

Sl. No.

/ICB

TENDER NOTICE

No.C-47011/01-27/2014-15/ICB/Mat.

Dt. 23-07-2014

**CENTRAL POLLUTION CONTROL BOARD
'PARIVESH BHAWAN'
C.B.D. CUM OFFICE COMPLEX
EAST ARJUN NAGAR
DELHI - 110 032.**

Website:www.cpcb.nic.in

e-mail:cpcb@alpha.nic.in

INDEX

S.No.	Contents	Page No.
01.	Schedule of Tender	(i)
02.	Copy of Advertisement appeared in News paper	(ii)
03.	Details of Tender Notice	(iii) & (iv)
04.	General Terms & Conditions	1-8
05.	Payment Conditions	9
06.	Settlement of Dispute	10
07.	Laws & Regulations	10
08.	Force Majeure	11
09.	Injury & Damage	11
10.	Royalty & Patent	11-12
11.	Effectiveness	12
12.	Application Form	13
13.	Bid Form	14
14.	Undertaking	15
15.	Schedule of Earnest Money	16-17
16.	Location of delivery and installation, contact details	18-21
17.	Pre Contract Integrity Pact	22-28
18.	Specification of instruments/equipments	29-144
19.	Check List	145

CENTRAL POLLUTION CONTROL BOARD
(MINISTRY OF ENVIRONMENT AND FORESTS)
'PARIVESH BAHWAN'
C.B.D. CUM OFFICE COMPLEX
EAST ARJUN NAGARR, DELHI-32.

TENDER NOTICE NO.C-47011/01-27/2014-15/ICB/MATERIALS
DATED.23.06.2014

TENDER DOCUMENT FOR THE SUPPLY OF
LABORATORY INSTRUMENT/EQUIPMENTS.

Price of Tender Document

- i) By Hand : Rs. 800.00 or US \$ 20.
ii) By Post : Rs. 1000.00 or US \$ 25.
- Date of Sale of Tenders : 23-07-2014 to 22-08-2014 on all working days
between 11.00 AM to 5.00 P.M.
- Last date & time for submission of Tenders : Up to 10.00 A.M. on 25.08.2014
- Opening of Tenders : 25-08-2014 at 11.30 A.M.

DELHI

DELHI -110 032

(M. Varghese)
Administrative Officer (M)

TELEPHONE : 22308202, 43102030 Extn.243 & 245
FAX : 011-22308202, 22307078
e. mail : cpcb@alpha.nic.in
Website : www.cpcb.nic.in

**Central Pollution Control Board
(Ministry of Environment & Forests)
"Parivesh Bhawan" East Arjun Nagar.
Delhi – 110032. India
Tel. Nos. 22308202, 43102030 – Extn.243**

TENDER NOTICE

No.C-47011/01-27/2014-15/ICB/Materials.

Dated.23-07-2014

Central Pollution Control Board invites sealed tenders from the manufacturer/supplier in India & abroad for the supply of various Laboratory Instruments/equipments.

02. The Tender Document along with detailed specifications of the instruments can be obtained from the office of Administrative Officer (Material), Central Pollution Control Board, Delhi.

03. The request for tender documents sent by post will be accepted up to 14.08.2014.

- | | |
|---------------------------------|---|
| Sale of Tender Document | - From 23-07-2014 to 22-08-2014 on all working days between 11.00 AM to 5.00 PM |
| Cost of Tender Document | - By hand ₹-800.00 or US Dollar 20. By post ₹-1000.00 or US Dollar 25 (Tender fees only through Demand Draft/Pay order) |
| Last date & time for submission | - 25-08-2014 up to 10.00 AM |
| Opening date of Technical bids | - 25-08-2014 at 11.30 AM |

Bidder's using downloaded tender forms must submit separate tender fee by Demand Draft along with technical bid drawn in favour of Central Pollution Control Board, Delhi. Details of tender document, terms & conditions and Technical Specification may kindly be seen at our website www.cpcb.nic.in.

**(Member Secretary)
CPCB**

CENTRAL POLLUTION CONTROL BOARD
(Ministry of Environment and Forests)
"Parivesh Bhavan" East Arjun Nagar,
Delhi – 110 032, INDIA

DETAILS OF TENDER NOTICE

NO.C-47011/ 01-27/2014-15/ICB/MATERIALS:

Dated:23-07-2014

FOR SUPPLY OF LABORATORY INSTRUMENT/EQUIPMENTS

Sealed Tenders are invited on behalf of the Member Secretary, Central Pollution Control Board from Manufacturer/Suppliers in India and abroad for the supply of various Laboratory Instrument / equipments as listed below:

AOX Analyser 5, Balance (electronic top loading for media/broth) capacity 0.001gm 4, Bomb Calorimeter 5, Combined Nitrogen and Zero Air Gas Generator for GC/GC-MS 2, Echo Sounder 1, Elemental (CHNS) Analyser for Carbon, Hydrogen, Nitrogen, Sulphur 1, Flash Point Apparatus 5, Gas Chromatograph 1, Gas Chromatograph Mass Spectrophotometer (GC-MS) 3, Gas Chromatograph with Methanizer 1, Ion Chromatograph for water analysis 4, Ion Analyser with Fluoride, Nitrate, Nitrite, Cyanide and Ammonia Electrodes 6, Karl Fischer Coulometer with Oven for moisture analysis 4, Liquid Chromatograph Mass Spectrometer (LC-MS-MS) 1, Mass Flow Controllers of various ranges with Digital Readout and Control unit 4, Moisture Analyser 3, Multi Gas Analyser for indoor ambient air quality Monitoring 1, PM2.5 Sampler 23, Portable Calibrator 1, PUF sampler (for sampling of Ambient VOC, Dioxins) 9, Rotatory Evaporator with Vacuum Pump & Chiller 3, Ultrapure water system 1, Velocity Meter (Water) 3, Water purification system (RO/bacteria free) 3, Weighing Micro Balance (capacity 6.1g, minimum display 0.001mg) 6, Weighing Micro Balance (capacity 220g, minimum display 0.001mg) 4, Weighing Micro Balance (capacity 200g, minimum display 0.01mg) 2,

02. The Tender Documents along with detailed specifications of the instruments can be obtained in person on Production of authority letter of the Firm or by post from the office of the Administrative Officer (Material), Central Pollution Control Board or by the authorized representative with prescribed tender fee in the form of DD/Pay order drawn in favour of Central Pollution Control Board, Delhi

03. The Bid must be submitted in English, by the principal / their authorized suppliers.

04. The Earnest Money as indicated in Bid document must be submitted by the Bidder along with the Tender in the form of Demand Draft only drawn in favour of "CENTRAL POLLUTION CONTROL BOARD" payable at Delhi (India). It should be either in Indian Rupees or in bid currency (equivalent amount as per the exchange rate prevailing). The Indian agent/ representative should furnish an authorization letter from their foreign Principal supplier authorizing to deposit the EMD on their behalf.

05. The request for Competitive Bidding Documents sent by post will be accepted strictly Up to 14.08.2014. CPCB will not be responsible for any delay in receipt of tender document sent by post. Request received by post after above mentioned date will not be entertained at any cost. Other details are as follows:

Sale of tender document - From 23-07-2014 to 22-08-2014 on all working days between 11.00 am to 5.00 pm.

Cost of tender document - By hand ₹-800.00 or US Dollar 20.

Earnest Money along with Tenders - **By post ₹-1000.00 or US Dollar 25**
- **As indicated in the Tender Document**

Last date & time for submission - **Up to 10.00 AM on 25-08-2014**

Date of opening of Technical Bids - **At 11.30 A.M. on 25-08-2014**

06. Bidders using downloaded tender forms must submit separate tender fee by Demand Draft along with technical bid drawn in favour of Central Pollution Control Board, Delhi

**Administrative Officer
(Material)**

1.0 GENERAL TERMS AND CONDITIONS

- 1.1 This document contains the following:
- i) Copy of the Competitive Bidding Notice
 - ii) General Terms and Conditions of Bid
 - iii) Terms and Conditions for Submission of Bid
 - iv) Payment Terms
 - v) Settlement of Dispute
 - vi) Application Form
 - vii) Undertaking
 - viii) Bid Form
 - ix) Schedule of Earnest Money to be deposited alongwith Tender
 - x) Quantity of Instruments and Locations of delivery and installation.
 - xi) Pre-contract integrity pact form
 - xii) Detailed specification of the instruments.
 - xiii) Check List.
- 1.2 The Tender Document is not transferable by the purchaser. The bid form in the tender Document at Annexure-II may be used for bidding. Documents /forms downloaded from the net can also be used. Bids made on photocopy etc. will not be considered. However, the additional sheets containing the same proforma may be used for each item. Each sheet including that provided by the Board with this document must be signed by the bidder. The price bid must be in the form provided herewith at Annexure-II.
- 1.3 The tender will not be accepted from the firm to whom the document is not issued by the Board and the bid downloaded from net with out tender fee will not be accepted.
- 1.4 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.
- 1.5 No bid document will be sold after the last date of sale of Tender Document or between the extended period of opening date, if any.
- 1.6 The bidder is expected to examine all instructions, forms, terms and conditions and specifications mentioned in the bid document. Failure to furnish all information required by the bid documents or submission of a bid not substantially irresponsive to the bid document in every respect will be at the bidder's risk and may result in the rejection of it's bid.
- 1.7 This call of tenders does not bind the Central Board to place order. The Tenders submitted in response to this invitation be rejected without assigning any reason. The bidder should be a manufacturer or their authorized Indian supplier. This tender notice, Tender forms, Schedule of requirement's , Specification etc are also available on CPCB's website WWW.cpcb.nic.in 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.

- 1.8 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, Central Pollution Control Board 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.
- 1.9 Documents, literature, diagrams/leaflets, samples etc., enclosed in the Tender shall become the property of the Central Board without any payment.
- 1.10 All the items listed in this tender document (27 item) will be covered under comprehensive warranty period of thirty six months starting from the date of successful commissioning of the instrument. Under this warranty upon the receipt of such notice supplier/agent shall within the period specified, repair/replaced the defective instrument or spare parts thereof at the ultimate destination. The supplier/agent shall take over the replaced parts/goods, in the event of any correction of defects or replacement of defective material. In such cases, the warranty for the corrected/replaced materials shall be extended till the left over period of warranty.
- 1.11 The Tender would be regarded as turned down, if no award of contract has been obtained till the expiry of the Tender validity. No separate communication will be made in this regard.
- 1.12 The items have to be supplied in standard packing.
- 1.13 If the last date for sale, submission and opening of Tenders falls on any Government declared holidays, the next working day at the same time will be considered last dates of the same.
- 1.14 The bid shall contain no inter lineations, erasures or overwriting words except as necessary to correct errors made by the bidder, in such case, correction shall be initialed by the person or persons signing the bid.
- 1.15 Late and delayed tenders will not be considered and shall be returned unopened to the Bidder.
- 1.16 It is advised that the outside suppliers should send the Tender through Registered /Speed Post/Courier. However, the local supplier may drop their Tenders in Tender Box kept in Central Board for the purpose. In no case, Tender should be handed over to any employee of the Board.
- 1.17 Canvassing in any form will disqualify the Bid.
- 1.18 Request for the Tender Document for bidding through e-mail, Telephone, Money Order and Tele-fax shall not be entertained.
- 1.19 The Tender Notice No.C-47011/01-27/2014-15/ICB/Materials alongwith the item code number. (The item code number is given in the specification sheet against each items) must invariably be quoted in the bid and for further correspondence in this regard will be entertained.

1.20 All the Tenders should be addressed to:

**The Administrative Officer (M)
CENTRAL POLLUTION CONTROL BOARD
'PARIVESH BHAWAN'
EAST ARJUN NAGAR, DELHI - 110032, INDIA**

2.0 SUBMISSION OF BID

- 2.1 The bid prepared by the bidder and all correspondence and documents relating to the bid exchanged by the bidder and the purchaser, shall be written in English language, provided that any printed literature furnished by the Bidder may be written in another language so long as accompanied by English translation of its pertinent passages in such case, for the purpose of interpretation of the bid, English translation shall govern.
- 2.2 The bid must accompany Annexure-I with Techno Commercial part of Bid, tender fee incase of down loaded Document 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.
- 2.3 The Bidders are requested to quote the rates item-wise on CIF/FOR destination basis including total price of each instrument separately indicating the Govt. levies, and other expenditure item-wise. The concessional custom duty exemption certificate and other required documents will be provided for custom clearance.

For the authorized Indian suppliers, supplying foreign origin / manufactured items, they are allowed to quote in Indian Rupees on FOR destination basis. 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 borne by the supplier. The entire responsibility / charges upto destination should be borne by the supplier. Taxes, other levies, insurance, freight etc if any should be indicated separately. No C/D form will be issued against VAT / CST.

Bidder is expected to examine the bidding Documents carefully and are deemed to have received and read all documents. It shall be the responsibility of the bidder to request copies of any missing documents. Failure to do so will be at bidders risk.

- 2.4 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 in to consideration. Prior to award of purchase order the buyer can call any details, explanation, regarding technical & financial aspect.

2.5 IMPORTANT: - 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 CENTRAL POLLUTION CONTROL BOARD RESERVES THE RIGHT TO ACCEPT THE TENDER IN FULL OR IN PART. THE BID FOR

EACH ITEM SHOULD BE IN SEPARATE SHEETS/PAGES AND FOR THE SAKE OF IDENTITY, COMPILATION, INSTRUMENT/ITEM CODE NUMBER AND DESCRIPTION OF ITEM SHOULD BE WRITTEN ON THE TOP OF EACH BID. EMD SHOULD SUBMIT SEPARATELY AGAINST EACH ITEM. ITEMS-WISE TECHNICAL SPECIFICATION AND PRICE SHOULD BE IN SEPARATE SHEETS i.e. THERE SHOULD BE SEPARATE ENVELOPES FOR EACH ITEMS CONTAINING TECHNICAL, PRICE BID & ITEMS WISE EMD; INCASE, BIDDERS DESIRES TO QUOTE MORE THAN ONE ITEM. **Those tenders do not comply the above instructions will not be considered**

Please do not enclose the EMD alongwith the Envelop for price bid.

- 2.6 The Tender is to be submitted "single stage- three envelope system" i.e. the first sealed envelope will contain the earnest money deposit, second sealed envelope will contain full information required to judge pre-qualification, complete details and specification of the instruments offered including the leaflets and catalogues, list of credentials with documentary evidence i.e., purchase/work order etc., Income Tax Clearance Certificate, PAN Number, 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.C-47011/01-27/ICB/2014-15 due on 25-08-2014 for Instrument/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.C-47011/01-27/2014-15/ICB/Materials for Instrument / Equipments. All the above envelopes must be separately sealed and shall be kept in one envelope bearing the address of Central Pollution Control Board and super scribed with bold letter "TENDER FOR Instrument/Equipments - NOT TO OPEN BEFORE 25-08-2014 AT 11.00 A.M. The senders address should be mentioned in all envelopes. Item Code Number(s) should be mentioned invariably on all envelopes. Separate bids for separate item should be submitted. The combined bids will not be considered.
- 2.7 Technical & Commercial part of the tender will be opened on due date i.e. at 11.30 A.M. on 25.08.2014 in the office of the Central Board, in presence of the representative of the tenderers who would like to present. Sealed Price part of technically and commercially acceptable tenders will be opened on a later day which will be communicated by the Board on the same day or on a later date.
- 2.8 The bidder shall furnish, as part of its bid, bid security for each instrument/equipment separately for the amount mentioned in schedule IV of this tender. Execution of Bid Security by the bidder's Bank on the basis of prevailing exchange rate shall be used for arriving at the amount of bid security in the Bid Currency.
 - a) The bid security shall be in the form of Demand Draft only in favour of "CENTRAL POLLUTION CONTROL BOARD" payable at DELHI. No Earnest Money shall be accepted in any form. It should be either in Indian Rupees or in bid currency. The Indian agent/representative should furnish an authorization letter from their foreign Principal suppliers to deposit the EMD on their behalf. The Earnest Money shall be forfeited if a bidder withdraws or amends the tender in any respect within the period of validity of his tender or fails to supply the instruments within the specified period in the tender document. Tender shall not entertained where a Tenderer has not furnished adequate earnest money in the prescribed and acceptable form. In case,

the instrument supplied is found defective and not attended by the supplier / authorized agent, the Earnest Money deposited by the supplier /their authorized Indian agent will also be forfeited.

- 2.9 The Firm who seek exemption from depositing earnest money being small scale industry, being registered with NSIC, DGS&D and other Government agencies which entitles them for exemption must submit the valid Registration Certificate - cover 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 alongwith the bid. (EMD Exemption will be granted only to those items specified in the certificate of Registration).
- 2.10 Unsuccessful bidders bid security will be discharged/ returned without any interest in the same form after the concerned purchase is finalized or within four months whichever is earlier and that of successful bidders will be discharged without interest within one month of the successful installation and commissioning of the instrument and on furnishing the Performance Bank Guarantee.
- 2.11 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. In case the validity is to be extended; the Board may solicit the Bidder's consent to an extension on the period of validity and the bid shall remain valid for the extended period mutually agreed for.
- 2.12 The rates should be quoted both in words and figures.
- 2.13 Arithmetical error will be rectified on the following basis:- If there is discrepancy between the unit price and total price that is obtained by the multiplying the Unit Price and quantity, the unit price shall prevail and the total price shall be corrected. If there is discrepancy between words and figures, the amount in words will prevail.
- 2.14 Tenders not in proper sealed cover or received through tele-graphically or E-mail/ fax/telefax will not be entertained.
- 2.15 Conditional Tenders will be rejected without assigning any reason.
- 2.16 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 initialed by the person or persons signing the bid.
- 2.17 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.
- 2.18 Eventual suggestions for modification or subsidiary Tenders are principally not admissible.
- 2.19 The specifications are clearly mentioned in the document and the Bidder is requested to submit Bid only if their offer strictly comply to these specifications. Please note that no deviation in the required specification will be permitted. The bidding for the instruments

having different specification will be on Bidder's risk as the Board will not entertain such Bids. 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.

