QUOTATION DOCUMENTS WITH SPECIFICATIONS AND TERMS & CONDITIONS

Pollution Control Board, Assam
Bamunimaidam, Guwahati-21
Phone : 0361-2550258; FAX 0361-2550259
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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 Quotation (Annexure-IV)
ix) Check List.

POLLUTION CONTROL BOARD:: ASSAM
BAMUNIMAIDAM; GUWAHATI-21
Website: www.pcbassam,org

No. WB/LB-16/Pt-I/97-98/299 T1147 Dated Guwahati, the 05th August' 2011

QUOTATION NOTICE

Sealed Quotations are invited from reputed Manufacturers/Authorized dealers/Suppliers for supply of scientific equipments to the Pollution Control Board, Assam. The document containing list of instruments along with detailed specification and terms and conditions will be issued from 12th August, 2011 during office hours.

Price of the document	:	Demand Draft of Rs. 400/- (by hand) and Rs. 500/- (by Post) in favour of Member Secretary, Pollution Control Board, Assam payable at Guwahati.
Last date for submission of Quotation	:	4.00 PM of 13th September, 2011
Date of opening of Quotation	:	11.00 AM of 14th September, 2011

Member Secretary 05.08.11

Memo No. WB/LB-16/Pt-I/97-98/299-A, Dated Guwahati, the 05th August' 2011

Copy to: T1147

1. The advertisement Manager "The Assam Tribune" / "JANASADHARAN" for information and necessary action. It is requested to publish the Quotation notice immediately in one issue of the News Paper with intimation to the undersigned.
2. Notice Board/website of Pollution Control Board, Assam.
3. Accounts Branch of the Board for information & necessary action,
4. Concerned file.
5. M/s.....

Member Secretary 05.08.11

GENERAL TERMS AND CONDITIONS

1. Bidder must pay for the Quotation document, without which Quotation will not be accepted.
2. The Board takes no responsibility for delay or non receipt of Quotation Document sent by post either way and also reserves the right to accept; or reject any or all the Quotations 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 Quotation notice, Quotation forms, Specification etc are also available on PCBA's website **www.pcbassam.org**. Bidders using down loaded Quotation forms must submit a separate Quotation fee by Demand Draft alongwith the technical part of the bid. The Quotation without requisite Quotation fee will be rejected.
5. The Board at its discretion may extend the last date of submission of Quotation and opening of Quotations. The final authority for acceptance of a Quotation will rest with the Chairman, Pollution Control Board, Assam who does not bind himself to accept the lowest Quotation and is vested with the authority to reject any or all of the Quotations received without assigning any reason.
6. 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.
7. Any overwriting, erasures and interlineations should be initiated by the bidder, without which such bid will not accepted.
8. Outside bidder should send the Quotation through Registered post. Board is not responsible for not receiving any Quotation within the last date of submission of Quotation. However, local bidder can drop their Quotation in the Quotation box kept in the office for the purpose.
9. Canvassing in any form will disqualify the Bid.
10. The Quotation Notice **No. WB/LB-16/Pt-I/97-98/299 dated 05.08.2011** should be invariably be quoted in the bid and for further correspondence in this regard.
11. The courts at Guwahati shall have exclusive jurisdiction to entertain and try all matters arising out of this contract.
12. All the Quotations 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 QUOTATION 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 QUOTATION 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. QUOTATIONERS SHOULD COMPLY THE ABOVE INSTRUCTION.

3. The Quotation is to be submitted "single stage-2 envelops system" i.e. the first sealed envelope will contain 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-I/97-98/299/1147 dated 05.08.2011 due on 13.09.2011 for Supply of Scientific Equipments.** The second 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-I/97-98/299/1147 dated 05.08.2011** for instruments & equipment". Both 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 **"Quotation for the Item no. ….".** The senders' address should be mentioned in all envelopes.

