- Biological Activity: Pyrogen free
- Conductivity S/cm: $<3 \times 10^{-6}$
- AUTO CUT- OFF: in built
- ISO 9001:2018, CE AND GMP CERTIFIED

Water Bath

Double wall, inner chamber SS304 grade & outer M.S. Powder coated finish / SS with wool insulation and concentric.

- Housing in Aluminium
- Temperature range: 5 °C above ambient to C to 100 °C
- Temperature accuracy: $\pm 1^{\circ}\text{C}$
- Temp control: Primary-PID,

- Top lid with 6 nos. holes with 75 mm dia
- Safe to operate expose parts one at low temperature.
- Capacity: 8 to 10 liters
- Working depth: 6"
- Power: 220 / 230 Volt, AC, 50 / 60 Hz.

Precision Balance

Readability	0.1 mg upto at least 200 grams
Weighing Range	at least upto 200 grams
Tarring Facility	Entire range
Repeatability	0.1 mg upto 200 grams for 0.1 mg accuracy weighing
Sensitivity Drift	Maximum ± 2 ppm / $^{\circ}\text{C}$
Linearity	$0 \pm 2\text{mg}$
Stability Time	Approx. 2 sec
Display	LCD (Digital)
Calibration adjustment	Built in Motorized weight
Power Supply	Should operate on 230 ± 10 volts, 50 Hz, AC
Calibration	Auto Calibration Facility.
Standard weight	Standard weight of E1 Class traceable to National / International Standards(50 grams & 100 grams)

The instrument should be supplied with Instruction / operation / maintenance manual and dust cover. Calibration Certificate from NIST certified (or Equivalent) Laboratory should accompany the balance.

Item Code No.: 17

Portable Analyzer kit (pH, Dissolved Oxygen and Conductivity Meter)

The multi parameter meter should have microprocessor controlled splash proof corrosion resistant and impact resistant. Waterproof Handheld, protection for meter (IP67) and probe (IP68). Meter to accept both alkaline and rechargeable batteries.

Specification:

pH:

Range: 0.00 to 20.00 pH
Resolution: 0.1, 0.01, 0.001 pH
Accuracy: ± 0.002 pH

ORP:

Range; ± 2000.0 mV
Resolution 0.1 mV
Accuracy ± 1.0 mV

ISE/ION:

Range: 0 to 19999
Resolution upto 3 significant digit
Accuracy ± 0.2 mV or $\pm 0.05\%$ of the reading

Dissolved Oxygen:

Range 0.0 to 90 mg/L
Resolution 0.01 mg/L
Accuracy: ± 0.2 mg/L
Calibration points: 1.0
Probe: Galvanic with integrated temperature

Conductivity:

Range: 0.001 μ S to 3000.000 mS/cm
Resolution: Minimum 0.001 μ S minimum
Accuracy $\pm 0.5\%$ of reading

Temperature

Range -5.00 to 105.00°C
Resolution 0.1°C
Relative Accuracy: ± 0.1

Calibration:

Upto 5 point calibration.

Power:

AAs Batteries/Optional facility to operate with universal AC Adapter, 100-240 VAC

Warranty:

Minimum 3 years for meter and 1 year for Electrode

With the following accessories:

Main portable pH/ISE/Conductivity/D.O.Meter with pH/ATC probe with 3 metre cable length; Conductivity cell with 3 metre cable length; D.O. probe with 3 metre cable length with calibration kit; pH buffers; electrode storage solution, Conductivity Standard; Rinse Solution; Protective armor with probe holders; Hard carrying case and batteries(installed)

Item Code: 18

Compound Microscope (Binocular) with Digital Camera

Objectives	Parfocalled, par centered, achromatic
Functions	Count, capture, measure, record, amalgamate, Internet meeting
Illuminator	20 W halogen with rheostat
Stage dimensions	145 mm x 135 mm, 76 mm x 50 mm movement range
Pixel	640 x 480 with PCI card
Resolution	320 x 240, 480 TV lines
Shutter speed	30 fps
Output	Digital
Cable(s)	USB, RCA-Video, S-Video
Data transfer	7.5 mb/sec.
Magnification	4x /10x /40x /100x
Power	230 VAC, 50 Hz

Respirable Dust Sampler (PM10)

Flow Rate	0.9 - 1.4 m ³ /min free low
Particle size	Particles of 10 microns & below collected on filter paper holder
Elapsed time indicator	Up to 9999 hours with 2 decimals
Sampling Time	28 hours (maximum).
Automatic sampling	24 hours programmable timer to automatically shut-off the system after preset time interval.
Blower	Noiseless & brushless continuous duty rated induction motor driven blower
Cyclone	Sharp cut off to 10 microns
Gaseous Sampler	
(a) Flow Rate	0.2 to 2 LPM
(b) Flow Control	Four inlets and one outlet with built-in needle valve for flow control of each unit.
(c) Sampling train	4 Nos. of 35 ml Borosilicate glass impinges
Additional Supply	Manufacture standard operation kit including all required items, fillings for startup/regular operation of the instrument, operation & maintenance manual.
Warranty	3 Years including replacement of equipment's/ part found manufacturing fault/malfunctioning. Periodically re-calibration (before expiry of the previous) from accredited authority is mandatory under this warranty

PM2.5 SAMPLER (US-EPA Approved)

The equipment should be portable, beta gauge, accurate and real time measurement for fine particulate matter automatically.