- 2.20 The placement of work order/purchase order will be according to technical evaluation of the tender and after consideration of its price worthiness.
- 2.21 The price to be given in the Tender are fixed prices, irrespective of rise in Materials prices and increase in taxes etc., till the delivery of the overall consignment. No request in regard to increase in the price of instruments or in taxes etc., will be entertained after the submission of the tender.
- 2.22 The Supplier should attach a blank copy of financial bid/Proforma Invoice of the Instrument quoted (without cost/price figures) alongwith the technical bid to assess the items included/components quoted in the bid.**
- 2.23 The nomenclature of the instruments and spares will be invariably same in Proforma Invoice, Invoice, Packing list and all other relevant papers incase the Bidder is awarded with the purchase order for supply against its offer.
- 2.24 With the submission of his Tender the Bidder accepts the conditions of the Tender.
- 2.25 If the instrument supplied is not in conformity with the specification other than asked for, it will have to be replaced at the risk and cost of the supplier. No Freight and other charges for export and re-shipment will be paid by the Board.
- 2.26 The authorized Indian agent/Representative/ Indian supplier should have minimum two years continuous agency /partnership/joint venture/participation or collaboration with their principal foreign supplier. The documentary proof of such agency ship /authorization/MOU should submit alongwith the technical part. The bid of the firm does not contain the proof of such nomination/authorization as Indian agent will be rejected.**
- 2.27 The installation 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 month of the receipt of the instruments by the Board. The supplier or their authorized Agent should be in touch with the Material Section of the Board to know the exact day of receipt of stores supplied/dispatched by them.
- 2.28 The list of instruments/equipment, their approximate quantity and point of delivery is given at Annexure -V and the detailed specification of the instrument are given in the tender document (). The quantity mentioned in the tender document may be increased or decreased at the discretion of the Competent Authority in the Central Board without assigning any reason.
- 2.29 Each and every folio of the Tender must be signed by the Bidder.
- 2.30 Bidder can quote the rates for all the instruments or some of the instruments. The Bid shall be considered only for those instruments for which the rates have been specifically quoted. The Board further reserves the right to accept the Tender for all the instruments or some of the instruments for which the Tenderer has quoted the

Bid. 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. alongwith the bid. Combined EMD and consolidated bids will be rejected. (EMD, technical bid and commercial bid against each item quoted should be on separate sheets).

- 2.31. The bidder should provide a complete list of spares and consumables required for operation and maintenance of the instruments separately alongwith the price list.
- 2.32 Annual maintenance contract: The bidder should quote the charges for annual maintenance contract after the warranty period for the instrument listed in annexure -IV of this tender document at item Sl. Nos.1, 3, 6 to 15, 18, 21, 22, 24 (i.e 16 items).
- 2.33 The instrument for which Tenders are invited will have to be supplied within 90 days from the date of L.C. opening in the case of foreign suppliers. A period of 60 days will be allowed from the date of purchase order in the case of Indian manufacturers/suppliers.
- 2.34 The after sales service is most important to be considered for comparison of the bids. Bid of those firms who do not have Indian Agents or sufficient infrastructure facilities to provide after sales service during warranty period will not be considered.
- 2.35 **Important:- The foreign bidders should quote the price in foreign currencies. The price quoted should be on CIF/FOR Destination basis. The Indian agent/their authorized representative should arrange the custom clearance from the customs. The Board will provide the concessional custom duty exemption certificate and other required documents.**

The incidental expenses towards sending the instruments to the designated locations mentioned in Annexure-V such as arranging transport, insurance, labour, including charges to the custom clearing agent etc. to be borne by the supplier/their authorized Indian representative. The Indian agent/ their representatives should be responsible for the safety of the instruments during the transit from airports to the designated locations.

The agency commission will be paid in Indian Rupees. The charges on account of agency commission should be mentioned clearly in the bid Indian suppliers, the price should be quoted in Indian Rupees. However, the authorized Indian supplier should have minimum two years of continues partnership/joint venture /participation or collaboration with their principal foreign supplier.

- 2.36 The foreign bidders must indicate the following information in their proforma invoice alongwith the Price Bid separately for each instrument/equipment.
 - a) Country of Origin.
 - b) Port of Shipment.
 - c) Name & Address of beneficiaries Bank, Branch name with Account No., IBAN No. & SWIFT Code.
 - d) Minimum delivery period.
 - e) Whether transshipment/partner shipment is required or not.

- f) Agency commission, if any payable to the Indian Agent, their Complete address, telephone & fax number.
- 2.37 The items have to be supplied in standard packing. The foreign supplier should use the minimum possible packets and should reduce the size of the packing in volume to avoid extra demurrage in the bonded warehouse in India, if any.
- Important - Bank charges: Three months time for shipment and further 21 days for negotiation will be given. All Bank charges inside the country (in India) will be buyers account and all Bank charges outside the country should be borne by the supplier / beneficiary's. The bidders may note this and quote the price of the instrument/ equipment accordingly. In the case of Foreign Suppliers, they will have to ensure shipment of the consignment as per the validity of the letter of credit established in this regard. In case of extension of supply date is sought, the bank charges should be borne by the Supplier/their authorized Indian representatives.**
- 2.38 Foreign Principals/their authorized Indian Agent shall intimate the buyer regarding the date of shipment well in advance. A copy of the invoice documents, air way bill, packing list, certificate of country of origin may be forwarded to the purchaser by fax immediately after shipment of the consignment to clear from custom authorities so as to avoid demurrage charges.
- 2.39 At any time prior to the deadline for submission of bids the buyer may for any reason whether at it's own initiative or in response to a clarification requested by a prospective Bidder, modify the bidding documents by an amendment.
- 2.40 The Amendment if any, will be brought to the notice in writing or by fax to all concerned Bidders who have purchased the bidding documents and will be binding on them.
- 2.41 In order to afford prospective Bidder reasonable time in which to take the Amendment into account in preparing their bids, the purchaser may at its discretion, extend the deadline for the submission of bids.
- 2.42 The prices must be quoted item wise i.e. basic price, taxes, packing forwarding, handling installation and training charges etc. The charges must be quoted clearly and not in vague terms like "As Actual" "Approx" etc.
- 2.43 If according to the Bidder, the Tender Documents contain unclear points which could influence price calculations, the bidder has to inform the authority who is issuing the call of Tenders before submission of its Tender, either in writing or by fax, even if he has pointed out this earlier in any other form/reference.
- 2.44 The Packing, Forwarding, charges must be quoted according to the place of delivery as mentioned in the schedule at Annexure-V. The supplier shall be liable for any damage, theft or loss during transit. In the case of Indian suppliers, the instruments are to be dispatched to the respective places directly and to be installed there, by the supplier under intimation to, CPCB Office at Parivesh Bhawan, Delhi-32.
- 2.45 The delivery of stores shall be taken at the locations mentioned in "Annexure-V" of this tender documents, Please note that Proforma Invoice must be separate for each instrument/item.

- 2.46 The warranty/guarantee of the instrument/equipment should be clearly mentioned in the Bid.
- 2.47 MOST IMPORTANT
PLEASE NOTE THAT ANNEXURE-I OF THIS DOCUMENT MUST BE ENCLOSED WITH THE FIRST PART OF BID i.e."Envelop for EMD, TECHNICAL AND COMMERCIAL BID" AND ANNEXURE-II AND III WILL BE KEPT IN THE SECOND PART OF BID i.e. PRICE BID.
- 2.48. PLEASE NOTE THAT 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 2.6 AND OTHER RELEVANT PARAGRAPHS OF THIS BID.
- 2.49 Prior to placing purchase order, incase the buyer desires to inspect the stores/instrument-equipment including demonstration, the same should be arranged by the supplier or their authorized Indian agent in the premises of the Central Pollution Control Board on free of charges.

3.0 PAYMENT CONDITIONS

- 3.1 **For Foreign Bidders:-** The foreign bidders should quote the price in foreign currency. Incase, they have components and services of Indian origin/agent, the same may be quoted in Indian Rupees.

100% payment will be released through irrevocable Letter of Credit in the name of foreign bidders for stores of foreign origin in the following manner.

80% payment will be made on shipment of the instrument/Equipments 20% will be released on satisfactory commissioning of Instrument/Equipment and on furnishing Performance Bank Guarantee for 10% of the purchase order, valid for a period of 60 days beyond the warranty period.

For Indian bidders 100% payment will be released on satisfactory supply, installation & successful commissioning of the instrument and on furnishing performance security/Bank Guarantee for 10% of the purchase order value valid for a period of 60 days beyond the warranty period.

The Performance Security / Bank Guarantee be furnished by the principal supplier or their authorized Indian agent from any Nationalized Bank. No Proposal for advance payment will be allowed in any case. In the case of Indian suppliers advance payment, document and payment through bank will not be considered.

The defective, substandard and contrary to the specification of instruments supplied have to be replaced by the supplier at their cost and responsibility. Incase of indigenous instrument/ equipment quoted by Indian firms/ representatives/ Indian agents of foreign supplier / manufacturers in rupee term, the payment will be made in Indian rupees directly after supply and satisfactory installation of the instrument.

- 3.2 Single bills against one order; as per supply order, mentioning item code and other details will be accepted.

- 3.3 The firm whosoever getting the award/purchase order should sign and submit a Pre-integrity pact with the buyer as per the format attached as **Annexure – VI** of this tender documents.

4.0 SETTLEMENT OF DISPUTE, ARBITRATION

- 4.1 All disputes or difference arising out of or in connection with the contract and supply of any item/equipment assigned under the same (whether during the progress of the works or after their completion, determination, abandonment or breach of the contract) shall be Settled in accordance with the arbitration and conciliation Act, 1996. The Arbitral Tribunal shall consists of three (3) arbitrators appointed by the Chairman, Central Pollution Control Board. The decision of the arbitrators shall be final. It will not be an objection to any such appointment that the arbitrators are the Government servants and had any interest in the Board or the contract entered into directly or indirectly. In all cases, the arbitrator shall state reasons in their decision/award in writing, if the amount of claim in dispute is Rupees one Lakh and above, subject as aforesaid the provision of the Arbitration and Conciliation Act, 1996 or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceedings under this clause. Arbitration proceedings shall be held at Delhi/New Delhi, India and the language of arbitration proceedings and that all documents and communication's between the parties shall be in English. The party invoking Arbitration clause shall bear the cost of arbitrator.
- 4.2 It is a term of the contract that the party invoking the arbitration shall specify the dispute or disputes to be referred to the arbitration under this clause together with the amount or amount claimed in respect of each such dispute.
- 4.3 It is also a term of the contract that if the supplier (s) do not make any demand for arbitration in respect of any claim (s) or dispute in writing within 90 days of submission of the final bill for payment, the claim of the supplier will be deemed to have been waived and absolutely barred and the Board will be discharged and released of all liabilities under the contract in respect of these claims.

4.4 LAWS AND REGULATIONS

The formation, validity and performance of this Contract shall be governed as to all matters by and under the laws and regulations of India and courts of Delhi shall have exclusive jurisdiction in all matters arising under this Contract.

The Supplier shall respect and abide by all laws and regulations of India and shall make its best effort to ensure that the personnel of the Supplier and their dependents, while staying in India, shall respect and abide by all laws and regulation of India.

The Supplier shall protect, absolve and indemnify the Board, and their representatives from any claim, loss or damage arising from any non compliance alleged or proved, without claiming them for payment.

4.5 FORCE MAJEURE

Vendor shall not be considered in default if delay in delivery occurs due to causes beyond his control such as acts of God, natural calamities, civil, wars, strikes, fire frost, floods, riots and acts of usurped power. Only those causes which have a duration of more than 7 calendar days shall be considered cause of force majeure. A notification to this effect duly certified by the Local Chamber of Commerce/Statutory Authorities shall be given by the Vendor to the buyer by registered letter. In the event of delay due to such cases a length of time equal to the period of force majeure or at the option of the buyer, the order may be cancelled. Such cancellation would be without any liability whatsoever on the part of buyer. In the event of such cancellation the vendor shall refund any amount advanced by the Purchaser and deliver back any material issued to him by the Purchaser and release facilities, if any, provided by the Purchaser.

5.0 INJURY AND DAMAGE

5.1 Injury or Death of Persons

The Supplier shall be liable for and shall indemnify the Board against any liability, loss claim or proceedings whatsoever arising under any statute or law in respect of personal injury death or any disability caused by the carrying out the Works unless due to any act or neglect of the Board, or of any person for whom the Board is responsible.

5.2 Damage to Property

The Supplier shall be liable for and indemnify the Board against and insure and cause any Manufacturers and subcontractors to insure against any expense, liability, loss claim or proceedings in respect of any damage whatsoever to any real or personal property for any one occurrence in so far as such damage arises out of or in the course of or by reason of he carrying out of the Works and is due to any negligence, omission or default of the Supplier or any person for whom the supplier is responsible or any Manufacturers and subcontractors or person whom the Manufacturers and subcontractors are responsible.

6.0 ROYALTY AND PATENTS

- 6.1 The Supplier shall pay all royalties and licenses fees for the use of any patented item, whether it may be an invention, method, arrangement, article, process or appliance used in connection with the performance of the Contract. The supplier shall indemnify and save harmless the Board against any and all costs, damages and expenses of any nature or kind whatsoever which may arise out of or result from a claim by any person, firm or corporation that the manufacture, purchase, use of sale of any of the inventions, methods, arrangements, articles processes or appliances used in connection with the performance of this Contract infringes any patent of such other rights. The Supplier shall, at the request of the Board, defend the Board against any suit brought to enforce any such claim at the Suppliers expense.

6.2 In case any such patented item used on or in conjunction with the Works is in suit held to constitute an infringement of its use enjoined, the supplier shall either secure for the Board the right to continue using the said item by suspension of the injunction, by procuring for the Board a license or otherwise, or will replace such items with a non-infringing item or modify it so that it becomes non-infringing or with the Board's approval remove the said enjoined item and refund to the Board the sums paid thereof.

7.0 EFFECTIVENESS

This Contract shall come into force and effect on the date of the Letter of Award and shall be in force until the Works have been completed and all the payments have been made to the Supplier, except the obligation of the warranty period by the Supplier.

Application Form

S. No. /ICB

(To be filled by the bidder)

1.	Name & full address of the Bidder including Telegraphic Address/Telex No.and Fax No.	:	
2.	Name and Designation of the Head of the Firm/supplier and his Telephone No.	:	
3.	Name & address of the Principal supplier	:	
4.	i). In case the supplier is located out of Delhi; specify the Address/Authorized Distributor's or Agent's Address in Delhi, if any ii). Name, Designation, Address Telephone & Fax Numbers of the Authorized Person who may be contacted during the process of the purchase concerned under this document (Applicable for all the suppliers)	:	
5.	Item Code Number (s) quoted for	:	
6.	Whether Earnest Money Deposited (Amount Rs./US\$/bid currency)	:	
6.	If yes, Demand Draft No., Date and Name of issuing Bank	:	
7.	Whether Tender fee Deposited (Amount Rs./US\$/bid currency)	:	
8.	If yes, Demand Draft No. Date and Name of issuing Bank	:	
9.	Validity of Tender	:	
10.	If the tender documents are accepted in full (yes or No)	:	
11.	Income Tax Clearance Certificate attached (Latest) (Yes or No) with PAN NUMBER	:	
Place: Date:			
Legally Binding Signature with stamp			

BID FORM

ANNEXURE - II

No. /ICB

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)

Sl. 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	Quantity	Unit Price (in Rupees excluding rates at col. no. 7)	Taxes and other expenditures (Sales Tax/VAT, C.S.T, freight, cost of installation & training (in case of indigenous items)etc.	Total Amount in Rupees for indigenous items	Total Amount CIF/FOR Destination for imported items
1	2	3	4	5	6	7	8	9

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. Administrative Officer (Material)

Signature with date & stamp of the bidder

UNDERTAKING

DATE _____
TENDER NOTICE NO _____

TO

THE CHAIRMAN
CENTRAL POLLUTION CONTROL BOARD
(MINISTRY OF ENVIRONMENT & FORESTS GOVERNMENT OF INDIA)
C.B.D. CUM OFFICE COMPLEX
EAST ARJUN NAGAR DELHI - 110 032.

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, delivery and install the following:

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

(Please add additional pages, if required). The above supply, installation 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.

We agree to abide by this bid for a period of 180 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 bid Currency in favour of "Central Pollution Control Board", Delhi 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.....2014

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

SCHEDULE OF EARNEST MONEY

S. No.	Item Code	Instrument / Equipment	Quantity Requirement	EMD (Rs.)
1.	ICB-14-1	AOX Analyser	5 (Five)	450,000.00
2.	ICB-14-2	Balance (electronic top loading for media/broth) capacity 0.001g	4 (Four)	12000.00
3.	ICB-14-3	Bomb Calorimeter	5 (Five)	120,000.00
4.	ICB-14-4	Combined Nitrogen and Zero Air Gas Generator for GC/GC-MS	2(Two)	12000.00
5.	ICB-14-5	Echo Sounder	1 (One)	7500.00
6.	ICB-14-6	Elemental (CHNS) Analyser for Carbon, Hydrogen, Nitrogen, Sulphur	1 (One)	75,000.00
7.	ICB-14-7	Flash Point Apparatus,	5 (Five)	105,000.00
8.	ICB-14-8	Gas Chromatograph	1 (One)	300,000.00
9.	ICB-14-9	Gas Chromatograph Mass Spectrophotometer (GC-MS)	3(Three)	360,000.00
10.	ICB-14-10	Gas Chromatograph with Methanizer	1 (One)	90,000.00
11.	ICB-14-11	Ion Chromatograph for water anylisis	4 (Four)	240,000.00
12.	ICB-14-12	Ion Anaylser with Fluoride, Nitrate, Nitrite, Cyanide and Ammonia Electrodes	6 (Six)	90,000.00
13.	ICB-14-13	Karl Fischer Coulometer with Oven for moisture analysis	4 (Four)	144,000.00
14.	ICB-14-14	Liquid Chromatograph Mass Spectrometer (LC-MS-MS)	1(one)	300,000.00
15.	ICB-14-15	Mass Flow Controllers of various ranges with Digital Readout and Control unit	4 (Four)	132,000.00
16.	ICB-14-16	Moisture Analyser	3 (Three)	9000.00
17.	ICB-14-17	Multi Gas Analyser for indoor ambient air quality Monitoring	1(one)	6000.00
18.	ICB-14-18	PM2.5 Sampler	23 (Twenty Three)	345,000.00
19.	ICB-14-19	Portable Calibrator	1(one)	12,000.00
20.	ICB-14-20	PUF sampler (for sampling of Ambient	9(nine)	54,000.00

S. No.	Item Code	Instrument / Equipment	Quantity Requirement	EMD (Rs.)
		VOC, Dioxins)		
21.	ICB-14-21	Rotatory Evaporator with Vacuum Pump & Chiller	3(three)	72,000.00
22.	ICB-14-22	Ultrapure water system	1(one)	15,000.00
23.	ICB-14-23	Velocity Meter (Water)	3(three)	9000.00
24.	ICB-14-24	Water purification system(RO/bacteria free)	3(three)	63,000.00
25.	ICB-14-25	Weighing Micro Balance (capacity 6.1g, minimum display 0.001mg)	6(six)	36,000.00
26.	ICB-14-26	Weighing Micro Balance (capacity 220g, minimum display 0.001mg)	4(four)	24,000.00
27.	ICB-14-27	Weighing Micro Balance (capacity 200g, minimum display 0.01mg)	2 (Two)	9000.00