4. Item Code number(s) should be mentioned invariably on all envelopes.

   Technical & Commercial part of the Quotation will be opened at **11.00 AM on 14.09.2011** in the office of the Pollution Control Board, Assam, in presence of the representatives of the Quotationers who would like to present. Sealed Price part of Technically and Commercially acceptable Quotations will be opened on a later date in the presence of purchase committee of the Board.

5. The EARNEST MONEY shall be in the form of Demand Draft only in favour of **"MEMBER SECRETARY, POLLUTION CONTROL BOARD, ASSAM"** payable at GUWAHATI. Quotation shall not be entertained where a Quotationer 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.
6. 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 Quotation along with the bid. (EMD Exemption will be granted only to those items specified in the certificate of Registration).
7. 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 warranty period is over.
8. The validity of Quotation would be for a minimum period of 180 days from the date of opening of Quotations. A Bid valid for a shorter period may be rejected by the Board as non responsive.
9. 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.
10. 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.
11. 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 QUOTATION DOCUMENT" SHALL NOT BE ENTERTAINED. THE PRODUCT SPECIFICATIONS SUPPORTED BY TECHNICAL LITERATURE AND LIST OF USERS MUST BE ENCLOSED.
12. 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.
13. With the submission of the Quotation, the Bidders are deemed to accept the terms & conditions of the Quotation.

14. 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.
15. 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.
16. The Bidder must sign each and every folio of the Quotation.
17. 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.
18. The bidder should provide a complete list of spares and consumables required for operation and maintenance of the instruments along with bids.
19. The instrument for which Quotations are invited will have to be supplied within 30 days from the date of issue of purchase order. In case of non-observance of the delivery period, the order will be cancelled.
20. 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.
21. 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.
22. The warranty/guarantee of the instrument/equipment should be clearly mentioned in the Bid.

23. 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.

24. THERE IS NO NEED TO ENCLOSE THE ENTIRE QUOTATION 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.

25. Full payment will be released on delivery, installation and successful commissioning of the instruments/equipment (to be certified by concerned Scientist/In charge of the Division), and on submission of bills in triplicate. No advance payment will be made in any case and no proposal for documents through Bank will be considered.

Annexure-I

S. No.

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) :

3) Item Code Number(s) & description of item quoted for. :

4) Whether Earnest Money Deposited (Amount: Rs. :

5) If yes, Demand Draft No, Date and Name of issuing Bank. :

6) Validity of Quotation :

7) If the Quotation documents are accepted in full (Yes or No) :

8) Income Tax Clearance Certificate attached (Latest) (Yes or No) with PAN Number. :

Place:

Date : Legally Binding Signature with stamp

Annexure -II

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 Quotation)

Sl No and Item code Number of instruments as per our Quotation Document	Name of Instrument	The Specification offered by the Bidder	Difference in Specifications of Quotation 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

Annexure – III

UNDERTAKING

DATE_____

QUOTATION NOTICE NO_____

TO

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

Sir,

Having examined the conditions of Quotation 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.....2011

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

ANNEXURE - IV

SCHEDULE OF EARNEST MONEY

Item code No.	Name of Instruments/Equipments	Units	Amount of Earnest Money to be deposited through Demand Draft in Rupees.
1.	BOD Incubator	4 nos.	3000.00
2.	Bacteriology Incubator	4 nos.	2500.00
3.	Auto Clave	4 nos.	2500.00
4.	Water bath	4 nos.	2500.00
5.	Hot air oven	4 nos.	2500.00
6.	pH, Conductivity, DO meter (combined or individual)	4 nos.	5000.00 for each
7.	UV Visible spectrophotometer	4 nos.	40000.00
8.	Flame photometer	4 nos.	4500.00
9.	Ion meter (with electrode, reagents)	4 nos.	15000.00
10.	Flue gas analyser	4 nos.	40000.00
11.	Noise Level Meter	4 nos.	6000.00
12.	Smoke meter & HC-CO analyser	4 nos.	20000.00
13.	COD digester	4 nos.	15000.00
14.	Electronic balance	5 nos.	2000.00
15.	Spectrophotometer (Visible)	5 nos.	2000.00
16.	Water Purification System (Ultra pure)	1 no.	50000.00
17.	Flash Point Apparatus	1 no.	1500.00
18.	Distilled Water Plant	4 nos.	4000.00