Flow rate	16.7 litre per minute , adjustable
Flow Accuracy	± 2% of reading, volumetric flow control
Range	0-65 mg per cubic metre
Measurement Cycle	Hourly measurement with 1,5,10,15 or 30 minute real-time averages
Beta Source	C14, less than 75 microcurie, Half-life 5730 years
Detector	Scintillation probe
Analog Out put	0-1 V, 0-2.5V, 0-5V selectable hourly or real-time output
Filter Tape	Continuous Glass Fibre filter
inlet	Compatible with EPA PM _{2.5} and PM ₁₀ inlets
Sample Pump	Dual diaphragm type, DC powered, 4000 hrs rating
Power requirement	230 ± 10 VAC/12 V DC
Operating Temperature	10 ° C to 50 ° C
Special Features	The system should have an option to be used for PM ₁₀ sampling
Calibration Unit	Calibration unit to calibrate the flow rate of the instrument
Additional supply	<ol style="list-style-type: none"> 1. Aluminium Tripod 2. Ambient Temperature Sensor 3. Volumetric Flow Control 4. Weatherproof Enclosure 5. Filter Temperature Sensor 6. Filter RH Sensor 7. Filter Pressure Sensor 8. Calibration Membrane 9. Zero Calibration Kit 10. Leak check valve 11. PM_{2.5} Sharp- Cut cyclone

Stack Monitoring Equipments

Specification:

S. N.	Item/Equipment	Specifications/Applicable ranges
General Requirements		
1	Stack Velocity Range	0 to 60 m /sec
	Stack Temperature	Range: 0 to 600°C or more
	Particulate Sampling	2 to 30 lpm
	Filter Holder	Fabricated from SS304 Tube suitable to hold either cellose filtration thimbles (size: 20mm x 100mm) or glass micro fibre thimble (size: 19mm x 90mm)
	Gaseous sampling	At 1 to 2 lpm collection on a set of impingers containing selective reagents.
2	Pitot tube	Pitot tube shall be modified "S- type" fabricated from SS 304 or equivalent grade. The construction feature should be as per EPA regulation and the coefficient of the pitot tube should be above 0.95.
3	Sampling probe	Sampling probe shall be fabricated from SS 304 tube (1m length extended to 1.5m)
4	Nozzles	Nozzles shall be fabricated with SS 304 or equivalent material with internal diameters suitable to cover the full range of stack velocities. The leading edge of the nozzle should be sharp and tapered.
5	Thermocouple	Thermocouple sensor shall be provided with analog or digital dial gauge capable of measuring temperature from 0 to 600 °C or more covered with stainless steel or mild steel casing with acid resistant treatment.
6	Mounting flange	A pair of male/female flanges fabricated with mild steel with proper hole for mounting thermocouple sensor, sampling tube and pitot tube.
7	Back panel	Back panel shall be hinged door panel of mild steel to contain cold box with 8-10 impingers.
8	Manometer	Digital with 0 to 1300mm of H ₂ O ranges
9	Rotameters	0 to 30 lpm for particulate monitoring and 0 to 3 lpm for gaseous monitoring
10	Stop-watch	0 to 60 minutes, one second readout with hold facility.
11	Impinger	4 numbers of 120 ml and 4 numbers of 240 ml capacity. Facility should be there for keeping ice at the bottom of impinger box. Electrical cooling is desirable.
12	Connectors	Push and close type quick connector.
13	Vacuum pump	Vacuum pump shall be of rotary van type, oil fabricated, single phase motor, 220 V. The pump should have a moisture trap and air inlet valve.
14	Dry gas meter	The sampling train shall have a dry gas meter with the facility for measuring temperature and static pressure. The capacity of the meter should be adequate to record upto 60 lpm of airflow and a minimum readout of 0.001 cubic meters.