Locations of Delivery and Installation of the Instruments / Equipments

Item Code	Instrument / Equipment	Quantity	Delivery Locations & Nos.
ICB-14-1	AOX Analyser	5 (Five)	IL-1, ZOK-1, ZOBH-1, ZOB-1, ZOV-1
ICB-14-2	Balance (electronic top loading for media/broth) capacity 0.001g	4 (Four)	BL-1, ZOK-1, ZOBH-2,
ICB-14-3	Bomb Calorimeter	5 (Five)	WL-1, ZOL-1, ZOK-1, ZOBH-1, ZOV-1
ICB-14-4	Combined Nitrogen and Zero Air Gas Generator for GC/GC-MS	2(Two)	AL-2
ICB-14-5	Echo Sounder	1 (One)	ZOK-1
ICB-14-6	Elemental (CHNS) Analyser for Carbon, Hydrogen, Nitrogen, Sulphur	1 (One)	WL-1
ICB-14-7	Flash Point Apparatus,	5 (Five)	WL-1, ZOL-1, ZOK-1, ZOBH-1, ZOV-1
ICB-14-8	Gas Chromatograph	1 (One)	ZOK-1,
ICB-14-9	Gas Chromatograph Mass Spectrophotometer (GC-MS)	3(Three)	TOL-2, ZOV-1,
ICB-14-10	Gas Chromatograph with Methanizer	1 (One)	AL-1,
ICB-14-11	Ion Chromatograph for water anylisis	4 (Four)	WL-2, ZOL-1, ZOV-1
ICB-14-12	Ion Anaylser with Fluoride, Nitrate, Cyanide and Ammonia Electrodes	6 (Six)	WL-1, ZOL-1, ZOK-1, ZOBH-1, ZOV-1, ZOB-1
ICB-14-13	Karl Fischer Coulometer with Oven for moisture analysis	4 (Four)	WL-2, ZOL-1, ZOK-1,
ICB-14-14	Liquid Chromatograph Mass Spectrometer (LC-MS-MS)	1(one)	TOL-1

Item Code	Instrument / Equipment	Quantity	Delivery Locations & Nos.
ICB-14-15	Mass Flow Controllers of various ranges with Digital Readout and Control unit	4 (Four)	ZOL-1, ZOK-1, ZOV-1, ZOB-1
ICB-14-16	Moisture Analyser	3 (Three)	WL-1, ZOK-1, ZOBH-1,
ICB-14-17	Multi Gas Analyser for indoor ambient air quality Monitoring	1(one)	ZOB-1
ICB-14-18	PM2.5 Sampler	23 (Twenty Three)	ZOL-1, ZOK-3, ZOBH-5, ZOV-4, ZOB-4, ZOS-2, POA-4
ICB-14-19	Portable Calibrator	1(one)	ZOV-1,
ICB-14-20	PUF sampler (for sampling of Ambient VOC, Dioxins)	9(nine)	AL-2, ZOK-1, ZOV-2, ZOB-4
ICB-14-21	Rotatory Evaporator with Vacuum Pump & Chiller	3(three)	TOL-3
ICB-14-22	Ultrapure water system	1(one)	BL-1
ICB-14-23	Velocity Meter (Water)	3(three)	ZOK-1, ZOBH-2,
ICB-14-24	Water purification system(RO/bacteria free)	3(three)	ZOBH-1, ZOV-1, ZOB-1,
ICB-14-25	Weighing Micro Balance (capacity 6.1g, minimum display 0.001mg)	6(six)	ZOL-1, ZOK-1, ZOBH-1, ZOV-1, ZOB-1, POA-1
ICB-14-26	Weighing Micro Balance (capacity 220g, minimum display 0.001mg)	4(four)	BL-1, ZOK-1, ZOV-1, ZOB-1
ICB-14-27	Weighing Micro Balance (capacity 200g, minimum display 0.01mg)	2 (Two)	BL-1, ZOB-1

Abbreviations:

AL	=	Air Laboratory, HQs Delhi	ZOK	=	Zonal Office – Kolkata
TOL	=	National Reference Trace Organics Laboratory; HQs Delhi	ZOV	=	Zonal Office – Vadodara
IL	=	Instrumentation Laboratory; HQs Delhi	ZOBH	=	Zonal Office – Bhopal
WL	=	Water & Wastewater Laboratory; HQs Delhi	ZOS	=	Zonal Office – Shillong
BL	=	Bio-Science Laboratory; HQs Delhi	ZOB	=	Zonal Office – Bangalore
ZOL	=	Zonal Office – Lucknow;	POA	=	Project Office – Agra

**Delivery Locations of Instruments / Equipments at CPCB Laboratories
Contact Person, Address, E-Mail and Tel. No.**

Laboratories	Contact Person	E-Mail ID	Tel. No.
Headquarters Laboratories: (AL: Air Laboratory; BL: Bio-Science Laboratory; IL: Instrumentation Laboratory; TOL: Trace Organics Laboratory; WL: Water Laboratory)			
Central Pollution Control Board (Ministry of Environment & Forests) Parivesh Bhawan East Arjun Nagar Delhi-110 032	Sh. M. Varghese, Administrative Officer (Material)	cpcb@nic.in	011-22308202 (Off)
<u>Zonal Office – Lucknow (ZOL)</u>			
Central Pollution Control Board PICUP Bhawan (Ground Floor) Vibhuti Khand Gomti Nagar Lucknow-226 010 Uttar Pradesh	Dr. P. K. Mishra Scientist `D` & Incharge Zonal Office	zlnpcb@gmail.com	0522-4087600 0522-4087601 (Off)
<u>Zonal Office – Kolkata (ZOK)</u>			
Central Pollution Control Board 502, Southend Conclave 1582, Rajdanga Main Road Kolkata-700 107 West Bengal	Sh. R. C. Saxena, Senior Environmental Engineer & Incharge Zonal Office	zokolkata.cpcb@nic.in rcsaxena@rediffmail.com	033-2441 6332(Direct) 033-2441 4289 / 4677 / 6003 / 6634
<u>Zonal Office – Vadodara (ZOV)</u>			
Central Pollution Control Board Parivesh Bhavan, OPP-VMC Ward Office No. 10 Subhanpura Vadodara-390 023 Gujarat	Sh. B. R. Naidu Scientist `E` & Incharge Zonal Office	brnaidu.cpcb@nic.in ; westzonecpcb@yahoo.com	0265-2392603 0265-2392604
<u>Zonal Office – Bangalore (ZOB)</u>			
Central Pollution Control Board 1 st & 2 nd Floors, Nisarga Bhavana, Thimmaiah Main Road, 7 th D Cross Opp. Pushpanjali Theatre Shivanagar Bangalore-560 010, Karnataka	Sh. S. Suresh Scientist `D` & Incharge Zonal Office	ssuresh.cpcb@nic.in cpcbszo@yahoo.in	080-23233827 (Off) 080-23233739 / 23233827 / 23233996

Laboratories	Contact Person	E-Mail ID	Tel. No.
<u>Zonal Office – Bhopal (ZOBH)</u> Central Pollution Control Board 3 rd Floor, Sahkar Bhawan North T. T. Nagar Bhopal-462 003 Madhya Pradesh	Sh. R. S. Kori Scientist `E' & Incharge Zonal Office	cpcb.bhopal@gmail.com; rskori@yahoo.com	0755- 2775587 (O) 0755-2775385 / 86 (EPABX) 9425609052 (Cell Phone)
<u>Zonal Office – Shillong (ZOS)</u> Central Pollution Control Board "Tumsir"Lumdiengob Lower Motinagar (Near Fire Brigae H.Q.) Lumbyngngad Shillong-793 014 Meghalaya	I/C Z. changson Scientist D' & Incharge Zonal Office	zoshillong,cpcb@nic.in	0364-2520923 / 2522859 (Off)
<u>Project Office – Agra (POA)</u> Central Pollution Control Board 4, Dholpur House Agra-282 601 Uttar Pradesh	Sh. V. K. Shukla Scientist `C' & Incharge Project Office	cpcbagra@rediffmail.com vk_sukla@rediffmail.com	0562-2421548 (Off) 09956009777 (Cell Phone)

PRE CONTRACT INTEGRITY PACT

General

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made onday of the month of2014, between, CPCB, An autonomous body acting through Shri, (Designation of the officer, Ministry/Department, Government of India) hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns of the First Part and M/s..... represented by Shri....., Chief Executive Officer (hereinafter called the "BIDDER / SELLER" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BUYER proposes to procure (Name of the Stores/Equipment/Item) and the BIDDER/Seller is willing to offer/has offered the stores and

WHEREAS the BIDDER is a private company/public company/Government undertaking/partnership/registered export agency, constituted in accordance with the relevant law in the matter and the BUYER CPCB work under the ageis of Environment & Forests, performing its functions as per the provisions of Water Act 1974, Air Act ,1981 and EPA Act, 1986.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to :-

Enabling the BUYER to obtain the desired said stores/equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

Commitments of the BUYER

- 1.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

- 1.2 The BUYER will, during the pre-contract stage, treat all BIDDERS alike, and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.
 - 1.3 All the officials of the BUYER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full and verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an inquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

Commitments of BIDDERS

2. The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-
 - 3.1 The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
 - 3.2 The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the Government.

- 3.3* BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
- 3.4* BIDDERS shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
- 3.5* The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacture/integrator/authorized government sponsored export entity of the defence stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.
- 3.6 The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 3.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- 3.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 3.9 The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 3.10 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 3.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.

- 3.12 If the BIDDER or any employee of the BIDDER or any person action on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the BUYER, or alternatively, if any relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filling of tender.
- 3.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER.

3. Previous Transgression

- 4.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.
- 4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

4. Sanctions for Violations

- 5.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required:-
- (i) To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER (s) would continue.
 - (ii) The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed) shall stand forfeited either fully or partially, as decided by the BUYER and the BUYER shall not be required to assign any reason therefore.
 - (iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
 - (iv) To recover all sums already paid by the BUYER, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India

with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.

- (v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the BUYER, along with interest.
- (vi) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money (s) due to the BIDDER.
- (vii) To debar the BIDDER from participating in future bidding processes of the Government of India for a minimum period of five years, which may be further extended at the discretion of the BUYER.
- (viii) To recover all sums paid in violation of this Pact by BIDDER (s) to any middleman or agent or broker with a view to securing the contract.
- (ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.
- (x) Forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

5.2 The BUYER will be entitled to take all or any of the actions mentioned at para 6.1 (i) to (x) of this Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

5.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Independent Monitor (s) appointed for the purposes of this Pact.

6. **Fall Clause**

6.1 The BIDDER undertakes that it has not supplied/is not supplying similar product/systems or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India or

PSU and if it is found at any stage that similar product/systems or sub systems was supplied by the BIDDER to any other Ministry/Department of the Government of India or a PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the BUYER, if the contract has already been concluded.

7. Independent Monitors

- 7.1 The BUYER has appointed Independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission (Names and Addresses of the Monitors to be given).
- 7.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.
- 7.3 The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.
- 7.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 7.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.
- 7.6 The BIDDER(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.
- 7.7 The BUYER will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.
- 7.8 The Monitor will submit a written report to the designated Authority of BUYER/Secretary in the Department/ within 8 to 10 weeks from the date of

reference or intimation to him by the BUYER / BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

8. **Facilitation of Investigation**

In case of any allegation of violation of any provisions of this Pact or payment of Commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

9. **Law and Place of Jurisdiction**

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat/place of the BUYER.

10. **Other Legal Actions**

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

11. **Validity**

11.1 The validity of this Integrity Pact shall be from date of its signing and extend upto 5 years or the complete execution of the contract to the satisfaction of both the BUYER and the BIDDER/Seller, including warranty period, whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

11.2 Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

12. The parties hereby sign the Integrity Pact aton.....

BUYER

BIDDER

Name of the Officer.

CHIEF EXECUTIVE OFFICER

Designation

Deptt./MINISTRY/PSU

Witness

Witness

1.....

1.....

2.....

2.....

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS AOX ANALYZER

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-1			
Equipment Name: Adsorbable Organic Halogen (AOX) Analyzer			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	INSTRUMENT COMPOSITION		
	Main AOX Module	One Unit	
	EOX Module	One Unit	
	POX Module	One Unit	
	Furnace	One Unit	
	Scrubber	One Unit	
	Titration Cell	One Unit	
	Data Work Station	One Unit	
2.0	TECHNICAL SPECIFICATION		
2.1	System Application	The system should be capable for measurement of AOX, POX, EOX, TX in solid, liquid or gaseous samples	
2.2	System operation	The windows based software should offer easy to use menu control for all vital parts and complete the functions of analyzer i.e. movement of quartz boat, stirrer speed, temperature control etc.	
2.3	Operating Gases	Oxygen: 99.996%	
		Argon: 99.996%	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-1			
Equipment Name: Adsorbable Organic Halogen (AOX) Analyzer			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
2.4	Furnace	Double Furnace Technology with heating temperature range ambient to 1000° C or more	
		Optimum temperature should reach in less than 45 minutes	
		It should work in controllable temperature range with $\pm 5^{\circ}$ C/set temperature	
2.5	Gas Flow Control Meter	System should be equipped with gas flow control meter capable for controlling maximum flow rate 500 ml/min.	
2.6	Power Requirement	The complete unit should operate on electric power of 230 \pm 10 V AC, 50 Hz.	
2.7	Scrubber	Scrubber should be capable of cleaning and drying the gaseous steam coming from the combustion tube to the titration cell.	
2.8	Titration Cell	Titration cell should comprise of generator electrode and measuring electrodes.	
		The cell should reach full stability within 30 minutes.	
		Titration cell capacity not less than 20 ml.	
3.0	DATA WORK STATION		
3.1	Application Software (Features)	Capacity of regulating / control of all AOX analysis methods (Column or batch method) EOX or POX through computer.	
		Software should monitor all system parameters and acquires measurement data and titration curve, allow data and results to be assessed with precision and accuracy.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-1			
Equipment Name: Adsorbable Organic Halogen (AOX) Analyzer			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		Capable of evaluating results concentrations in ppm and ppb or less (ppt).	
		Storage of complete analysis data for future reference.	
4.0	COMPUTER SYSTEM		
	Make	Reputed brand such as HP/Compaq/Dell	
	Processor	Intel Core i7 3770 (3.4 GHz, 8MB cache, 4 cores)	
	RAM	4 GB DDR-III RAM 1066 MHz (upgradeable to 8 GB)	
	HDD	3.5", 500 GB 7200 RPM SATA HDD	
	Monitor	21" TFT-LCD Flat Colour (Digital)	
	DVD Writer	22 X DVD Multi-drive Internal	
	Ports	2 Serial, 1 parallel and 2 USB front 3 Rear USB2 Port, 1PS-2 Keyboard, 1PS-2 Mouse port, 1VGA 4 bays (2 external & internal) with LAN 1PS	
	Key board	Latest multimedia (HP / Microsoft) Internet ready	
	Mouse	Optical mouse with pad	
	Ethernet	32/64 bit auto selectable Ethernet ports with autosensing, 2 nd NIC card on PCI, Autosensing is to cater to 100 / 1000 Mbps speeds automatically and not a boot ROM.	
	Graphics	Integrated Graphics Media Accelerator x 4500, support upto 800 MB video memory through DVMT	
	Sound	Integrated 5.1 Channel high definition audio subsystem and inbuilt stereo speakers	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-1			
Equipment Name: Adsorbable Organic Halogen (AOX) Analyzer			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Printer	HP LaserJet Printer 1200 x 1200 dpi 12 PPM black	
5.0	Softwares	Pre-loaded Windows 7 Professional or latest operating system with Licensed CD	
		MS Office Professional 2013 with media, manual and Licensed CD	
		Pre-loaded Norton Antivirus with latest version of 3 years lifetime along with Licensed CD	
6.0	ANALYTICAL SPECIFICATIONS		
	Measuring Principle	Combustion and colorimetric titration for AOX/EOX	
	Parameters	AOX, EOX, POX, TX	
	Measuring Range	0.1 to 50 µg Chlorine absolute for AOX/EOX	
	Confirmation of legislation / Protocols	DIN, ISO, EPA, ASTM, CEN, SCAN, NEN, APHA	
	Methodology Package	Comprehensive DIN, EPA, SCAN, ISO, ASTM methodology package (CD-ROM) for AOX, EOX, TX in liquid, solid, soil & sludge and other environmental analysis.	
	Inaccuracy	Less than 5%	
	Average analysis time	5-10 minutes	
	Sample Matrix	Liquids, Semi Solids and Solid samples.	
	Electrolyte	75% HAC.	
7.0	ADDITIONAL ITEMS		
	Bench Top Shaker (Optional)	Shaker with Shake table of 18" x 12" to permit agitation of 9-12 flasks (250 ml capacity) and load capacity up to 15 kg.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-1			
Equipment Name: Adsorbable Organic Halogen (AOX) Analyzer			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		Simultaneously giving their contents a circular motion.	
		RPM should be between 0 to 300, with digital display and controlled by a knob.	
		Attached with a timer can be set 5 minutes interval up to 1 hour or infinite.	
	Filtration Assembly	Consisting of complete glass of components like holder funnel, 25 mm base with 25 mm sintered disc, spring clamp, 1 L vacuum flask.	
		Consisting of complete glass of components like holder funnel 47 mm base with 47 mm sintered disc, spring clamp (Steel), 2 Ltr vacuum flask.	
	Vacuum / Pressure Pump for Filtration assembly	Two no's of Vacuum / pressure pumps. Material of construction pump head and housing made of cast aluminium, chemically resistant head and diaphragm, oil free, moulded PTFE diaphragm, PTFE/Ryton head, with vacuum / pressure gauge, separate regulators for vacuum and pressure and simple switching, vacuum capacity 24" Hg (610 mm), 30 l/min trace air displacement and pressure capacity 35 psi, free air capacity 0.5 cfm, 230 Volts / 50 Hz AC operated.	
	Oxygen & Argon Gases Cylinders	High pressure seamless steel cylinder filled with High purity 99.999% Argon gas, and another oxygen gas with having gas capacity 7m ³ water capacity 47 liters, cylinders should be ISI marked, conforming to IS:7285. Specification, flat bottom fitted with valve as per IS:3224, complete with neck ring and cap, painted as	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-1			
Equipment Name: Adsorbable Organic Halogen (AOX) Analyzer			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		specified under Gas Cylinders Rules, 1981 along with Hydraulic test certificate, ISI Inspection / Test certificate, Explosive certificate from Chief Controller of Explosives, Nagpur India as per BIS Standard Oxygen – One cylinder filled, Argon – One cylinder filled.	
	Gas regulator for Oxygen & Argon	Oxygen and Argon gas regulators: Best quality double stage, Static pressure regulators fitted with two pressure gauges, having inlet range 0-280 kg/cm ² , Outlet range 0-16 kg/cm ² , made of stainless steel Oxygen – One , Argon – One.	
	Polycarbonate Membrane Filters for AOX	10 Packets of polycarbonate membrane filters (100 membrane in each packet) with 0.4 µm pore size) for 25 mm with no or least chloride content.	
		10 Packets of polycarbonate membrane filters (100 membrane in each packet) with 0.4 µm pore size) for 47 mm with no or least chloride content.	
	Quartz frits of various diameter for filtration with unit	One unit with ten no's of Quartz frits	
	Activated Carbon GR Grade	Suitable for batch method with 100-200 mesh size, having no or very low apparent halide background (6 x 10 gm).	
	p-chlorophenol Standard Solution	200 ppm	
	Potassium Chloride	200 ppm	
	Manual	Operation and Maintenance Manual for each unit.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-1			
Equipment Name: Adsorbable Organic Halogen (AOX) Analyzer			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Electrodes	Two sets of generating electrode and two sets of measuring electrodes with necessary wire and connectors.	
	Septa Kit	One set	
	Tool Kit	One set	
	Gas Purifier	High capacity carrier gas purifier for Oxygen and Argon	
	Temperature Sensor Probe	4 Nos. With each furnace	
	Micro Pipette (Optional)	50 µl fixed volume – two	
		100 µl fixed volume – two	
		1000 µl fixed volume – two	
	Syringe (Optional)	1 to 5 µl – 5 numbers	
		1 to 10 µl – 5 numbers	
		1 to 25 µl – 5 numbers	
	Quartz Boat and Combustion tube	Two quartz boat and two combustion tube (one each for AOX & EOX) in addition of one each to be provided with the system.	
	Scrubber	One additional set.	
	Homogenizer	One	
8.0	WARRANTY	The supplier or the Indian representative should give performance warranty for three years from date of completion of the satisfactory installation of the instrument. AMC amount for next two years also to be quoted after warranty.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-1			
Equipment Name: Adsorbable Organic Halogen (AOX) Analyzer			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
9.0	OPERATION AND MAINTENANCE TRAINING	One week of informal on-site training on the use and operation of instrument completion of installation followed by compulsory one week training to two scientists on software training operation maintenance and trouble shooting aspects of the instrument at its application laboratory in India. The supplier has to impart on-site operation training at the time of installation followed by Complimentary (all expenditure inclusive) one week training to two scientists on application, Routine maintenance and software training at their application laboratory in India.	
10.0	GENERAL CONDITIONS OF SUPPLY	<ul style="list-style-type: none"> (i) The instrument and all its sub units should operate on 230 ± 10 volts 50 Hz power supply. (ii) All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English language. (iii) The supplier / manufacturer should have Indian agent to provide after sales service. (iv) The principal should provide a certificate that they will provide the spares in future for at least ten years. (v) The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. (vi) The Bidder should be Capable of providing five satisfactory Installation/ performance report in India. (vii) Upgraded software if required is to be provides free of cost up to the ten Years from the date of Installation. (viii) Quantity of additional items as mentioned is subject to change. 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF BALANCE (ELECTRONIC TOP LOADING FOR MEDIA/ BROTH) CAPACITY 0.001 GM