Item Code No. 01

B.O.D. INCUBATOR

Material : Triple walled construction with :

- Outer Body made of Mild Steel painted with white Powder coated enamel.
- Inner Chamber made of Stainless Steel with ribs for adjusting perforated shelves at convenient height.
- Three adjustable Perforated Shelves (S.S.) will be provided.
- Full view inner Glass door with Aluminium Frame closes on a resilient gasket and permits inspection of the specimens, without disturbing the thermal conditions of the chamber.
- Cooling Unit is placed on heavy duty Iron angle Frame below the Chamber with Castor wheel for Movability.
- Door with Magnetic Gasket with Lock & Key arrangement.
- Illumination Lamp (15 W) will be provided inside the Chamber.

Insulation : 75 mm. gap between the walls is filled with high grade super fine mineral glass wool for proper insulation and to avoid thermal loss.

Temp. Range : 5 - 60 ^{o}C, with an accuracy of ± 0.2 ^{o}C or better.

Temp. Contr. : Temperature is controlled by LCD Display PID based Digital Temperature Controller cum Indicator with pt-100 sensor with Time/Date display.

Cooling : Hermetically sealed, high performance CFC Free Compressor (Emerson) with its protective device works efficiently to cool the chamber. Cooling coils are distributed evenly & lie in the air circulation path.

Heating : Fins Type Heating elements (ISI Marked) are placed in the path of moving air duly

insulated from sheet body.

Blower : Air is circulated by a couple of self cooling Motor with fans to keep the temperature uniform throughout the inner chamber.

Recorder : In built Temperature recorder with USB port for downloading the data on to computer. Data display in table and graph format.

Panel : Panel is located at the top of the Instruments.

- ON/OFF switch.
- Digital Temperature Controller cum Indicator.
- Cooling, Heating, Humidity & Main Indicator.
- Supplied complete with Voltage Stablizer, Instruction manual etc. To operate on 220 V, 1 phase, 50 Hz, AC supply.

To be provided with NABL Accredited Lab. Calibration Certificate for Temperature control of B.O.D.INCUBATOR.

Item Code No. 02

Bacteriological Incubator

- Incubator with micro-processor based temperature cum indicator with Sensor having temp. range from 5 ^{o}C to 80 ^{o}C +0.5 ^{o}C.
- 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 + 10 V 50 Hz AC
- Size : 14”x14”x14” (350x350x350mm.)

Item Code No. 03

Autoclave (Vertical Sterilizer)

- Should be with triple wall chamber i.e. with an additional SS steam Jacket for dry sterilization.
- Capacity : Different capacity upto 150 Liters starting from 40 liters
- Microprocessor based temperature control with digital display
- Timer function
- Analog pressure display/ pressure gauge
- Safety valve and pressure release valve
- High quality electric heater
- Sturdy construction of inner chamber with high quality stainless steel
- Insulated outer chamber
- Top loading design with effortless locking system
- High quality silicone door gasket/ o-ring
- Water level indicator
- Low water cut off system
- Stainless steel/ aluminium carrier basket
- Auto draining facility for reservoir tank water
- Alarm system after completion of command
- Pressure range 1.1 kg/ cm^2 – 2.2kg/ cm^2
- Temperature range 121^oC -138^oC
- Confirms electrical safety standards IEC-60601/IS-13450 (BIS)
- Should have calibration and inspection certificate from factory
- Power supply Ac 220/ 240 V, 50Hz
- Warranty : 3 years
- Temperature & Pressure controller to be certified by a NABL recognized Laboratory.