S. N.	Item/Equipment	Specifications/Applicable ranges
15	Pump housing	Mild steel case with oven- baked stove enamel finish and ON/OFF switch with indicator lights.
16	Tools	A Kit containing the essential tools for connecting various components shall be provided with the equipment.
17	Isokineticity	The kit shall be capable to perform continuous monitoring of isokinetic condition through out the sampling period
18	Temperature at metering point	Temperature measuring device at metering point shall be provided (0-50°C)
19	Vaccum measurement	Digital/analog vaccum pressure drop measurement device in mm Hg should be provided in stack kit.
20	Train leakages	The sampling train shall be tested for leakage by plugging the inlet. The rotameter shall not give a reading beyond 5 lpm when the flow has been set at 100 lpm. The dry gas meter shall also give a reading of less than 5 percent of the airflow.

TKN Digestion and Distillation Unit

Specification:

Speed Digester:

Digestion system for 6 sample tubes with

- Adjustable IR-heating.
- Tight suction module to prevent the escape of sulphuric acid vapors during digestion.
- Robust design with stand-alone tube holder made from stainless steel.

Complete and ready-to-use system supplied with the following:

- The insulation plate as well as the optimal designed heating chamber guarantees that the sample tubes are heated with optimal thermal homogeneity.
- Sample tubes 300ml (diameter 48 mm), 100mL or 500 mL with constricted condensation zone. Glass thickness for sample tubes atleast 2.2mm.
- Stand alone rack.
- Operating voltage 110-120V \pm 10% / 220-240 V \pm 10%
- Frequency 50/60Hz
- Power consumption 2000 W
- Temperature range 70-580 °C

Distillation Unit:

For Steam distillation unit for nitrogen and protein determination, featuring a high performance steam generator for efficient steam distillation, with glass splash protector or plastic splash protector for visual control of the distillation process. A safety switch interrupts power supply when opening the service door. Additional sensors monitor the protective shield and check if a sample tube is present before allowing starting a distillation.

- Cooling water control.
- Alkali addition
- Recall of last dosage.
- Classical nitrogen and protein determination in accordance with official methods (AOAC, EPA, ISO & DIN).
- Kjeldahi nitrogen and protein determination.
- Devarda and protein determination.
- TKN (Total Kjeldahi Nitrogen).
- Recovery Rate > 99.5%
- RSD < 1%
- Detection limit 0.1% Nitrogen.

Ion Meter

General Requirement:

The Ion Analyser should be microprocessor controlled splash proof corrosion resistant and impact resistant

S. No.	Specification	Requirement
1.	ISE range	0.0001 to 19900
2	Resolution	up to 3 significant digits
3	Accuracy	± 0.2 mV
4	Units	ppm, M, mg/l, %, ppb
5	Calibration Points	up to 5 points
6	Calibration Edit	Yes
7	Temperature compensation	-5 to 105 °C
8	Temperature Resolution	0.1
9	Readout	backlit graphic LCD display
10	Splash-proof rating	IP-54
11	Power input	220 Vlt AC Wall adapter/ Optional battery operated facility.
12	Stirrer (Optional)	Automatic Stirrer probe facility directly controlled by the meter.
13	Warranty	3 years
14	Ammonia Electrode	Ion-plus Combination electrode; Range: 0.01 to 17,000 ppm; Temp range: 0 to 50°C;
15	Fluoride Electrode	Ion-plus Sure-flow Combination electrode; Range: 0.02 ppm to saturated; Temp range: 0 to 80°C;
16	Nitrate Electrode	Ion-plus Combination electrode; Range: 0.1 to 14,000 ppm as N; Temp range: 0 to 40°C;
17	Cyanide Electrode	Ion-plus Sure-flow Combination electrode; Range: 0.2 to 260 ppm; Temp range: 0 to 80°C;

The instrument should be complete with connecting cable with 9-12 Volts Adaptor for 230±10 volts 50-60 Hz AC, dust cover, operation & maintenance manual along with the accessories with spares and consumables(filling solution, standard & ISA, TISAB) for two years of its continuous use.

CHECK LIST FOR THE BIDDER

1. Bid on original Tender form only.
2. Separate EMD against each item.
3. Earnest money or necessary documentary proof for exemption of earnest money with the part 1 of the bid.
4. Price bid must be Part III of the bid in the form provided at Annexure II of the tender document.
5. The Basic Price, Taxes, Packing, Forwarding, Handling, Transportation Insurance, Installation charges etc. must be quoted clearly. Do not use vague terms like "As Actual, Approximately etc".
6. Do not use the terms As per Specification of Tender Documents' in respect of instruments. There should be proper write up of production quoted for supported with printed leaflets literature.
7. In case the bidders desirous to quote more than one item, separate envelope should be submitted (technical & price bid) for individual item super scribing item code number and name.
8. With technical bid, the bidder should provide a copy of the price bid format (giving details of the items, accessories, spares etc.) without specifying the price other than one mentioned in annexure-II of this tender document.