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-2			
Equipment Name: Balance (electronic top loading for media/ broth) capacity 0.001 gm			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Weighing Range	Up to 2000 grams	
2.0	Readability	0.001 gram in the range of 1000 grams. 0.01 gram up to 2000 grams	
3.0	Taring Facility	Entire range	
4.0	Sensitivity Drift	± 5 ppm / $^{\circ}$ C	
5.0	Display	LCD	
6.0	Calibration adjustment	Internal, fully automatic adjustment and by external weight	
7.0	Power supply	Should operate on 230 \pm 10 Volts, 50 Hz. AC.	
8.0	Optional	Certified calibrated weight (E2 or F1 class) with original certificate for the entire range, traceable to National/ International accreditation organizations, operation and maintenance manual and power cable.	
9.0	Other Requirement	The instrument should be supplied with Instruction / operation / maintenance manual and dust cover.	
10.0	Warranty	Three years comprehensive	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF BOMB CALORIMETER

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-3			
Equipment Name: Bomb Calorimeter			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	INSTRUMENT COMPOSITION	1 Set	
	Main Unit	1 Set	
	Oxygen Bomb with permanent fuse	1 Set	
	Oxygen Gas cylinder with regulator	1 Set	
	Electronic balance	1 Set	
	Pallet press	1 Set	
	Computer with LaserPrinter	1 Set	
2.0	TECHNICAL SPECIFICATIONS		
	Type / Method	Compensated Isoperibol / Isothermal/Isoperibol	
	Instrument	Microprocessor controlled calorimeter for measuring calorific value of solid waste, hazardous waste and other samples.	
	Measurement Range	Upto 10000 Kcal / Kg for one gram of sample	
	Precision	0.2 % RSD or better	
	Resolution	0.1 Cal/gm	
	Analysis Mode	Equilibrium mode / Dynamic mode or any other mode	
	Temperature Measuring Resolution	0.01 deg C	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-3			
Equipment Name: Bomb Calorimeter			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Display	Color touch screen with graphical user interface	
	Correction	Spiking, Ash/ Nitrogen or Acid, Fuse wire, Sulphur and Hydrogen.	
	Memory Capacity	Minimum 1000 tests results	
	Sample Crucible Capacity	0.5 gm – 1.5 gm	
	Power requirement	230 ± 10 V AC, 50 Hz	
	Processing Capacity	15 to 20 minute or better	
	No. of Tests per hour	6 samples or more in an hour	
	Oxygen bomb	The Oxygen Combustion bomb should be made up of Special stabilized stainless steel to resist the mixed nitric acid and sulfuric acid produced in combustion.	
		It should have more than 300ml capacity with standing a hydrostatic pressure of 3000 psi max and working pressure of 1500 psi	
		Bomb should be supplied with test certificate, calorimeter vessel with bomb support, water jacket with calorimeter vessel support with proper insulation	
		Combined lid for water jacket and calorimeter vessel, connecting tubes for filling oxygen in the bomb, spanner set for oxygen tube connection, pressure gauge on stand and bomb lid stand, safety device, electronic firing unit and Beckmann digital thermometer alongwith calibration certificate, Ignition wire, Cotton reel, Bomb O-ring, valve body O-ring, stirrer belt, Schrader valve, pallet press, valve	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-3			
Equipment Name: Bomb Calorimeter			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		key, gas releasing pin, gas releasing valve, oxygen control valve,	
		Crucible (Quartz, Stainless steel), bursting discs for safety device, stirrer motor, hook for lifting bomb etc.	
		Provision for variety of bomb for measurement of different ranges (25K cal/Kg to 10,000 K Cal/Kg) . The variety of Bomb can be simply plug-in/plug-out inside the system	
	Sample Volume	Approx. 1 gm.	
	Oxygen Pressure into bomb	30 to 40 Kg/cm ²	
	Stirring speed	Approx. 800 RPM	
	Interface	Inbuilt USB interface for Balance, Printer and computer without any additional accessories/software. Required extra software details should be mentioned separately	
3.0	Electronic balance		
	Weighting capacity	120 g or more	
	Readability	Less than 0.01 gram readability	
	Connectivity	Should be supplied with connecting cable to connect to the main instrument.	
4.0	Computer		
	Make	Reputed brand such as HP/Compaq/Dell	
	Processor	Intel Core i7 3770 (3.4 GHz, 8MB cache, 4 cores)	
	RAM	4 GB DDR-III RAM 1066 MHz (upgradeable to 8 GB)	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-3			
Equipment Name: Bomb Calorimeter			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	HDD	3.5", 500 GB 7200 RPM SATA HDD	
	Monitor	21" TFT-LCD Flat Colour (Digital)	
	DVD Writer	22 X DVD Multi-drive Internal	
	Ports	2 Serial, 1 parallel and 2 USB front 3 Rear USB2 Port, 1PS-2 Keyboard, 1PS-2 Mouse port, 1VGA 4 bays (2 external & internal) with LAN 1PS	
	Key board	Latest multimedia (HP / Microsoft) Internet ready	
	Mouse	Optical mouse with pad	
	Ethernet	32/64 bit auto selectable Ethernet ports with autosensing, 2 nd NIC card on PCI, Autosensing is to cater to 100 / 1000 Mbps speeds automatically and not a boot ROM.	
	Graphics	Integrated Graphics Media Accelerator x 4500, support upto 800 MB video memory through DVMT	
	Sound	Integrated 5.1 Channel high definition audio subsystem and inbuilt stereo speakers	
	Softwares	Pre-loaded Windows 7 Professional or latest operating system with Licensed CD	
		MS Office Professional 2013 with media, manual and Licensed CD	
		Pre-loaded Norton Antivirus with latest version of 3 years lifetime along with Licensed CD	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-3			
Equipment Name: Bomb Calorimeter			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
5.0	Laser Printer	HP Laser Printer 1200 X 1200 dpi 12 PPM black compatible to the instrument along with connector	
6.0	ACCESSORIES		
6.1	Manufacturer Standard Accessories	1 set	
6.2	Beckmann's Thermometer	1 No. with calibration certificate	
6.3	Apparatus for filling Oxygen	1 set	
6.4	Oxygen Gas Cylinder (One No.)	High pressure seamless steel cylinder filled with 99.99% purity oxygen gas with having gas capacity 7m ³ water capacity 47 liters, cylinders should be ISI marked, conforming to IS:7285. Specification, flat bottom fitted with valve as per IS:3224, complete with neck ring and cap, painted as specified under Gas Cylinders Rules, 1981 along with Hydraulic test certificate, ISI Inspection / Test certificate, Explosive certificate from Chief Controller of Explosives, Nagpur India as per BIS Standard	
6.5	Gas regulator for Oxygen -One	Oxygen regulators: Best quality double stage, Static pressure regulators fitted with two pressure gauges, having inlet range 0-280 kg/cm ² , Outlet range 0-16 kg/cm ² , made of stainless steel	
6.6	Pellet Press	Appropriate pallet press - One no.	
7.0	Spares / consumables		
	Apparatus for filling Oxygen	1 Set	
	Benzoic acid	25 g/pack - 6 packs	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-3			
Equipment Name: Bomb Calorimeter			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Spare Combustion crucible	Stainless steel (SS 304) – 3 Nos.	
	Ignition wire	100 pcs/set – 6 set	
	Fibre packing for oxygen lead pipe	3000 Nos.	
	Application Notes	Complete Technical notes on environmental samples and hazardous waste	
	Spares	Any other such spares for trouble free functioning of the system	
	Details of Installations	Details of installations (Contact telephone number & addresses) in Delhi and other part of country has to be provided	
	Warranty	Three years comprehensive warranty	
	Annual Maintenance Contract	Provide details of Annual maintenance contract amount after comprehensive warranty for next five years	
8.0	GENERAL CONDITIONS OF SUPPLY	<ol style="list-style-type: none"> 1. The instrument and all its sub units should operate on 230 ± 10 volts 50 Hz power supply. 2. All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English language. 3. The supplier / manufacturer should have Indian agent to provide after sales service. 4. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-3			
Equipment Name: Bomb Calorimeter			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		<ol style="list-style-type: none"> 5. The Bidder should be a manufacturer/authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied two numbers of such equipment similar to the type specified in the past five years, which shall be in successful operation for atleast 2 years as on the date of bid opening. 6. The bidder should furnish the information on past supplies and their satisfactory performance. 7. Bidders shall invariably furnish documentary evidence (client's certificate – atleast two) in support of the satisfactory operation of the equipment as specified above. 8. Notwithstanding anything stated above the purchaser reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser. 9. Comprehensive warranty with spares and consumables for 3 years from the date of installation of the instrument should be covered. 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF COMBINED NITROGEN AND ZERO AIR GAS GENERATOR FOR GC/GC-MS

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)				
Code Number: ICB-14-4				
Equipment Name: Combined Nitrogen and Zero Air Gas Generator for GC/GC-MS				
Quantity: 2 (Two)				
S. No.	Specifications	Requirement		BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Description	Nitrogen Specifications	Zero Air Specifications	
2.0	Application	For use along with GC, GC-MS for analysis of trace organics, PAHs / BTX / NMHC & other VOCs in environmental samples	For use along with GC, GC-MS for analysis of trace organics, PAHs / BTX / NMHC & other VOCs in environmental samples	
3.0	Purity of Generated Gas	99.999% pure, GC grade. Almost free of most reactive anthropogenic pollution (NO, NO ₂ , SO ₂ , CH ₄ & Non-Methane hydrocarbons etc.)	99.999% pure, GC grade. Almost free of most reactive anthropogenic pollution (NO, NO ₂ , SO ₂ , CH ₄ & Non-Methane hydrocarbons etc.)	
4.0	Capacity	300 ml / min or more at 5 kg / cm ²	1500 ml / min or more at 5 kg / cm ²	
5.0	Moisture	< 2 ppm	< 2 ppm	
6.0	Oxygen	< 5 ppm	-	
7.0	Total Hydrocarbon (THC) Removal Efficiency	< 0.3 ppm or > 99.5 %	< 0.3 ppm or > 99.5 %	
8.0	CO & CO ₂ Removal	< 2 ppm or > 99.5 %	< 2 ppm or >99.5 %	
9.0	Micron particulates	< 0.01 μ	< 0.01 μ	
10.0	Method of Purification	Pressure Swing Adsorption (PSA) & Depressurisation	Pressure Swing Adsorption (PSA) & Depressurisation	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)				
Code Number: ICB-14-4				
Equipment Name: Combined Nitrogen and Zero Air Gas Generator for GC/GC-MS				
Quantity: 2 (Two)				
S. No.	Specifications	Requirement		BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
11.0	Pressure accuracy	0.1 bar ($\pm 0.5\%$)	0.1 bar ($\pm 0.5\%$)	
12.0	Start up time	programmable by timer	<10 min	
13.0	Power requirement	230 \pm 10 V AC, 50 Hz, single phase		
14.0	Approx. weight of generator (in kg) (with compressor)	Less than 80 kg		
15.0	Soundproof Compressor Enclosure	With built-in oil free air compressor preferably with heat resistant & silencing cabinet.		
		Economy mode option – Enabling the compressor to switch off when Nitrogen / Zero Air supply is not required.		
		Noise level for air compressor should be < 65 dBA		
		Max pressure of 120 psi and max current 7.5 A.		
16.0	Display	Microprocessor controlled, Graphic		
17.0	Alarm / Indicator	Audible and visual maintenance indicator		
18.0	Safety Certification	Should meet International Safety Certification		
19.0	Accessories	Operation and Maintenance Manual, Required Tools should be provided with a list & quantity of supplied items		
20.0	Spares & Consumable	Two years of trouble free operation should be provided with a list & quantity of spares & Consumables to be supplied		
21.0	Warranty	Three years comprehensive warranty including spares consumables necessary for trouble free operation / working without down time.		
22.0	Installation & Training	Onsite installation and training to laboratory official for its operation & Maintenance		

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF ECHO SOUNDER

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-5			
Equipment Name: Echo Sounder			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.	Description	Portable with proper cable, battery charger, accessories Echo Sounder for depth measurement at Deep water lakes, tributaries, coastal area	
2.	Display	TFT or LCD (4 Lines x 16 character)	
3.	Type	Single beam, Dual Frequency	
4.	Depth Range	0 to 200 meters	
5.	Data Recording	Chart recording & Computer compatible	
6.	Accuracy	± 0.1 %	
7.	Resolution	- 0.01	
8.	Data Output	Format from GPS/DGPS (Internal GPS/DGPS optional) or external source as a software package	
9.	Connection	Easily connected with PC or Laptop	
10.	Input Power	11 – 24 Volts	
11.	Operating Temperature	-10 °C to 55°C	
12.	Depth Alarm	Shallow & Deep Water	
13.	Sound Velocity	1200- 1500 meter/Sec user selected through keypad	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF ELEMENTAL (CHNS) ANALYZER FOR CARBON, HYDROGEN, NITROGEN, SULPHUR ANALYSIS