Item Code No. 04

WATER BATH

Should feature temperature and time controllable facility in the system.

- Over temperature protection standard.
- Safe to operate expose parts are at low temperature.
- Housing in Aluminium.
- Systematic spacing of the holes (6-8 nos. of holes) with variable size.
- Temperature range: 40° – 150° C
- Time control: 0 – 999 min with display of set point and remaining time.

Item Code No. 05

HOT AIR OVEN

Specifications

Chamber : Stainless Steel (304 Grade)

Size (inner) : 18" x 18" x 18"

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 : Ambient + 5^{o}C to 250 ^{o}C

Temp. Controller : 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 (± 10 Volts), Single Phase, 50 Hz.

To be provided with NABL Accredited Lab. Calibration Certificate for Temperature controller complete with Air Ventilator Ports, Main Lead & Plug.

Item code NO. 06

pH METER (Bench Top):

Table Model

Characteristics	:	Water tight, impact resistant and corrosion resistant housing, parallel temperature indication, Mains (230 ± 10 volts/50 Hz AC). Storage pocket for pH electrode.
Technical Specifications:		Microprocessor IC based with functions automatically controlled
Calibration	:	Automatic with NBS or technical buffers
Modes	:	pH - mV - ^{o}C
Displays	:	LCD, 3½ digits, atleast 10 mm high
Measuring range	:	0 - 14.00/± 1250 mV
Accuracy	:	± 0.01 pH resp. ± 1 mV ± 1 digit
Temp. Compensation:		For entire range with built-in temperature sensor

Temp. Measurement range: Upto atleast 50^{o}C

Accuracy	:	± 0.02 K ± 1 digit
Ambient temperature:		Upto atleast 50^{o}C

System should be complete in all respects and supplied with Measuring electrode combined glass calomel calibration and maintenance kit, operation manual, dust cover, power cable and plug, and spares and consumables for two years of its continuous use

Item Code No.06

CONDUCTIVITY METER

Characteristics	:	Should be water tight, impact resistant and corrosion resistant, Mains (230 ± 10 volts/50 Hz AC) and battery (rechargeable) operated, built-in storage pocket for conductivity cell, stand/carrying handle and shoulder strap.

Technical Specification

Control	:	Microprocessor with all functions automatically controlled.
Modes	:	Conductivity, Temperature, Salinity.
Displays	:	LCD, 3½ digit, 10 mm high.
Measuring ranges	:	0.00 mS/cm to 1999 mS/cm in at least four ranges.
Accuracy	:	Less than or equal to 0.5% measured value ± 1 digit.
Temperature compensation	:	For the entire range and automatically.
Cell constant	:	0.1 to 10 (adjustable)
Salinity measurement:		0 to 40% in direct display.
Temperature measuring range:		Up to 50^{o}C
Accuracy	:	± 0.2 K or less
Ambient temperature:		Up to 50 ^{o}C

Should be provided with charger for 230 V ± 16 V 50 Hz AC. System should be complete with measuring electrode calibration and maintenance kit, operation manual, dust cover, power cable and plug, and spares and consumables for two years of its continuous use.

Item code No.07

UV- VISIBLE SPECTROPHOTOMETER

Computer controlled spectrophotometer which can be used with, rectangular cells of upto atleast 10 mm thickness, and sipper flow through cell, having following specifications.

Optics type	:	Double beam
Wavelength range	:	should cover 190-1100 nm range
Wavelength readability	:	better than or equal to 0.2 nm
Wavelength accuracy	:	better than or equal to ± 0.5 nm
Wavelength repeatability	:	better than or equal to ± 0.5 nm
Spectrol band width	:	provisions should include atleast 2.0 nm SBW (slit band width).
Scan speed	:	should be wide range and should provide a maximum limit of atleast upto 800 nm/minute (variable).
Photometric range	:	should cover -0.500 ABS to + 3.0 ABS range
Photometric accuracy	:	better than or equal to 0.005 A at 1 A
Photometric noise	:	not more than 0.0005 A at 0 A
Photometric readout	:	should atleast provide ABS (four digit), % T and concentration modes.
Stray light	:	less than 0.01%
Drift	:	less than 0.0004 ABS/hr after warm up.
Power Requirement	:	(230 ± 10) volts/50 Hz AC operated

The system should provide facility for the storage of spectra/methods, multi wavelength mode, baseline correction, peak area and other statistical calculations. Software should be provided for water & environmental analysis (fixed programme along with user free programme).

Additional items to be supplied

(01) Printer
(02) Continuous flow based automatic sipper unit having sample return facility.
(03) Operation and maintenance manual.
(04) Analytical manual
(05) Rectangular absorption cells of 10 mm and 20 mm path lengths (Six Nos. each) of quartz glass.

Item code No.08

FLAME PHOTOMETER

The flame photometer is to be supplied with Sodium and Potassium filters. Calcium and Lithium filters are optional.
The flame photometers should have:
Display: LCD
Control: Micro controller based with printer port.
Mode /Sensitivity: Na:2 ppm
K: 1ppm
Li:1 ppm
Ca:20 ppm

Compressor: Low noise air compressor.
Analysis up to four elements in single aspiration
Automatic filter selection.
Measurement results can be recalled for display and printout.
RS 232 interface.

Item code No.09

ION ANALYSER

Should be Microprocessor controlled with RS-232-C output facility. The front panel should be splash proof, corrosion resistant and impact resistant. Should have the following specifications:

	Mode	:	pH, Concentration, temperature, MV, RMV
(1)	pH Range	:	0 - 00 - 14
	Resolution	:	0.01
	Accuracy	:	± 0.005
	Slope:		80 - 120%
	Calibration:		Auto two points calibration (automatic buffer Recognition)
	Temperature Compensation	:	Automatic throughout the range
(2)	Concentration: Range		up to 19900
	Resolution	:	± one at least significant digit
	Accuracy	:	± 0.5
(3)	Temperature Range	:	0 - 100^{o}C

	Resolution	:	0.1^{o}C
	Accuracy	:	± 1.0^{o}C
(4)	Millivolt Range	:	± 1500
	Resolution	:	0.1 mV
	Accuracy	:	± 2.0 mV or ± 0.05%
(5)	Timer	:	Date and time can be called up and recorded any time.
(6)	Display	:	Custom vacuum fluorescent with 17 character prompt line, feather touch keys
(7)	Ready	:	Indication of stable value reached
(8)	Blank	:	optional entry of blank or back ground solution. correction
(9)	Power	:	9 volts line adaptor for (230 ± 10) volts/50 Hz AC. Requirement In case of power failure, secure storage of all calibration and programme data.
(10)	Input	:	2 BNC/DIN, 2 pin tip/banana, ground, ATC, power, RS-232-C, printer
(11)	Drift	:	< 50 micro volts/^{o}C
(12)	Electrode	:	Complete electrodes for single junction, Double junction reference NO_3, F, CN, Cl, & pH alongwith instruction/application sheet standard accessories including electrolytes, standard solutions(ppm) etc.

The instrument should be complete with connecting cable with 9 volts adaptor for (230 ± 10) volts AC 50 Hz, dust cover, electrode stand (adjustable), operation and maintenance manual alongwith the accessories with spares and consumables for two years of its continuous use.

Item Code No.10

FLUE GAS ANALYSER

A portable gauged multi component flue gas analysers for semi continuous emission monitoring of industrial combustion sources suitable for use in harsh environment conditions of Indian Industries.