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number:ICB-14-6			
Equipment Name: Elemental (CHNS) Analyzer for Carbon, Hydrogen, Nitrogen, Sulphur Analysis			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
1.0	ELEMENTAL ANALYZER SYSTEM	Fully automated PC controlled simultaneous CHNS preferably with O analyzer with high sensitivity detector and capable for multiple operating mode with sample (solids & liquids) size of 0.02 to 1000 mg.	
1.1	Application	The instrument should accept solid sample such as solid waste, hazardous waste, coal, coke, biomass, liquid waste etc. System should be real multi matrix analyzer, capable to analyze solids, liquid, liquid volatile samples with suitable auto sampler	
1.2	Selectable operation mode	Measurement of CHNS, CHN, CNS, Total Carbon, Total N, Total S, Traces sulphur and O separately.	
1.3	Sample Combustion System	Should have atleast two furnaces for working in both vertical and horizontal operation with same system with independent temperature control up to 1200 °C for each furnace to ensure complete oxidation of sample.	
		Should have ash finger to hold ash and prevent ash from affecting catalyst and quartz combustion tube.	
		Should have mass flow controller for constant flow of carrier gas.	
		System should have auto protection due to fully integrated safety features for increased operational safety and minimized maintenance expenditure.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number:ICB-14-6			
Equipment Name: Elemental (CHNS) Analyzer for Carbon, Hydrogen, Nitrogen, Sulphur Analysis			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		Should have auto recognition and conditioning of all present modular using internal intelligence.	
1.4	Analytical range	PPB to percent weight for all elements	
1.5	Analysis time	Self optimizing depending on element content and weight, but preferably less than 10 minutes in any case.	
1.6	Analytical Gases	Helium (99.995% purity) as carrier gas and Oxygen (99.995 % purity) as combustion gas	
1.7	Detector system	TCD detector for measurement of C-H-N-S and O IR Detector or FPD detector for measurement of Sulphur	
1.8	Calibration	Matrix free, Multiple point calibration, long term stability	
1.9	Accuracy	CHNS \leq 0.5 % ; Oxygen \leq 0.5 %	
1.10	Precision	CHNS \leq 0.5 % : Oxygen \leq 0.3 %	
1.11	Power requirement	230 \pm 10 V AC, 50 Hz, single phase	
2.0	AUTO SAMPLER	Electro mechanical auto sampler system with 100 positions or more for solid and liquid samples with possibility of direct syringe injection of liquid	
3.0	CONSUMABLES	Consumables to be supplied should be sufficient for 3000 sample analysis.	
4.0	REFERENCE STANDARDS	Pure chemical reference standard (one set for each element) must be supplied with the system.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number:ICB-14-6			
Equipment Name: Elemental (CHNS) Analyzer for Carbon, Hydrogen, Nitrogen, Sulphur Analysis			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
5.0	COMPUTER SYSTEM		
	Make	Reputed brand such as HP/Compaq/Dell	
	Processor	Intel Core i5 2500 @ 3.30 GHZ, 1333 MHz FSB processor	
	RAM	4 GB DDR 3 RAM (upgradeable to 8 GB)	
	HDD	500 GB 7200 RPM SATA HDD	
	Monitor	21" TFT-LCD Flat Colour (Digital)	
	DVD Writer	22 X DVD- Multi-drive	
	Ports	2 Serial, 1 parallel and 2 USB front 3 Rear USB2 Port, 1PS-2 Keyboard, 1PS-2 Mouse port, 1VGA 4 bays (2 external & internal) with LAN 1PS	
	Key board	Latest multimedia (HP / Microsoft) Internet ready	
	Mouse	Optical mouse with pad	
	Ethernet	32/64 bit auto selectable 10/100 MBPS	
	Graphics	Integrated Graphics Media Accelerator x 4500, support upto 800 MB video memory through DVMT	
	Sound	Integrated 5.1 Channel high definition audio subsystem and inbuilt stereo speakers	
	Printer	HP LaserJet Color Printer 1200 x 1200 dpi 12 PPM	
5.1	Software	Pre-loaded Windows 7 Professional or latest operating system with Licensed CD compatible with application software	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number:ICB-14-6			
Equipment Name: Elemental (CHNS) Analyzer for Carbon, Hydrogen, Nitrogen, Sulphur Analysis			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		MS Office Professional 2013 with media, manual and Licensed CD compatible with application software	
		Preloaded Norton Antivirus with latest version of 3 years lifetime along with Licensed CD compatible with application software	
5.2	Application Software	Programme facility with multitasking windows base software displaying method sample and analysis status.	
		Display of set and actual pressure, flow rate, temperature, no. of sample analyzed.	
		Provision for setting maintenance interval with warning regarding maintenance needed.	
		Online display of graphics and text data	
		Should have segmented leak check through software.	
		Auto leak failure or electronic failure detection.	
		Instrument control reintegration / report, calibration, automatic data acquisition and processing.	
		Calculation of data and report formatting.	
6.0	SAMPLE PACKING	Should be supplied with required accessories for solid sample packing	
		Should be supplied with liquid sample sealing press for packing and analysis of liquid samples. The sealing press should allow for sealing of samples under inert gas flow to ensure air free packing.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number:ICB-14-6			
Equipment Name: Elemental (CHNS) Analyzer for Carbon, Hydrogen, Nitrogen, Sulphur Analysis			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
7.0	ADDITIONAL ITEMS (Compulsory)		
7.1	Microbalance		
	Operation	Bright touch screen operation	
	Control	Hands free infrared controlled opening and closing of draft should:	
	Weigh range	Weighing range : upto 6100 mg	
		Resolution: 0.001 mg	
		Repeatability: 0.8 to 0.9 microgram	
		Linearity: $\pm 2 - 4 \mu\text{g}$	
7.2	Sample Grinding Mill (Branded & Indigenous)	Grinding Mill upto 1 Kg capacity to grind coal, soil, solid waste, hard material	
8.0	OPERATION AND MAINTENANCE TRAINING	On site comprehensive training for scientific officials operating the system and support services till customer satisfaction with the system followed by complementary (all expenditure including) one week training for two scientists on operation and maintenance aspects of the instrument at manufacturers application laboratory in the country	
9.0	WARRANTY	Comprehensive warranty with spares for 3 years from the date of installation of the instrument should be covered. The AMC charges to be mentioned for next two years after warranty is over.	
10.0	GENERAL CONDITIONS OF SUPPLY	1. The instrument and all its sub units should operate on 230 ± 10 volts 50 Hz power supply.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number:ICB-14-6			
Equipment Name: Elemental (CHNS) Analyzer for Carbon, Hydrogen, Nitrogen, Sulphur Analysis			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		<ol style="list-style-type: none"> 2. All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English language. 3. The supplier / manufacturer should have Indian agent to provide after sales service. 4. The principal should provide a certificate that they will provide the spares in future for at least ten years. 5. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. 6. The Bidder should be a manufacturer/authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied two numbers of such equipment in the past five years similar to the type specified, which shall be in successful operation for atleast 2 years as on the date of bid opening. 7. The bidder should furnish the information on past supplies and their satisfactory performance. 8. Bidders shall invariably furnish documentary evidence (client's certificate – atleast two) in support of the satisfactory operation of the equipment as specified above. 9. Notwithstanding anything stated above the purchaser reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser. 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF FLASH POINT APPARATUS

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-7			
Equipment Name: Flash Point Apparatus			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Description:	Portable, Electrically heated equipment to measure flash point of waste, oils, lubricating oils, waste fuels, petroleum products, water liquid, paints as per latest flash point ASTM Standards method ASTM D 5450 & D 7094.	
2.0	Controller	Microprocessor based process controller-cum-indicator. Flash point measurement by Continuously Closed Cup with RTD sensor or equivalent sensor	
3.0	Sample volume	Small; 1 to 10 mL	
4.0	Ignition	Electric Arc ignition inside closed measuring chamber;	
5.0	Temp. range	Upto 400 °C	
6.0	Temp. readout & control	Digital, Built in temperature control	
7.0	Heater	Automatic Electric heater to regulate temperature as per method requirement for sample execution	
8.0	Flash Detector	Automatic measurement of flashpoint by change in pressure / temperature / ionization	
9.0	Stirrer	Atleast two speed or more	
10.0	Measuring time	5-10 min per sample	
11.0	Pressure correction	Automatic	
12.0	Cooling	Force cooling facility	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-7			
Equipment Name: Flash Point Apparatus			
Quantity: 5 (Five) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
13.0	Interface	<ul style="list-style-type: none"> • Computer & Printer • Connection for external keyboard or bar code reader 	
14.0	Calibration	Simple, factory calibrated with calibration certificate from NABL accredited calibration laboratory or traceable to National/International standard. Should be supplied with calibration Liquid – 2 bottles.	
15.0	Power Supply	230 V ± 10 V AC 50 Hz single phase	
16.0	Safety features	Fire safe with fire sensor over temperature cut out facility or as safety features as per method requirement	
17.0	Accessories	Syringes, igniter, electrical cable, instruction manual (2 Nos.) calibrated thermometer from NABL accredited calibration laboratory or National/International traceable	
18.0	Other Accessories	Sample cup 4 ml as per method requirement- 1 No. Sample cup 7 ml as per method requirement - 1 No. Sample cup carrier - 1 No. Stirring magnet - 6 Nos. Brass eraser - 2 Nos. Power supply cable RS232 printer cable	
19.0	Other Requirements	There should be minimum two or more working installations in the country with good performance report	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF GAS CHROMATOGRAPH

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
1.0	INSTRUMENT COMPOSITION		
	Gas Chromatograph	One set	
	Capillary Column with accessories	One set each of specified columns	
	ECD Detector	One set	
	FPD Detector	One set	
	GC Data Station	One set	
	Auto Sampler	One set	
2.0	TECHNICAL SPECIFICATION		
2.1	GC System	Computer controlled Data Workstation based computer compatible (GC). Built in Diagnostics and Comprehensive Self-Testing	
2.2	Oven temperature programming ramps	At least 6 ramps and seven plateau	
2.3	Heated zones	At least six including Oven, Two Injectors, Two Detectors and One Auxiliary	
2.4	Display	Functional keyboard with four line alphanumeric display	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		Display include temperature and pressure / flow parameters, type of carrier gas, carrier gas column pressure, flow rates, split flow, detector gas flow rates and all detector parameters including method and Auto sampler information.	
2.5	Memory protection	Power fail memory protection,	
2.6	Storage facility	Unlimited methods and automated sequences.	
2.7	Networking and data communication	LAN interface	
2.8	Method editing facility	Non-active methods should have editing facility	
2.9	System leak check	Unattended and automated system leak simultaneous check	
2.10	Injector / Detector mounting	2 Injectors and 2 detectors simultaneous mounting and capable to hold 100 µm to 530 µm different diameter capillary to mega bore columns	
2.11	Purge system	Effective Gas Saver and Septum Purge System	
2.12	Injection facility	Automatic and Manual Injection both	
3.0	COLUMN OVEN	High performance, large capacity oven accommodating at least two capillary column	
	Volume	More than 10 Litres	
	Operating temperature	Maximum 4 °C above ambient to 450 °C	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Temperature set point	± 1°C	
	Temperature Stability	± 0.01°C for 1°C ambient change	
	Ramp rate	Upto 120°C / minute	
	Heating time	Maximum 8 mins (50 – 400 °C)	
	Cooling time	Maximum 5 mins (400 – 50 °C)	
	Facility for	Column bleed compensation	
	Vent temperature control	Microprocessor control in automatic sequence and fast	
4.0	FLOW / PRESSURE CONTROLLER		
4.1	Electronic Pneumatics Control (EPC) channels	Inlets, detectors, or auxiliary gases through Data Processor with Screen display of pressure / flow	
4.2	Pressure adjustment	0.01 psi increment	
4.3	Compensation (pressure/temp.)	Atmospheric pressure compensation for altitude and ambient temperature variations	
4.4	Pressure / flow programming ramps	Two or more	
4.5	EPC setting facility	Computer work station system	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
4.6	EPC sensor	Inlets and detectors for all gases (carrier gas, make up gas and support gas in detectors, and carrier and split vent gas in inlets)	
4.7	Flow/pressure set points	On each inlet on detector parameter screen	
4.8	Flow sensor for control and storage of	Split ratio in split / splitless and PTV injector	
5.0	INJECTOR	Two injectors mounting, one split / splitless injector one PTV (Programmable Temperature Vaporizer)	
5.1	Protection	Heater, Temperature Sensor and protection from overheating	
5.2	Capacity	To hold all types and all sizes of capillary columns and mega bore columns as well	
5.3	Purge adjustment	Efficient Septum Purge system, purge time adjustable	
5.4	Compatibility	Solid Phase Micro Extraction (SPME) system	
6.0	SPLIT / SPLITLESS INJECTOR	Forward inlet pressure programming with an optimized modular, uniform thermal profile for split / splitless injections	
6.1	Flow control	Electronic pressure / flow control	
6.2	Temperature control	Upto 400°C for split/splitless injector with 1°C increment	
6.3	Solvent / backflush facility	Solvent Rejection and backflush	
7.0	PTV INJECTOR		
	Injection volume	Large volume splitless injections	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Pressure/flow control	Electronic pressure/flow control	
	Operating temperature	Upto 400 °C	
	Programme ramps	Atleast 3 temperature programme ramps	
	Solvent Back flush facility	Solvent rejection and back flush	
8.0	DETECTORS (COMPULSORY)	Detector combination would be ECD-FPD	
	Temperature range	Upto 400 °C	
	Detector mounting	Two detectors should be mounted	
	Pressure control	EPC and electronic on/off facility for all detector gases	
	Auto zero & protection	Detector with makeup gas and automatic zeroing facility and overheat protection	
8.1	ECD Detector	Coaxial design based on Ni ⁶³ Source	
	Linear Dynamic Range should be	Better than 10 ⁴	
	Departure from linearity should be	Less than ±1% for the entire range	
	Operating temperature (maximum)	400 °C	
	Pressure / Flow control	Electronic pressure/flow control	
	Minimum Detection Limit (MDL)	Less than 10 fg/sec of Lindane	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Makeup Gas	Argon / 5% Methane or Nitrogen	
8.2	FPD Detector	Electronic pressure control, Wavelength version with detector of phosphorous & sulfur with filter change.	
	Temperature operating limit	Upto 400 °C	
	Dynamic range	Better than 10 ⁶	
9.0	AUTOSAMPLER		
	No. of sample vial	Capable of accommodating minimum 100 nos. vials.	
	Syringe capacity	Upto six different syringe capacity	
	Washing solvent	Upto four different washing solvents in 4 ml vials	
	Injection port access	Access three injection ports without requiring an additional tower	
	Internal standard calibration	Automated internal standard calibration and "sandwich" technique	
	Programming	Completely programmable from Workstation software	
10.0	COLUMNS	Bonded phase, fused silica capillary column with (one each)	
		DB-1701 or equivalent 30 m x 0.25 mm ID having x 0.25 µm film thickness Film - 14% cyanopropyl phenyl and 86% dimethyl polysiloxane co-polymer column	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		Ultra-1 : 25 m x 0.2 mm ID having 0.33 µm film thickness Film - 100% dimethyl polysiloxane	
		HP-5-MS 60 m x 0.25 mm ID with 0.25 µm film thickness ultra low bleed column Film - 5% di-phenyl and 95% dimethyl polysiloxane copolymer column	
		Ultra-2 : 25 m x 0.2 mm ID having 0.33 µm film thickness, Ultra low bleed column Film - 5% diphenyl and 95% dimethyl polysiloxane co-polymer column	
11.0	DATA STATION		
11.1	Licensed Application Software	With basic programming facility, Accurate and Reproducible Integration	
	Data acquisition	Atleast three simultaneous chromatograms and data acquisitions Reintegration Report Multilevel Calibration Baseline Correction Area Calculation Background Subtraction and Custom/tailored report format facility should be in-built	
	Memory Protection	Battery backup for memory protection	
	Data export / import	Data Export/Transformation to data base software i.e., Excel and Access should be supplied with the system	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Quality control	Software for Quality Control Protocols	
	Data display / handling	Software for data display, handling, data export/import and reporting	
11.2	Computer System		
	Make	Reputed brand such as HP/Compaq/Dell	
	Processor	Intel Core i7 3770 (3.4 GHz, 8MB cache, 4 cores)	
	RAM	4 GB DDR-III RAM 1066 MHz (upgradeable to 8 GB)	
	HDD	3.5", 500 GB 7200 RPM SATA HDD	
	Monitor	21" TFT-LCD Flat Colour (Digital)	
	DVD Writer	22 X DVD Multi-drive Internal	
	Ports	2 Serial, 1 parallel and 2 USB front 3 Rear USB2 Port, 1PS-2 Keyboard, 1PS-2 Mouse port, 1VGA 4 bays (2 external & internal) with LAN 1PS	
	Key board	Latest multimedia (HP / Microsoft) Internet ready	
	Mouse	Optical mouse with pad	
	Ethernet	32/64 bit auto selectable Ethernet ports with autosensing, 2 nd NIC card on PCI, Autosensing is to cater to 100 / 1000 Mbps speeds automatically and not a boot ROM.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Graphics	Integrated Graphics Media Accelerator x 4500, support upto 800 MB video memory through DVMT	
	Sound	Integrated 5.1 Channel high definition audio subsystem and inbuilt stereo speakers	
	Printer	HP LaserJet Printer 1200 x 1200 dpi 12 PPM black	
11.3	Softwares	Pre-loaded Windows 7 Professional or latest version operating system with Licensed CD should be compatible with operational software.	
		MS Office Professional 2013 with media, manual and Licensed CD	
		Preloaded Norton Antivirus latest version of 3 years lifetime along with Licensed CD	
12.0	ACCESSORIES		
	Operation / maintenance manual	Operation and maintenance manual	
	Application Notes	Application notes in (CD) for pesticides, PAHs, PCBs, PCPs, VOCs, THMs, Dioxins & Furans in environmental samples	
	Service manual	Service manual	
	N ₂ Gas Regulator	N ₂ gas complete stainless steel regulator (2 stage) with necessary tubing and connectors (1 No.)	
	Hydrogen gas regulator	H ₂ gas complete stainless steel regulator with (2 stage) with necessary tubing and connectors (1 No.)	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Zero air regulator	Zero air complete stainless steel regulator (2 stage) with necessary tubing and connectors (1 No.)	
	Tool kit	One set of required tools	
	Gas Cylinders	H ₂ , N ₂ and Zero Air with purifier and moisture trap	
		High pressure stainless steel cylinder filled with high purity 99.999% gases. Gas capacity 7 m ³ , water capacity 47 liters. Cylinders should be ISI marked conformed to IS-7285 specifications, Flat bottoms fitted with valve cap, painted as specified under gas cylinder standards as per IS-3224 complete with neck ring and cylinder cap. Should be supplied with Hydraulic Certificate and certificate from Chief Controller of Explosives, Nagpur: Hydrogen - one Nitrogen - one Zero - one	
13.0	SPARES & CONSUMABLES	Spares and consumables sufficient for two years trouble free operation should be included in the offer and supplied with each system	
	Column nut	2 Nos.	
	Washer	2 Nos.	
	Graphite / vespel ferrules different sizes	20 Nos. each	
	Inlet Septa (self sealing for injectors)	200 Nos.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	O ring	20 Nos.	
	Copper tubing with connectors	50 mtrs.	
	Micro syringes for manual injection (5 µl)	4 Nos.	
	Micro syringes for manual injection (10 µl)	4 Nos.	
	Copper tube cutter	1 No.	
	Auto sampler vials (2 ml)	500 Nos.	
	Auto sampler septa and caps	2000 Nos.	
	Auto sampler spare syringes	1.0 µl – 5 Nos. 5.0 µl – 5 Nos. - additional	
14.0	WARRANTY	Comprehensive warranty with spares for three years from the date of installation of the instrument should be covered. AMC amount for next two years also to be quoted after warranty.	
15.0	OPERATION AND MAINTENANCE TRAINING	The supplier has to impart on-site operation training at the time of installation followed by Complimentary (all expenditure inclusive) one week training to two scientists on application, Routine maintenance and software training at their application laboratory in India.	
16.0	GENERAL CONDITIONS OF SUPPLY	1. The instrument and all its sub units should operate on 230 ±	9.

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-8			
Equipment Name: Gas Chromatograph			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		<p>10 volts 50 Hz power supply.</p> <p>2. All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English language.</p> <p>3. The supplier / manufacturer should have Indian agent to provide after sales service.</p> <p>4. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier.</p> <p>5. The Bidder should be a manufacturer/authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied two numbers of such equipment similar to the type specified in the past five years, which shall be in successful operation for atleast 2 years as on the date of bid opening.</p> <p>6. The bidder should furnish the information on past supplies and their satisfactory performance.</p> <p>7. Bidders shall invariably furnish documentary evidence (client's certificate – atleast two) in support of the satisfactory operation of the equipment as specified above.</p> <p>8. Notwithstanding anything stated above the purchaser reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser.</p>	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF GAS CHROMATOGRAPH MASS SPECTROPHOTOMETER (GC-MS)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZO)s			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
1.0	INSTRUMENT COMPOSITION		
	Gas Chromatograph with accessories	One Set	
	Injectors	Two Sets, one for manual injections and another with Auto sampler	
	Mass Spectrometer with accessories	One Set	
	Capillary columns with accessories	One Set of each specified columns	
	Software for Automatic control of the system, Data Acquisition and processing	One Set	
	Vacuum Pump for MS with accessories	One Set	
	Electron Capture Detector (ECD) with accessories	One set	
	Auto Sampler	One set	
2.0	TECHNICAL SPECIFICATIONS		
2.1	Gas Chromatograph	Fully Computer controlled with Injectors, Oven, Detector, EPC and related electronics	
2.2	Make	Basic unit as well as other major components of the same manufacturer	
2.3	Display	Alphanumeric digital display in at least four lines	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
2.4	Parameters setting & control	Through Application Software as well as through Keyboard of the Instrument	
2.5	Injector / Detector mounting	2 Injectors and Electron Capture Detector (ECD).	
2.6	Capillary Column mounting	Capable to hold two capillary columns of different diameter (100 µm to 530 µm)	
2.7	Heated Zones	At least five Heated Zones including two Injectors, Oven, Detector and Auxiliary	
2.8	Purge system	Gas Saver and Septum Purge System	
2.9	Memory protection	Memory protection during Power Failure	
2.10	Diagnostics & self testing	Built in Diagnostics and Comprehensive Self-Testing	
2.11	Data Acquisition	Simultaneous from two signal channels i.e. Mass Spectrometer and ECD	
3.0	INJECTOR-1	Split/splitless Injector (for Manual Injection)	
3.1	Constituents	Modular Injector with Heater, Temperature and Pressure Sensors	
3.2	Modes of Injections	Splitless and Split Injections	
3.3	Column compatibility	100 to 530 mm ID Capillary Columns	
3.4	Provisions for	Overheat Protection , Septum Purge and Gas Saver	
3.5	User Settings	User adjustable setting of Split Ratio, Purge Flow and Purge Time	
3.6	Temperature Range	50°C to 400°C	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
3.7	Temperature Increments	Minimum 1°C in the entire operating range	
3.8	Temperature programming capability	Injector temperature programming	
3.9	Temperature Programme Ramps	At least 3	
3.10	Temperature Ramp Rate Range	Up to 120°C/min or more	
3.11	Pressure programming capability	Yes	
3.12	Number of Pressure Programme Ramps	At least 3	
3.13	EPC Pressure Range	0 to 100 psi	
3.14	Operation Modes	Constant Pressure, Ramped Pressure, Constant Flow and Ramped Flow	
3.15	Total Flow setting range	N ₂ : 0.1 to 100 ml/min, He: 0.1 to 100 ml/min, H ₂ : 0.1 to 1000 ml/min	
3.16	Maintenance	Quick and easy maintenance provisions	
4.0	INJECTOR-2	Multimode Injector (for use with Autosampler) – Located at back position	
4.1	Constituents	Modular Injector with Heater, Temperature and Pressure Sensors	
4.2	Inlet Options	Split/splitless, temperature programmable, Large Volume Injection and Cool on column injections	
4.3	Modes of Injections	Hot or cold split/splitless, Pulsed split/splitless, Solvent vent and Direct	
4.4	Column compatibility	50 to 320 mm ID Capillary Columns	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
4.5	Provisions for	Overheat Protection , Septum Purge and Gas Saver	
4.6	User Settings	User adjustable setting of Split Ratio, Purge Flow and Purge Time	
4.7	Temperature Range	50°C to 450°C	
4.8	Temperature Increments	Minimum 1°C in the entire operating range	
4.9	Temperature programming capability	Up to 7 ramps at up to 450 °C/min or above.	
4.10	Temperature Programme Ramps	At least 3	
4.11	Temperature Ramp Rate Range	From 0.1 to 120°C/min	
4.12	Pressure programming capability	Yes	
4.13	EPC Pressure Range	0 to 100 psi	
4.14	Operation Modes	Constant Pressure, Ramped Pressure, Constant Flow and Ramped Flow	
4.15	Total Flow setting range	N ₂ : 0.1 to 100 ml/min, He: 0.1 to 100 ml/min, H ₂ : 0.1 to 1000 ml/min	
4.16	Maintenance	Quick and easy maintenance provisions	
5.0	OVEN		
5.1	Volume	More than 13 Litres; should have provision to accommodate minimum two nos. Capillary columns or more at a time.	
5.2	Column Compatibility	Capillary (0.10 / 0.20 / 0.32 / 0.53 mm ID)	
5.3	Temperature Range	50°C to 450°C or more	
5.4	Temperature Increments	Minimum 1°C	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
5.5	Temperature Accuracy	± 1% for the entire range	
5.6	Temperature Stability	± 0.1°C	
5.7	Column Overheat Protection	User defined setting	
5.8	Oven Safety Features	Oven power must turn off automatically when the lid / door is opened automatic carrier gas shut off if inlet pressure drops significantly.	
5.9	Temperature Programming	Minimum six Ramps and seven Plateaus	
5.10	Programming Rate Range	0.1 to 120 °C/min	
5.11	Heat Up Time	Less than 2.0 min (50°C or lower to 250°C)	
5.12	Cool Down Time	Less than 4.0 min (450°C to 50°C)	
5.13	Resetting of Program	Automatic by user defined sequence	
5.14	Maximum Run Time	Minimum 650 minutes	
5.15	Injector Compatibility	Split / Splitless Injector and Multimode Injector	
5.16	Detector Compatibility	Mass Spectrometer (MS) and ECD	
6.0	ELECTRONIC PNEUMATICS CONTROL (EPC) SYSTEM		
6.1	Type	Dual column, dual flow	
6.2	Control of inlet pressure, flow rate of the carrier gas and split ratio	Through the Application Software	
6.3	Parameters Display	On-screen digital display	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
6.4	Pressure and flow programming	Time programmable between the run	
6.5	Dean's pressure switch	For bifurcating the column eluents to two different columns	
7.0	CAPILLARY COLUMNS	Low Bleed Capillary Columns with following Dimensions	
7.1	HP-5MS or equivalent	60 m x 0.25 mm x 0.25 µm	
7.2	Uncoated deactivated Silica Column (Guard Column)	5m x 0.25 mm	
8.0	MASS SPECTROMETER (DETECTOR)		
8.1	Control	Provisions for automatic Start and Shut Down through Application Software. Parameters should be set and controlled through the Software	
8.2	GC Interface	Short heated Interface	
8.3	Interface Temperature range	100°C to 350°C	
8.4	Mass Source	Should have EI, CI, Positive CI, Negative CI facility with automatic tuning and acquire both SIM and scan data from single injection.	
8.5	Electron Source	Easy access heated inert Filament	
8.6	EI / CI Source Change-over	Easy & Quick changeover by user	
8.7	Source Temperature Range	125°C to 300°C	
8.8	Analyser Type	Transmission Quadrupole with pre-filter	
8.9	Noise Reduction	Heated Quadrupole Pre-filter / Entrance lens / any other proven means for noise reduction.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
8.10	Analyser Temperature Range	150°C to 200°C	
8.11	Mass Range	10 to 1000 amu or more	
8.12	Mass Stability	Less than ± 0.1 amu accuracy over 48 hours	
8.13	Ionisation Modes	Electron Ionisation, Positive / Negative Chemical Ionisation	
8.14	Electron Ionisation Voltage	10 – 100 eV	
8.15	Vacuum Pump	200 L/sec or better highly efficient Turbo-Molecular Pump	
8.16	Pump Down Time	For air / water < 3 minutes	
		For qualitative stability < 15 minutes	
		For quantitative stability < 90 minutes	
8.17	Detector	Electron Multiplier or Photo Multiplier	
8.18	Mass Tuning Standard	PFTBA (FC-43), BFB, DFTPP	
8.19	Resolution	1 amu or better	
8.20	Scan Rate	Fully variable 10000 amu / sec or more	
8.21	Scan Step Size	0.1 amu or less	
8.22	Acquisition Rate	50 Full Scans or better / sec depending on mass range	
8.23	Linear Dynamic Range	Concentration 10 ⁵	
		Electronic 10 ⁶ – 10 ⁷ dependent on acquisition rate	
8.24	Number of SIM Groups / Run	Minimum 30 Groups	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
8.25	Number of Ions / Group	Minimum 30 Ions	
9.0	SENSITIVITY (DETECTION LIMITS)		
9.1	EI Scan	1 pg of OFN at S/N of 600:1 RMS	
9.2	EI SIM Scan	100 fg of OFN at S/N of 25:1 RMS	
10.0	MASS SPECTRAL LIBRARIES		
10.1	NIST Mass Spectral Library	Version Year 2011 or latest preloaded on Data Station and Licensed backup CD Compatible with operation software.	
10.2	NIST Chemical Structures Database	Latest version available on date of quotation preloaded on Data Station and backup Licensed CD compatible with operation software.	
11.0	ADDITIONAL CAPABILITIES		
11.1	Acquisition	Simultaneous Full Scan as well as SIM Acquisition	
11.2	Ability to split column effluent	To ECD in addition to MS with dual signal capability	
11.3	Applying constant flow rate	To the MS regardless of column flow rate (use of any column at any flow rate)	
11.4	Column replacement	Without cooling and venting the MS	
11.5	Injector Maintenance	Without cooling and venting the MS / Back flushing	
12.0	Electron Capture Detector (ECD)		
12.1	Linear Dynamic Range should be	10 ⁴ or Higher	
12.2	Departure from linearity should be	Less than ±1% for the entire range	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
12.3	Operating temperature (maximum)	400 °C	
12.4	Pressure / Flow control	Electronic pressure/flow control	
12.5	Sensitivity	Less than 10 fg/sec of Lindane	
12.6	Makeup Gas	Argon / 5% Methane or Nitrogen	
13.0	AUTOSAMPLER		
13.1	Number of Sample Vials	Capable of accommodating 100 Vials or more	
13.2	Syringe capacity	Capable of accommodating up to six different syringe capacity	
13.3	Injection volume	Selectable between 1 and 10 microlitre or more should be available	
13.4	Washing solvent	Up to four different washing solvents in 4 ml Vials	
13.5	Programming	Sequence and repetition programmable from workstation software	
14.0	OPERATING CONDITIONS		
14.1	Power Supply	230 ± 10 Volts; 50 ± 1 Hz AC Power supply	
14.2	Operating Temperature	15°C to 30°C	
14.3	Relative Humidity	40 to 80 %, non-condensing	
15.0	DATA STATION		
	Application Software	Multitasking software with programming facility	
	Capabilities	Accurate and Reproducible Integration	
		Reintegration / Replot	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		Baseline Correction	
		Multilevel Calibration	
		Background Subtraction	
		Library Search	
		Quantitative Analysis	
		Customizable Report Formats	
	Software control	The whole system including GC - MSD, Injectors and additional Detector (ECD)	
	Parameters control	Flow, Temperature, Pressure and Vacuum System	
	System Auto Tuning	Through Tuning Standards	
	Analytical Quality Control	Calibration check samples	
		Spike recoveries	
		Calibration verification and	
		QC limits	
16.0	COMPUTER SYSTEM		
	Make	Reputed brand such as HP/Compaq/Dell	
	Processor	Intel Core i7 3770 (3.4 GHz, 8MB cache, 4 cores)	
	RAM	4 GB DDR-III RAM 1066 MHz (upgradeable to 8 GB)	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	HDD	3.5", 500 GB 7200 RPM SATA HDD	
	Monitor	21" TFT-LCD Flat Colour (Digital)	
	DVD Writer	22 X DVD Multi-drive Internal	
	Ports	2 Serial, 1 parallel and 2 USB front 3 Rear USB2 Port, 1PS-2 Keyboard, 1PS-2 Mouse port, 1VGA 4 bays (2 external & internal) with LAN 1PS	
	Key board	Latest multimedia (HP / Microsoft) Internet ready	
	Mouse	Optical mouse with pad	
	Ethernet	32/64 bit auto selectable Ethernet ports with autosensing, 2 nd NIC card on PCI, Autosensing is to cater to 100 / 1000 Mbps speeds automatically and not a boot ROM.	
	Graphics	Integrated Graphics Media Accelerator x 4500, support upto 800 MB video memory through DVMT	
	Sound	Integrated 5.1 Channel high definition audio subsystem and inbuilt stereo speakers	
	Printer	HP LaserJet Colour Printer 1200 x 1200 dpi 12 PPM color	
	Softwares	Pre-loaded Windows 7 Professional or latest operating system with Licensed CD	
		MS Office Professional 2013 with media, manual and Licensed CD	
		Preloaded Norton Antivirus latest version of 3 years lifetime along with Licensed CD	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
17.0	SPARES & CONSUMABLES		
	Column nut	2 Nos.	
	Washer	2 Nos.	
	Graphite / vespel ferrules different sizes	20 Nos. each	
	Inlet Septa (self sealing for injectors)	200 Nos.	
	O ring	20 Nos.	
	Copper tubing with connectors	50 mtrs	
	Micro syringes for manual injection (5 µl)	4 Nos.	
	Micro syringes for manual injection (10 µl)	4 Nos.	
	Copper tube cutter	1 No.	
	Auto sampler vials (2 ml)	500 Nos.	
	Auto sampler septa and caps	2000 Nos.	
	Auto sampler spare syringes	1.0 µl – 5 Nos. 5.0 µl – 5 Nos. - additional	
	Any Other	Any other spares and consumables sufficient for three years trouble free operation should also be included in the offer and supplied with each system	
18.0	ACCESSORIES		
18.1	Operation and maintenance manual	Two Sets	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
18.2	Application notes for the analysis of	VOCs, PCBs, PAHs, Pesticides, Carbamates and Carbonyl compounds	
18.3	Service manual	One set	
18.4	Requisite Tools	One set	
18.5	List of spare parts & consumables	One set	
18.6	Troubleshooting Guide	One set	
18.7	High capacity carrier gas purifier	2 each	
18.8	Consumables for three years operation	One set	
18.9	Operation Kit	One set containing all essentials accessories and spares such as Column nut washers, inlet septa, O-rings copper tubing with connector, micro syringes, copper tube cutter, column cutter, brass / stainless steel nuts, brass / stainless steel ferules.	
18.10	Gas Purification Panel	Complete with Gas purification traps moisture trap – silica gel – Molecular sieve 50:50 length 10 inch – Two Nos.	
		Hydrocarbon trap – Activated Charcoal filter for hydrocarbon removal length 10 inch – Two Nos.	
		Oxygen trap – High capacity oxy trap capacity more than 125 CC – Two Nos.	
18.11	Gas Cylinders	- High Pressure Stainless Steel cylinder fitted with high purity 99.99% analytical gases (as mentioned ahead) having gas capacity 7m ³ (water capacity 47 ltrs). Cylinder should be ISI	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		<p>marked confirming to IS 7285 flat bottom fitted with valve as per IS:3224 complete with neck ring and cap painted as specified under Gas Cylinder Rules 1981.</p> <ul style="list-style-type: none"> - Gas cylinder should be supplied with hydraulic test certificate and explosive certificate from Chief Controller of Explosives, Nagpur. <p style="text-align: center;">Helium – One No. Nitrogen – One No. Hydrogen – One No.</p>	
18.12	Gas Cylinder Trolley	<p>One No.</p> <ul style="list-style-type: none"> - Gas cylinder trolley for transporting gas cylinder from transport vehicle to Gas Room / Laboratory. - Stainless Steel Trolley heavy duty construction with rugged polypropylene straps, stainless steel cinch buckles with 8 inch wheel made up of high strength polymer material for safe easy and convenient transfer of single gas cylinder upto 12" in dia meter. 	
19.0	WARRANTY	Comprehensive warranty with spares for 3 years from the date of installation of the instrument should be covered. The AMC charges to be mentioned for next two years after warranty is over.	
20.0	TRAINING	The principal supplier has to impart on site operation training at the time of installation followed by complimentary one week training (all expenditure inclusive) to minimum two Scientist on operation, method development, maintenance, software training, data	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-9			
Equipment Name: Gas Chromatograph Mass Spectrophotometer (GC-MS)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		interpretation (qualitative and quantitative) at instrument manufacturer's application laboratory including application for analysis of VOCs, PAHs, PCBs, Pesticides and other hazardous organic compounds	
21.0	GENERAL CONDITIONS OF SUPPLY	<ol style="list-style-type: none"> 1. The instrument and all its sub units should operate on 230 ± 10 volts 50 Hz power supply. 2. All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English language. 3. The supplier / manufacturer should have Indian agent to provide after sales service. 4. The principal should provide a certificate that they will provide the spares in future for at least ten years. 5. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. 6. The Bidder should be a manufacturer / authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied two numbers of such equipment in the past five years similar to the type specified, which shall be in successful operation for atleast 2 years as on the date of bid opening. 7. The bidder should furnish the information on past supplies and their satisfactory performance. 8. Bidders shall invariably furnish documentary evidence (client's certificate – atleast two) in support of the satisfactory operation of the equipment as specified above. 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF GAS CHROMATOGRAPH WITH METHANIZER