Simultaneous Analysis of:

• O_2	Electrochemical	0 – 21.0 %
• CO (H_2 compensated)	Electrochemical	0 – 10,000 ppm
• CO	NDIR	0 – 10 %
• NO	Electrochemical	0 – 4,000 ppm
• NO_2	Electrochemical	0 – 1,000 ppm
• SO_2	Electrochemical	0 – 4,000 ppm
• CO_2	NDIR	0 – 40 %
• Hydrocarbon	NDIR	0 – 25 %
• H_2S	Electrochemical	0 – 1,000 ppm

• Air temperature	up to 100 ºC
• Stack gas Temperature	up to 999 ºC

Calculated Parameters: Excess air, Combustion Efficiency, Losses, mg/m^3 CO/CO_2 ratio

The analyser should have the following features:

- Modern, rugged metal enclosure designed for rough applications
- Effective integrated suction pump, flue gas conditioner with cooler, auto condensate ejection pump & auto-zero solenoid valve
- Optimised filter elements for protection against dust and soiling
- Built-in high speed printer
- Integrated Peltier gas cooler for moisture removal & automatic peristaltic condensate pump
- Automatic System Diagnostics
- Large, high-contrast and lighted graphical display with zoom function
- Flow velocity measurement including airflow calculation. Pilot tube to be supplied.
- Different pressure measurement +/- 100 mbar
- Handheld remote display with 10 m transmission cable
- Simultaneous display of all measured parameters
- Use defined display & printout settings
- Large fuel type list including self choose fuels with user definable parameters
- Variable O_2 referencing for emission reports

- RS232 interface and data memory for approx. 2400 measurements
- Built-in Multi Media Card atleast 128 MB with suitable data logging software
- At least 8 Analog outputs, 4 – 20 mA
- Automatic interval measurement program
- Automatic print & data storage
- Data-visualization and evaluation software for WIN 9X, NT, 2000, XP
- Automatic zeroing by means of 3-way solenoid valve
- CO Sensor purge by means of 3-way-valve and 2nd pump for sensor protection & fast CO activity, with individual adjustable threshold valves
- Universal power supply: mains 90 – 264 V AC/ 100W, alternately 12 V DC power supply via socket

Standard accessories to be supplied with the analyser of basic equipment:

- 1500 mm sampling probe with 3 m heated, temperature regulated sample line
- 3 m RS 232 interface cable wth data visualisation software on CD ROM
- Mains power supply cable
- Pilot tube, length 1000 mm
- Spare filters (Pack of 5)
- Spare printer paper roll (Pack of 5)
- Operational Manual

Item Code No.11

Noise Level Meter

Technical Specifications:

Measurement Range	**:**	30 to 130 DBA in three 50DB overlapping ranges.
Error Indication	**:**	Over Range, under range and Low Battery.
Accuracy/Class	**:**	Type II designed for field use.
Display	**:**	LCD 16 Character, 2 Line Display with 0.1 DB resolution. Display of SPL, LEQ and SEL.
Frequency Weighting	**:**	"A" type as per IS 15575 (Part I) 2005.*
Time Weighting	**:**	SLOW and FAST as per 15575 (Part I) 2005 with peak detector facility.
Measurements	**:**	Sound pressure level (SPL), MIN SPL, MAX SPL, LEQ, Sound Exposure Level (SEL) and run time continuously available on the display by selecting appropriate display screen.
Operations Modes	**:**	Continuous and Recording. In Continuous Mode the SLM100 displays the current SPL level and LEQ, SEL etc. for the duration of current session of operation. In Recording Mode, current values of above parameters are displayed on the screen and LEQ, MIN SPL, MAX SPL, and SEL values integrated over a minute are recorded in the built in data logger. The SLM100 allows the user to record multiple files making it possible to make a detailed survey at several locations before downloading data to a PC for Analysis.
Memory capacity	**:**	The data logger provided in the SLM100 can store more than 24 hours data (at 1 minute intervals) in non-volatile Flash Memory.
Data Download	**:**	The SLM100 Sound level Meter has a built in RS232 Serial Port for direct interface to a PC.
Software	**:**	The instrument is supplied with a Windows compatible Software that allows data download to a PC and makes the data available in an Excel Spreadsheet for analysis and report preparation.
Battery	**:**	The SLM100 Sound level Meter is provided with a re-chargeable NIMH battery pack. The instrument will operate for 10 hours or more with fully charged battery. A built in battery status facility allows the user to check useable battery hours and automatically prompts the user when the battery is running low. To prevent battery damage the instrument will automatically shut down when the battery voltage drops to pre set level.