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	INSTRUMENT COMPOSITION		
	Gas chromatograph	One set	
	FID Detector	One set	
	TCD Detector	One set	
	Autosampler	One set	
	Capillary Column with Accessories	One set	
	Data Processing / Automatic Data Station	One set	
2.0	TECHNICAL SPECIFICATIONS		
2.1	GC System Type	Computer controlled, Data workstation compatible Gas Chromatograph (GC) with built in diagnostics and comprehensive self test	
	Temperature programming	At least three ramp oven temperature programming.	
	Heated Zones	At least five heated zones (2 inlets, 2 detectors and one auxiliary) in addition to the oven.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Functional Display	Functional keyboard with four line alphanumeric display. Display should include temperature and pressure / flow parameters, type of carrier gas, carrier gas column pressure, flow rates, split flow, detector gas flow rates and all detector parameters. A dedicated key should allow unattended and automated system leak simultaneous check.	
	Memory Protection	Power fail memory protection. Storage of atleast 5 methods and automated sequences.	
	Interface	RS-232 interface and LAN	
	Injector / Detector mounting	System should be compatible for 2 injectors and 2 detectors simultaneous mounting. System should be compatible for automatic / manual injection.	
	Column Mounting	Capable to hold 100 µm to 530 µm different diameter capillary to mega bore columns.	
	Purge System	Effective gas saver and septum purge system.	
	Start / Stop facility	Remote start / stop facility.	
2.2	Column Oven	High performance, large capacity oven accommodating capillary column and mega bore column	
	Volume	More than 10 litres	
	Operating temperature	Maximum 4 °C above ambient upto 400 °C Cryo cooling with LN ₂ -40 °C or below	
	Temperature set point	±1 °C	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Temperature stability	± 0.01 °C for 1 °C ambient change	
	No. of ramps / plateaus	Minimum 03 ramps and 02 plateaus or more	
	Ramp rate	45 °C /minute or more	
	Heating time	Maximum 8 mins for (50 – 400 °C)	
	Cooling time	Maximum 5 mins for (400 – 50 °C)	
	Column bleed compensation facility Vent temperature control	Computer control in automatic sequence and fast.	
2.3	Flow / Pressure Controller	Sufficient Electronic Pneumatics Control (EPC) Channels for inlets, detectors, or auxiliary gases through Data Processor with Screen display of pressure / flow.	
	Pressure adjustment	Pressure may be adjusted by increment of 0.01 psi. Atmospheric pressure compensation for altitude and ambient temperature variations	
	Pressure programming	2 or more pressure / flow programming ramps.	
	EPC Setting	EPC setting facility should be included in computer work station system.	
	EPC Sensor	EPC sensor should be provided in inlets and detectors for all gases (carrier gas, make up gas and support gas in detectors, and carrier and split vent gas in inlets).	
	Flow / Pressure set points	Flow/pressure set points on each inlet on detector parameter screen.	
	Flow Sensor	Flow sensor for control and storage of split ratio in split / splitless and PTV injector.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
2.4	Injector Mounting	Two injectors mounting, one split / splitless and one Gas phase sample injection system.	
	Injector Operation	Ambient and sub-ambient operations (-40 °C or below)	
	Injector accessories	With heater, temperature sensor and protection from overheating.	
	Injector capability	Should be capable to hold all types and all sizes of capillary columns and mega bore columns	
	Purge System	Efficient septum purge system, purge time adjustable.	
	Inlet	Split/Splitless inlet should be compatible for Solid Phase Micro Extraction (SPME) system	
2.5	Split/Splitless Injector	Injector should have forward inlet pressure programming with an optimised modular, uniform thermal profile for split / splitless injections.	
	Injection Volume	Injector should permit large volume splitless injections.	
	Flow Control	Electronic pressure/flow control.	
	Operating temperature	Upto 400 °C operating temperature for split/splitless injector with 1 °C increment	
	Solvent rejection / back flush	Software controlled facility for solvent rejection and back flush	
2.6	Gas Phase Injector	Gas phase should have a single 10-port GC sample injection valve or a group of valves sufficiently fitted with a sample loop (1 ml or more) and back flush facility compatible to on column injection.	
	Pressure / Flow control	Electronic pressure/flow control.	
	Operating temperature	Operating temperature should be upto 400 °C.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Temperature programming ramp	Atleast 3 temperature programme ramps	
3.0	DETECTORS	Detector combinations would be FID-TCD	
	Temperature range	Temperature range upto 400 °C	
	Pressure control	All the detectors should have Electronic Pressure Control (EPC) and electronic on/off facility for all detector gases.	
	Detector	Detector with makeup gas and automatic zeroing facility and over heat protection	
3.1	FID	Programmable Electronic Pressure/Flow Control	
	Operating temperature	Operating temperature (maximum) should not be less than 400 °C (1.0 °C step)	
	Flame detection	Flame out detection facility	
	Minimum detection limit	<5 pg carbon/sec	
	Linear dynamic range	< ± 10%, 10 ⁷ with N ₂	
	Ignition	Auto ignition facility through computer	
3.2	TCD	Thermal Conductivity Detector responding to all compounds	
	Minimum Detection Level	400 pg tridecane/ml with Helium carrier	
	Maximum Temperature	400° C in 1° C increment	
	Linearity	>10 ⁵ ± 5 % entire range	
	Make up Gas	0 to 12 ml/min	
	Reference Gas	0 to 100 ml/min	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Standard EPC	For He, Ar or H ₂ matched to carrier gas type	
4.0	AUTOSAMPLER		
	Syringe capacity	Should accommodate upto three different capacity syringes ranging from 1 to 200 microlitre or more.	
	Injection volume	Selection of the injection volume between 1 and 200 microlitre or more.	
	Washing solvent	Should accommodate upto four different washing solvents.	
	Injection capability	Should be capable to access two injections without requiring an additional tower.	
	Internal standard calibration	Should allow automated internal standard calibration and "sandwich" technique.	
	Programming	Should be completely programmed by either a dedicated controller or the GC keyboard.	
5.0	METHANIZER	Should be compatible to be attached with main GC system.	
	Gas phase injection	Automatic gas phase injection after proper reduction of samples (for CH ₄ , and Non-Methane Organics)	
	Reduction catalyst	Should have a Reduction catalyst packed with 100-mesh pure nickel powder to convert CO and CO ₂ to CH ₄ .	
	Reduction catalyst tube	Reduction catalyst tube should be mounted vertically in atleast 400°C furnace.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	GC connection	Catalyst sections should have independent channels to be connected to GC gas injection system for calibration check.	
	Control	Should also be operated and controlled by computer.	
6.0	COLUMNS	DB 1701 or equivalent 30 m x 0.25 mm ID having 0.25 µm film thickness Film – 14% cyanopropyl phenyl and 86% dimethyl polysyloxene copolymer column	
		HP-5-MS 60 m X 0.25 mm ID with 0.25 µm film thickness Ultra-low bleed column Film – 5% di-phenyl and 95% dimethyl polysyloxene copolymer column	
		DB 624 or equivalent 50 m X 0.32 mm ID with 1.8 µm film thickness	
		SSAP Column 30 m X 0.25 mm ID with 0.25 µm film thickness	
		Molecular sieve 13 X 6 feet length, ID 1/8 inch (Packed Column)	
		Porapak N (9 ft length, ID 1/8 inch)	
7.0	DATA STATION		
7.1	Application Software	Instrument control software	
		Basic Programming facility	
		Provide accurate and reproducible integration	
		Compatible for atleast two simultaneous chromatograms	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		Data acquisition. Reintegration report, multilevel calibration, baseline correction, area calculation, background subtraction and custom/tailored report format facility	
		Battery backup for memory protection is required.	
		Facilities for data Export/Transformation to data base software i.e. Excel and Access	
		Software for Quality Control Protocols	
		Software for data display, handling, data export/import and reporting	
7.2	Computer System		
	Make	Reputed brand such as HP/Compaq/Dell	
	Processor	Intel Core i7 3770 (3.4 GHz, 8MB cache, 4 cores)	
	RAM	4 GB DDR-III RAM 1066 MHz (upgradeable to 8 GB)	
	HDD	3.5", 500 GB 7200 RPM SATA HDD	
	Monitor	21" TFT-LCD Flat Colour (Digital)	
	DVD Writer	22 X DVD Multi-drive Internal	
	Ports	2 Serial, 1 parallel and 2 USB front 3 Rear USB2 Port, 1PS-2 Keyboard, 1PS-2 Mouse port, 1VGA 4 bays (2 external & internal) with LAN 1PS	
	Key board	Latest multimedia (HP / Microsoft) Internet ready	
	Mouse	Optical mouse with pad	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Ethernet	32/64 bit auto selectable Ethernet ports with autosensing, 2 nd NIC card on PCI, Autosensing is to cater to 100 / 1000 Mbps speeds automatically and not a boot ROM.	
	Graphics	Integrated Graphics Media Accelerator x 4500, support upto 800 MB video memory through DVMT	
	Sound	Integrated 5.1 Channel high definition audio subsystem and inbuilt stereo speakers	
	Printer	HP LaserJet Printer 1200 x 1200 dpi 12 PPM black	
7.3	Softwares	Compatible Windows latest version operating system with Licensed CD	
		MS Office Professional 2013 with media, manual and Licensed CD	
		Preloaded Norton Antivirus with latest version of 3 years lifetime along with Licensed CD	
8.0	ACCESSORIES	Manufacturers Standard accessories, start up kit including tools, Digital gas flow meter (0.1 ml/min to 1000 ml/min)	
	Operation /maintenance manual	Operation and maintenance manual 1 No.	
	Application note	Application notes (in CD) for pesticides, PAH, PCB's, VOC's, THM's, Dioxins & Furans in environmental samples 1 No.	
	Service manual	Service manual 1 No.	
	Hydrogen regulator	H ₂ gas regulator with (2 stage) with necessary tubing and connectors 1 No.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Nitrogen regulator	N ₂ gas regulator with (2 stage) with necessary tubing and connectors 1 No.	
	Air regulator	Air regulator with (2 stage) with necessary tubing and connectors 1 No.	
	Carrier gas purifier	High capacity carrier gas purifier 4 Nos.	
	H ₂ gas purifier	High capacity H ₂ gas purifier 2 Nos.	
	Air compressor	Air Compressor (GT free) with air filter and regulator unit 1 No.	
	Air purifier	High capacity air purifier 4 Nos.	
	Moisture trap	Moisture Trap (Silica Gel – Molecular Sieve 50:50; length 10"2 Nos.	
	Hydrocarbon trap	Activated charcoal filter for Hydrocarbon removal length 10"2 Nos.	
	Oxygen trap	High Capacity Oxy trap capacity more than 125 cc 2 Nos.	
9.0	SPARES AND CONSUMABLES	To be supplied for two years trouble free operation	
	Column nut	2 Pairs	
	Washer	2 Pairs	
	Graphite / vespel ferrules	20 Nos.	
	Inlet Septa (self sealing for injectors)	100 Nos.	
	O ring	20 Nos.	
	Copper tubing with connectors	50 mtrs.	
	Micro syringes for manual injection (5 µl)	3 Nos.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Micro syringes for manual injection (10 µl)	3 Nos.	
	Gas tight syringe (100 µl)	3 Nos.	
	Copper tube cutter	1 No.	
	Column cutter	1 No.	
	Brass/Stainless Steel Nuts	1/8 inch – 10 Nos.	
	Brass/Stainless Steel Ferrules	1/8 inch – 10 Nos.	
	Tees	1/8 inch – 10 Nos.	
10.0	OPTIONAL ITEMS		
	Propane gas standard	Gas standards of Propane (one each for 20 ppm, 200 ppm in air	
	CO ₂ gas standard	CO ₂ standard gas (one each for 50 ppm - 500 ppm and 1 %) in air	
	Gas mixture standard	Gas mixture standard containing 50 ppm CO, 50 ppm CH ₄ , 1 % CO ₂ and 20 ppm C ₃ H ₈ prepared in Air	
	Hexane / air standard	Gas mixture standard containing 20-50 ppm Hexane in Air.	
	Toluene / air standard	Gas mixture standard containing 20 ppm Toluene in Air	
	Methanol / air standard	Gas mixture standard containing 50-100 ppm Methanol in Air	
	BTX Standard	Gas mixture standard containing 50-100 ppb each of Benzene, Toluene and Xylene.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Gas canisters	Stainless steel canister with electro polished interior wall (Suma or equivalent) having high quality vacuum pressure gas sampling off/on valves capacity 6 litre - 3 Nos.	
11.0	OPERATION AND MAINTENANCE TRAINING	Complimentary (all expenditure inclusive) one weeks training to at least two scientists on application, routine maintenance and software training at their application laboratory in the country.	
12.0	GENERAL CONDITIONS OF SUPPLY	<ol style="list-style-type: none"> 1. The instrument and all its sub units should operate on 230 ± 10 volts 50 Hz power supply. 2. All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English language. 3. The supplier / manufacturer should have Indian agent to provide after sales service. 4. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. 5. The Bidder should be a manufacturer/authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied two numbers of such equipment similar to the type specified in the past five years, which shall be in successful operation for atleast 2 years as on the date of bid opening. 6. The bidder should furnish the information on past supplies and 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-10			
Equipment Name: Gas chromatograph with Methanizer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		their satisfactory performance. 7. Bidders shall invariably furnish documentary evidence (client's certificate – atleast two) in support of the satisfactory operation of the equipment as specified above. 8. Notwithstanding anything stated above the purchaser reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser. 9. Comprehensive warranty with spares for 3 years from the date of installation of the instrument should be covered.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF ION CHROMATOGRAPH FOR WATER ANALYSIS

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-11			
Equipment Name: Ion Chromatograph for Water Analysis			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
1.0	Instrument Composition		
	Ion Chromatograph with High Pressure Gradient Pump	One set of two pumps for parallel analysis of cations and anions	
	Autosampler System	One set	
	Injectors	Two sets	
	Detectors	Two sets	
2.0	Technical Specification		
	System type	Computer controlled, modular system made of non-metallic, preferably inert material like PEEK (polyetheretherketone), impact resistant and corrosion resistant.	
	System application	For reliable, precise and specific measurement of anions and cations in extracted air particulate samples and water samples.	
	System configuration	System should use solvent delivery system, self-regenerating suppressor system for both anions and cations	
	Power failure memory protection	Power failure memory protection.	
	Self testing diagnostics	Built in diagnostics for self-testing	
	Data acquisition	Data acquisition and system control through software.	
2.1	Injector	Manual injection port or user selectable injection loop. Internal pump for continuous automatic sampling and analysis.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-11			
Equipment Name: Ion Chromatograph for Water Analysis			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
2.2	Flow system	Computer controlled pumps (two nos.) for simultaneous/parallel analysis of anions & cations.	
	Flow pump	Dual piston pump	
	Display	Digital and screen display of pressure and flow rate	
	Flow rate	0.1 to 10.0 ml/min	
	Flow rate accuracy	± 2% of set value	
	Flow rate precision	± 0.1%	
	Pressure Range	0 - 5000 psi	
	Pressure fluctuation	± 0.5% of set value or better	
	Liquid contact material	Liquid contact material should be non interfering type	
	Safety feature	Safety features such as leak sensor with signal	
	Accessories	With maintenance kit, reservoir tray,	
2.3	Suppressor system	Proper facilities for suppression of conductance signal for eluent used for both cations and anions. Minimum 8 years warranty with warranty certificate, on suppressor.	
	Stability	High sensitivity and excellent baseline stability.	
	Flush	Regeneration and flushed alternatively and automatically.	
	Switching	Switching should be effected simultaneously with injection of sample.	
	Regeneration	Effective and suitable regeneration facilities for both anions & cations.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-11			
Equipment Name: Ion Chromatograph for Water Analysis			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
2.4	Detector	Built in conductivity detector with cell temperature stabilization (Thermostated programmable cell) for ppb level analysis	
	Operating temp. range	10 to 40 °C or higher	
	Temperature stability	± 0.01 °C or better	
	Range	0 to 15000 µS	
	Accuracy	± 5% of full scale	
	Noise (electronic)	≤ 0.003% of selected range	
	Temperature drift	Should be negligible	
	Electronic drift	≤0.0015% of selected range/h/ °C	
	Zero adjustment	Automatic with auto zero facility	
	Cell volume	2.0 µl or less	
	Cell constant	10 – 20 user adjustable	
	Display	Digital display for set status and output	
	Diagnostic test	Option for both self diagnostic test and user diagnostic test	
2.5	Autosampler System		
	Injection volume	1 to 100 µl or higher	
	Injection mode	Sequential / Programmable (both) with LCD display	
	No. of sample vials	25 or more	
	Sample vial size	2 to 5 ml or more	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-11			
Equipment Name: Ion Chromatograph for Water Analysis			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
2.6	Columns (For Anions and Cations)	Two columns for cation analysis and two columns for anions analysis. Each column should be provided with its compatible guard column	
	Temperature range	5 to 80 °C or higher	
	Back pressure	250 bar	
	Column Dimension	Suitable to be accommodated inside the chromatography enclosure	
	Column fittings and tubing	Appropriate in sizes and length as per application	
2.7	Chromatography Enclosures	For housing of injector, suppressor unit, column unit and detector unit in an electrically and thermally insulated manner	
2.8	Suppressor	Should have high loading and high back pressure tolerance with continuous regeneration.	
3.0	Data Work Station		
3.1	Application Software Control	Multitasking software displaying method sample and analysis status, instrument control, reintegration/report multi level calibration	
		Calculation of data and report formatting	
		Automatic correction of interferences and measurement with standards	
		Comprehensive quality control protocols including blank, multiple quality control standards, calibration, calibration failure with QA/QC audit trails.	
		Provision for statistical analysis, printer / plotter function and battery backup for memory protection.	
		System suitability, system security and system check functions such	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-11			
Equipment Name: Ion Chromatograph for Water Analysis			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		as calibration, quantitative analysis	
		Data retrieval, data acquisition and customizable instrument status display.	
		Extractable data format and direct conversion to Excel spreadsheet through macro	
3.2	Computer System		
	Make	Reputed brand such as HP/Compaq/Dell	
	Processor	Intel Core i7 3770 (3.4 GHz, 8MB cache, 4 cores)	
	RAM	4 GB DDR-III RAM 1066 MHz (upgradeable to 8 GB)	
	HDD	3.5", 500 GB 7200 RPM SATA HDD	
	Monitor	21" TFT-LCD Flat Colour (Digital)	
	DVD Writer	22 X DVD Multi-drive Internal	
	Ports	2 Serial, 1 parallel and 2 USB front 3 Rear USB2 Port, 1PS-2 Keyboard, 1PS-2 Mouse port, 1VGA 4 bays (2 external & internal) with LAN 1PS	
	Key board	Latest multimedia (HP / Microsoft) Internet ready	
	Mouse	Optical mouse with pad	
	Ethernet	32/64 bit auto selectable Ethernet ports with autosensing, 2 nd NIC card on PCI, Autosensing is to cater to 100 / 1000 Mbps speeds automatically and not a boot ROM.	
	Graphics	Integrated Graphics Media Accelerator x 4500, support upto 800 MB video memory through DVMT	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-11			
Equipment Name: Ion Chromatograph for Water Analysis			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Sound	Integrated 5.1 Channel high definition audio subsystem and inbuilt stereo speakers	
	Printer	HP LaserJet Printer 1200 x 1200 dpi 12 PPM black	
3.3	Softwares	Pre-loaded Windows 7 Professional operating system or latest with Licensed CD	
		MS Office Professional 2013 with media, manual and Licensed CD	
		Preloaded Norton Antivirus latest version of 3 years lifetime along with Licensed CD	
4.0	Auto Dilution and Calibration	In built multi level calibration using single calibration standard. Auto dilution system should be automatic, programmable, should generate various concentration of standards from single standards and sealed calibration conc.	
5.0	Filtration Assembly	Compatible filtration assembly complete with pump, 45 mm, 0.22 μ pre size filter papers (500 Nos. i.e. 5 packets), filtration flask tubings etc.	
6.0	Additional Items		
	Manufacturer's standard kit	Standard operation kit including all required items, fittings for start up / regular operation of instrument.	
	Operation and Maintenance Manual	Operation and Maintenance Manual for each unit	
	Application note	Application note for anions and cations analysis in environmental, biological, geological, metallurgical and industrial samples	
	Methodology package	Comprehensive EPA methodology package software (CD-ROM) for	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-11			
Equipment Name: Ion Chromatograph for Water Analysis			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		environmental application	
	Service manual	Service manual with set of required tools for each system/unit	
	Spare parts catalogue	Spare parts catalogue	
	Trouble shooting charts	Trouble shooting charts	
	Operation kit	Operation kit including all required items, tubing, fitting for start up / regular operation of instrument	
	Spares and consumables	All spares and consumables for two years of operations should be quoted.	
7.0	Operation & Maintenance Training Component	Complimentary (all expenditure inclusive) two-four weeks training to two scientists on operation and maintenance aspect of the instrument at manufacturers facility /Application Laboratory in India.	
8.0	General Conditions of Supply	<ol style="list-style-type: none"> 1. The instrument and all its sub units should operate on 230 ± 10 volts 50 Hz power supply. 2. All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English language. 3. The supplier / manufacturer should have Indian agent to provide after sales service. 4. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. 5. The Bidder should be a manufacturer/authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied two numbers of such equipment similar to 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-11			
Equipment Name: Ion Chromatograph for Water Analysis			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		<p>the type specified in the past five years, which shall be in successful operation for atleast 2 years as on the date of bid opening.</p> <p>6. The bidder should furnish the information on past supplies and their satisfactory performance.</p> <p>7. Bidders shall invariably furnish documentary evidence (client's certificate – atleast two) in support of the satisfactory operation of the equipment as specified above.</p> <p>8. Notwithstanding anything stated above the purchaser reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser.</p> <p>9. Comprehensive warranty with spares for 3 years from the date of installation of the instrument should be covered.</p>	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF ION ANALYSER WITH FLUORIDE, NITRATE, CYANIDE AND AMMONIA ELECTRODES