Item Code No.12

HC-CO ANALYSER:

Should have RPM measurement facility, automatic condensate discharge, gas flow indicator, and LED display, manual Zero setting, Span calibration and leak test error messages for low battery, low flow, no printer etc.

	Range	**Resolution**
CO:	0-10%	0.01%
HC :	0-1999 ppm	1ppm vol.(≤2000ppm) 10ppm vol.(>2000ppm)
RPM	500- 9999l/m	5 RPM

Warm up time:	5 mins. Approx.
Response time:	<10 sec.
Power supply:	230V AC, 50 Hz
Interface:	RS 232serial interface.

Item code No.13

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 8-12 tubes)
- Temperature range: 0- 200ºC
- Separate controller with cable

Temperature and time controller:
Temperature range: Up to 399ºC

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 antidrift control

Accuracy: ±0.5 K

Time control: 0-999min, with simultaneous display of set point and remaining time to run

Series Magnetic agitator for at least 12 test tubes simultaneously, for stirring during addition of acid.

Item code No.14

ELECTRONIC BALANCE (Micro weighing)

Readability	0.01 mg in the range of 40 to 60 grams. 0.1 mg upto at least 200 grams
Weighing Range	60 grams for 0.01 mg and 200 grams for 0.1 mg
Tarring Facility	Entire range
Repeatability	0.02 mg upto 60 grams, less than 0.1 mg upto 200 grams for 0.1 mg accuracy weighing
Sensitivity Drift	Maximum ± 2 ppm / ^{0}C
Display	LCD
Calibration adjustment	Built in Motorized weight
Power Supply	Should operate on 230 ± 10 volts, 50 Hz, AC
Optional	Standard weight of E1 Class traceable to National / International Standards (50 grams & 100 grams)

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.

Item code No.15

SPECTROPHOTOMETER (VISIBLE)

Spectral Band width	:	5 nm or better
Optical System	:	Double beam grating based single detector
Wavelength		
Range	:	325 to 1000 nm
Accuracy	:	Better than or equal to 1 nm
Readability	:	1 nm
Photometric		
Readout	:	Digital LCD Selectable for Transmittance (T), Absorbance (A), Concentration (C)
Range	:	0.00 to 125.0 T 0.000 to 2.50 A 0.000 to 1999 C
Accuracy	:	Better than 0.5% T or 0.005 A
Noise	:	Better than 0.0005 A at 500 nm
Drift	:	0.003 A /hour after warm up
Cell Holder	:	For holding up to 10 mm path length rectangular cuvette
Interface	:	RS – 232 C
Power	:	230 $\pm$ 10 V / 50 Hz AC
Standard item to be supplied	:	Two pairs of square glass cuvettes (10 mm pathlength) and 02 nos. of quartz cuvettes, Operation and maintenance manual (English), Dust cover, Power cable with plug to suit Indian socket.
Consumables and spares	:	Lamps – 2 nos.
Optional Accessories	:	Wavelength filters with certificate Holonium and Didymium

Item code No. 16

WATER PURIFICATION SYSTEM (ULTRAPURE)

S.No.	Particulars	Specifications
1.	General	Microprocessor controlled Water Purification System should comprise of primary continuous electro-de-ionization system attached to tank followed by secondary ultra pure polishing system with similar make. The material should not include any glass or fragile components. The system should capable of preparing two grade water i.e. reagent grade and ultra pure water grade.
2.	Power Supply	The complete unit should work on (230 ± 10) volts, 50 Hz power supply.
3.	1st Stage System	(i) The system should operate on municipal water supply, which will be made available to the system from an overhead tank. It should be able to operate further inlet water quality of Total Dissolved Solids (TDS) upto 1000 ppm and free chlorine upto 0.5 ppm.
		(ii) Output water of 1st stage system should meet the requirement of: a) Resistivity : 10-15 meg Ohms cm b) TOC : < 30 ppb c) Flow rate : Atleast 10 litre / hr d) Silicate rejection : 99.9% e) Free chlorine : Nil
		(iii) System must comprise of following: a) Activated carbon with anti-scaling compound b) TFC Polyamide RO cartridge with >100 Dalton cut off having 95-99% of organic and inorganic rejection c) EDI module having nuclear grade MB ion exchange resin where there is continuous regeneration of resin with simultaneous removal of the cation and anion giving product water in a single pass through the module d) A 254 mm UV lamp for < 1 CFU / ml bacteria count. e) Automatic cut off when there is inadequate water in the feed water line and when the intermittent tank is full to the capacity. f) The water quality parameter for feed water & product water should display for conductivity, Resistivity, temperature etc.
4.	Intermittent tank	(i) A cylindrical tank of HDPE material blow molded conical shaped bottom with storage capacity of 100 litres. (ii) Tank of same manufacturing make must be fitted with built in sensors for low/medium/high water level and vent filters having CO2 and volatile organic adsorbent and membrane filter for particle / biological removal.

S.No.	Particulars	Specifications
5.	2nd Stage System	(i) Ultra Purification Water System should take feed water from stage 1 via intermittent tank and give the following quality of water as output: a. Resistivity : 18.2 meg Ohms cm b. TOC : 1-5 ppb c. Microorganism : < 1cfu / ml d. Flow rate : 1 litre / min e. Cell constant (Resistivity cell) : 0.01 cm –1
		(ii) System must comprise of following: a. Should have two separate polishing cartridge where initial one should be feed specific and secondary cartridge application specific capable of effectively removal volatile organic and inorganic to trace levels. b. On line TOC monitor capable of measuring 1-999 ppb c. A duel – wavelength UV lamp (185 nm and 254 nm) for low TOC d. Attached with volumetric dispensing e. Display panel to provide system performance and operating parameter including alarm signals to enable auto diagnostics.
6.	Additional item	(i) Operation and maintenance manual (ii) Two sets of each cartridges for both 1st & 2nd system with UV lamps (iii) One maintenance kit for each system
7.	Other requirement	(i) Company / authorized distributors must provide five satisfactory performance / installation certificate during last three years. (ii) Minimum three years warranty from the date of installation.

Item code No.17

Flash Point Apparatus

- Should be capable of determining close cup flash point of petroleum products.
- Should contain:
  - Oil cup cover assembly.
  - Thermometer,
  - Socket
  - Electric heater,
  - Workable on 220V A.C.
  - Temperature should be controlled by energy regulator.

Item code No.18

Distilled Water Plant (Steel)

The Unit should be made of Stainless Steel inner and outer body. Compact design wall mounting dual safety output producing high purity, low conductivity, pyrogen free distillate.

Output Capacity : 2 lit//hr - 5 lit/hr.

Electrical power : 220V AC single phase.

Distilled capacity :

- Sp. Conductivity at 25^0C : < 2 µS/cm.
- TOC : Nil
- Total Solid : 0.1 mg/L
- Pyrogen : Free
- Distillate Temperature : < 65^0C

CHECK LIST FOR THE BIDDER

1. Bid on original Quotation 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 II of the bid in the form provided at Annexure II of the Quotation 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 Quotation 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 superscribing 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 Quotation document.

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