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-12			
Equipment Name: Ion Analyser with Fluoride, Nitrate, Cyanide and Ammonia Electrodes			
Quantity: 6 (Six) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Description	Should be Microprocessor controlled with RS-232-C output facility. The front panel should be splash proof, corrosion resistant and impact resistant.	
2.0	Mode	pH, Concentration, temperature, MV	
3.0	pH Range	0- 00 - 14	
	Resolution	0.001	
	Accuracy	± 0.005	
	Slope	80 - 120%	
	Calibration	Auto three to five points calibration (automatic buffer recognition)	
	Temperature Compensation	Automatic throughout the range	
4.0	Concentration Range	0.001 to 19900 ppb / ppm	
	Resolution	Atleast one significant digit	
	Accuracy	± 0.5%	
5.0	Temperature Range	- 10 to 130 °C	
	Resolution	± 0.1 °C	
6.0	Millivolt Range	± 1500	
	Resolution	0.1 mV	
	Accuracy	± 2.0 mV or ± 0.05%	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-12			
Equipment Name: Ion Analyser with Fluoride, Nitrate, Cyanide and Ammonia Electrodes			
Quantity: 6 (Six) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
7.0	Timer	Date and time can be called up and recorded any time.	
8.0	Display	Graphic LCD display, LCD dot matrix 128 / 64 dps panel with backlight and feather touch keys.	
9.0	Ready	Indication of stable value reached	
10.0	Blank	Optional entry of blank or back ground solution. correction	
11.0	Power	9 volts line adaptor or compatible adaptor for (230 ± 10) volts/50 Hz AC.	
12.0	Requirement	In case of power failure, secure storage of all calibration and programme data.	
13.0	Input	Atleast 1 or more BNC/DEIN input, 1 pin tip F-type, banana type,, RS-232-C, printer connection facility	
14.0	Drift	<50 micro volts / °C	
15.0	Electrode	Complete electrodes sets for reference Ammonia, Fluoride, Nitrate, Cyanide, Chloride, Calcium & pH alongwith instruction / application sheet standard accessories including electrolytes, standard solutions (ppm) etc.	
16.0	Others	The instrument should be complete with connecting cable, adaptor for 230 ± 10 volts AC 50 Hz power supply, dust cover, electrode stand (adjustable), operation and maintenance manual alongwith the accessories with spares and consumables for two years of trouble free operation.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF KARL FISCHER COULOMETER WITH OVEN FOR MOISTURE ANALYSIS

PART-A: COULOMETRIC

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number:ICB-14-13			
Equipment Name: Karl Fischer Coulometer with Oven for Moisture Analysis			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Description	Karl fisher titrator should be dedicated instrument for determining water content in the samples.	
2.0	Principle of operation	Coulometric	
		Should have large high contrast liquid crystal display showing actual status of system even during the operation sequence.	
		Methods for sample titrations and the collection of blank values should be pre-assigned to start the titration directly after installation and system should accept local Karl Fisher Reagents.	
3.0	Generator electrode	Diaphragm type	
4.0	Measuring Range	10 µg to 100 mg / 1 ppm to 5%	
5.0	Sensitivity	0.1 µg	
6.0	Accuracy/Precision	0.3% at 1 mg water	
7.0	Drift Compensation	Automatic	
8.0	Number of methods	Atleast 10	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number:ICB-14-13			
Equipment Name: Karl Fischer Coulometer with Oven for Moisture Analysis			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
9.0	Measuring speed	Max. 2 mg/min	
10.0	Background correction	Automatic	
11.0	Other features	GLP compliance	
		Automatic selection of the correct calculation formula	
		Facility to connect with balance, printers and PC	
12.0	Pump/N ₂ Supply facility specifications	As per Karl Fisher Methods requirement	
13.0	Power supply	230 ± 10 V; 50 Hz AC power Input	
14.0	Operating conditions	Ambient temperature: + 10 to + 40 °C for operation and storage	
		Humidity : EN 61 010, part 1: Compliant	
		Maximum relative humidity 0 % for temperatures up to 31 °C,	
		Linearly decreasing up to 50 % relative humidity with a temperature of 40 °C	
15.0	Oven Specifications	Heating Range 50 to 250° C or better	
		Temperature Control Range 50 to 300° C	
		Minimum settable interval 1 °C or better	
		Temperature Measurement : Thermocouple	
		Precision :±2 °C or better	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number:ICB-14-13			
Equipment Name: Karl Fischer Coulometer with Oven for Moisture Analysis			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		Heating System-Electric conductive heating system	
		Gas Flow Rate – 70 to 300 ml/min or as per method requirement	
		Power Supply - 230 ± 10 V; 50 Hz AC	
16.0	Accessories	One generator electrode with frit	
		One Indicator dual platinum electrode	
		KF reagents – One set	
		Water standards – One set	
		Instructions Manual - 2 Nos.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF LIQUID CHROMATOGRAPH MASS SPECTROMETER (LC-MS)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZO)s			
Code Number: ICB-14-14			
Equipment Name: Liquid Chromatograph Mass Spectrometer (LC-MS/MS)			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
A.	TECHNICAL SPECIFICATIONS		
1.0	Liquid Chromatography System	One Set	
1.1	Pump	High pressure Binary pump. System should have ultra-high performance.	
1.2	Flow range	0.01 to 2.00 ml / min or better with 0.001 ml increments	
1.3	Pressure Range	15000 psi or more	
1.4	Flow Accuracy	± 1% or 10 µL/min whatever is better	
1.5	Flow rate precision	≤ 0.075 % psi or lower	
1.6	Degasser	Inbuilt on-line vacuum degasser	
1.7	Auto Sampler	Standard Sample Capacity: Having a capacity of 100 positions or more for 2 ml vials or better with programmable needle wash facility.	
		Auto sampler vials – 5000 Nos.	
		Injection volume range: 1-50 uL	
		Peltier Temperature Control: 4 – 40 °C	
1.8	Syringe pump combination	Should have built in high digital syringe pump.	
1.9	Column oven Temperature	Column oven Temperature Range: 5 °C above room temperature to 85	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-14			
Equipment Name: Liquid Chromatograph Mass Spectrometer (LC-MS/MS)			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		°C with peltier cooling	
1.10	Columns	C-18 columns with suitable guard column for EPA recommended method for analysis of following: - Chlordecone: Develosil C30-UG-5 (15 cm×2.0 mmID, 5 µm) or equivalent – 2 Nos. - Perfluorochemicals (PFCs) / Perfluorooctane sulfonate (PFOS): Inersil ODS-SP (15 cm×2.1 mm ID, 3 µm) or equivalent – 2 Nos. - Phenolics (Bisphenol A, Octylphenols, and Nonylphenol) (25 cm x 4.6 mm, 5 µm) – 2 Nos. - PAHs (25 cm x 4.6 mm, 5 µm) – 2 Nos.	
2.0	MS Spectrometry:		
2.1	Mass Analyzer	Triple Quadrupole, capable of carrying out MS and MS/MS experiment.	
2.2	Mass Range	10 to 2000 m/z or higher	
2.3	System Tuning	Should have tune free/flat tune system /auto tune and have orifice interface designs for low maintenance.	
2.4	Detector	Should be electron multiplier tube (EMT) detector or Pulse counting conversion electron multiplier (CEM) detector or photomultiplier tube (PMT).	
2.5	Mass Resolution	Unit Mass Resolution in both Q1 and Q3	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-14			
Equipment Name: Liquid Chromatograph Mass Spectrometer (LC-MS/MS)			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
2.6	Electronics	Polarity switching Switch from positive to negative polarity in 50 ms or better.	
2.7	Dynamic range	10 ⁵ or better	
2.8	Mass Stability	0.1 Da over a period of 24 hours	
2.9	Scan speed/rate	10000 amu/sec or better	
2.10	Ionization sources	ESI and APCI source must be quoted as standard part of the system. Ion source should 90 ⁰ spray and should have facility to remove effectively gas from source area to keep it clean source.	
2.11	Ion Funnel	Should have dual ion funnel/Q Jet and should be in linear and on –axis. Dual ion funnel must have RF guide. The new design also reduces the gas load and also has the facility to remove waste as simple as to maintain robustness.	
2.12	Collision Cell	High pressure confined 180 ⁰ curved or wave based system capable of doing MRM analysis for optimal high data acquisition rate and Should not have any cross talk in collision cell and dwell time not more than 1 milli second.	
2.13	Sensitivity	Should demonstrate positive Electron Spray ionization (ESI) multiple reaction monitoring (MRM) and minimum S/N ratio of 2000: 1 or better for 50 fg on column injection of reserpine per microlitre. Sensitivity specs must be available at principal website as well sensitivity performance as quoted must need to be demonstrated during evaluation & installation for acceptance.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)				
Code Number: ICB-14-14				
Equipment Name: Liquid Chromatograph Mass Spectrometer (LC-MS/MS)				
Quantity: 1 (One) No.				
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance	
2.14	Operating scan modes	Should be capable of performing MS Scan, MS/MS Product Ion Scan, SIM, MRM, Neutral loss/gain scan, Precursor Ion Scan.		
2.15	Vacuum System	A fully protected air cooled vacuum system with minimum maintenance and utility requirements. Vacuum read backs and automated vent system in case of power failure.		
3.0	DATA STATION			
	Application Software	Multitasking software with programming facility		
	Capabilities	Accurate and Reproducible Integration		
		Reintegration / Replot		
		Baseline Correction		
		Multilevel Calibration		
		Background Subtraction		
		Automatic calibration & Quantitative optimization & Analysis.		
		Customizable Report Formats		
		Perform alternating Positive/Negative scans in one run.		
		Automated quantitation and reporting of acquired samples.		
Software control	Single point of control			
System Auto Tuning	Through Tuning Standards			

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-14			
Equipment Name: Liquid Chromatograph Mass Spectrometer (LC-MS/MS)			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Analytical Quality Control	Calibration check samples	
		Spike recoveries	
		Calibration verification and	
		QC limits	
COMPUTER SYSTEM			
	Make	Reputed brand such as HP/Compaq/Dell	
	Processor	Intel Core i7 (3 rd Generation) processor	
	RAM	4 GB DDR RAM (upgradeable to 8 GB DDR RAM)	
	HDD	500 GB SATA	
	Monitor	21" TFT-LCD Flat Colour (Digital)	
	DVD Writer	DVD- Multi-drive	
	Ports	2 Serial, 1 parallel and 2 USB front 3 Rear USB 2 Port, 1VGA 4 bays (2 external & internal) with LAN 1PS, 2 mouse port	
	Key board	Latest multimedia (HP / Microsoft)	
	Mouse	Optical mouse with pad	
	Ethernet	32 bit auto selectable 10/100 MBPS	
	Graphics	Internet ready with integrated Graphics	
	Sound	Integrated sound card and inbuilt stereo speakers	
	Printer	HP LaserJet Color Printer 1200 x 1200 dpi 12 PPM	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-14			
Equipment Name: Liquid Chromatograph Mass Spectrometer (LC-MS/MS)			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Softwares	Pre-loaded Windows XP Professional or Windows 7 Professional latest operating system with Licensed CD	
		MS Office 2010 Professional with media, manual and Licensed CD	
		Preloaded Norton Antivirus with latest version of 3 years lifetime along with Licensed CD	
4.0	All the required accessories	Inline filter / frit : 50 Nos.	
		Solvent filter : 10 Nos.	
		Pump Seal : 10 Nos.	
		Auto sampler needles : 10 Nos.	
		ESI fitting needles : 5 Nos.	
		ESI O ring : 10 Nos.	
5.0	Spares	Sufficient additional consumable / spares (If required) including syringes should be supplied for operation for 3 years.	
6.0	Manuals	Operation and service manuals in CD format & also 2 Nos Hard copies for each sub-system should be supplied.	
7.0	OPERATION & MAINTENANCE TRAINING COMPONENT	Two weeks training to two scientists on operation, maintenance and troubleshooting aspect of the instrument at manufacturers facility/application laboratory in India.	
8.0	GENERAL CONDITIONS OF SUPPLY	1. The instrument and all its sub units should operate on 230 ± 10 volts 50 Hz power supply. 2. All the operation and maintenance manuals, circuit diagrams,	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-14			
Equipment Name: Liquid Chromatograph Mass Spectrometer (LC-MS/MS)			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
		<p>application notes and application softwares to be supplied should be in English language.</p> <p>3. The supplier / manufacturer should have Indian agent to provide after sales service.</p> <p>4. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier.</p> <p>5. The Bidder should be a manufacturer/authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied two numbers of such equipment similar to the type specified in the past five years, which shall be in successful operation for atleast 2 years as on the date of bid opening.</p> <p>6. The bidder should furnish the information on past supplies and their satisfactory performance.</p> <p>7. Bidders shall invariably furnish documentary evidence (client's certificate – atleast two) in support of the satisfactory operation of the equipment as specified above.</p> <p>8. Notwithstanding anything stated above the purchaser reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser.</p> <p>9. Comprehensive warranty with spares for 3 years on complete system from the date of installation of the instrument should be covered.</p>	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF MASS FLOW CONTROLLERS WITH DIGITAL READOUT AND CONTROL UNIT

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-15			
Equipment Name: Mass Flow Controllers with Digital Readout and Control Unit			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
1.0	Descriptions	The unit shall be used for Mass flow control of Gaseous flow of various gases such as Sulphur Dioxide, Nitric Oxide, Carbon monoxide and Zero air.	
2.0	Features	Storage of polynomial calibration function (max 8 per channel)	
		Internal/external set point control mode.	
		Master/slave control mode.	
		Set point slope control.	
3.0	Digital Readout and Control system/unit	The instrument should be 19" rack mounted model with facilities for fixing the instrument from front side.	
		The instrument should operate at operating voltage 230 V ± 10% and 50 Hz ± 3%, AC supply and the plug should be adaptable to Indian main socket.	
		The model should be for eight (8) channels, suitable for flows control.	
		Input 0-5 V DC from mass flow controller (MFC)	
4.0	Technical specifications		
	Output/set point signal	0-5 V DC	
	Front	2 line x 16 Character Backlit LCD	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-15			
Equipment Name: Mass Flow Controllers with Digital Readout and Control Unit			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
	Connection	Sub-miniature D connector socket for instruments	
	Accuracy	± 0.5% of reading + 0 .1% of FS	
	Operating temp. range	0 to + 50°C	
	Configuration	Through key pad on front panel including power supply for MFC's	
5.0	Mass Flow Controllers with Digital Readout & Control Unit	Mass flow controller in ml range shall be used for gases SO ₂ , NO, CO etc. and in litre range for zero air supply. Details specification / requirement are in Annexure-I.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Annexure-I

Mass Flow Controllers with Digital Readout & Control Unit - Detailed Specifications

Parameter	Sulphur Dioxide	Nitric Oxide	Carbon Monoxide	Air	Air	Air
Flow range	0.1 – 5.0 ml/min	01 – 50 ml/min	10 - 500 ml/min	0.1 – 5.0 l/min	1 – 50 l/min	2-100 l/min
Quantity	01 no.	01 no.	01 no.	02 nos.	01 no.	02 nos.
Operating Temp.	25 °C (should not exceed 70°C)	25 °C (should not exceed 70°C)	25 °C (should not exceed 70°C)	25 °C (should not exceed 70°C)	25 °C (should not exceed 70°C)	25 °C (should not exceed 70°C)
Up stream Pressure(Bar g)	1.5	2	2	2	4	4
Down stream Pressure(Bar g)	0	0	0	0	0	0
Pressure Rating (Bar a)	64	10	64	64	64	64
Max. Static Pressure (Bar a)	10	10	64	64	64	64
Material of construction	SS 316 body	SS 316 body	SS 316 body	SS 316 body	SS 316 body	SS 316 body
Supply Voltage	15 – 24V DC	15 – 24V DC	15 – 24V DC	15 – 24V DC	15 – 24V DC	15 – 24V DC
Output Signal	0-5 V DC	0-5 V DC	0-5 V DC	0-5 V DC	0-5 V DC	0-5 V DC
Accuracy	± 1% FS	± 1% FS	± 1% FS	± 1% FS	± 1% FS	± 1% FS
End Connections	Compression type, 1/8" O.D.	Compression type 1/8" O.D.	Compression type 1/4" O.D.	Compression type 1/4" O.D.	Compression type 1/4" O.D.	Compression type 1/4" O.D.
Seals	EPDM (SO ₂)	Kalrez (NO)	Viton (CO)	Viton (Air)	Viton (Air)	Viton (Air)

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF MOISTURE ANALYSER

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-16			
Equipment Name: Moisture Analyzer			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Description:	Fully automatic Moisture Analyzer (Moisture balance) to measure moisture in soil, sediments, dry powder, solid waste, hazardous waste samples.	
2.0	Analysis & display mode	Percent moisture	
		Percent dry weight	
		Weight loss (mg)	
		Residual weight	
3.0	Weighing capacity	150 gm	
4.0	Pan size	90 mm (3.5")	
5.0	Sample quantity	Minimum 5 – 10 gm	
6.0	Readability	1 mg / 0.01%	
7.0	Accuracy	1 mg	
8.0	Measuring range	0.01 to 100% moisture	
9.0	Repeatability	0.01 %	
10.0	Heating	Infra red, quartz heater	
11.0	Heating mode	Standard & Gentle drying with fully automatic timer setting 0.1 – 99 minutes	
12.0	Temp. increment	1 °C	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-16			
Equipment Name: Moisture Analyzer			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
13.0	Power supply	230 V ± 10 V; 50 Hz	
14.0	Drying Temp.	40 – 160 °C	
15.0	Analysis mode	Automatic mode, Semi automatic mode, Timer mode	
16.0	Operational	Printer Permission	
		RS – 233 interface for transfer of data to printer / computer	
		Bar code scanner connectivity	
		Access to sample chamber through Hinged cover	
		Facilities for programme memories should be available	
		Operation, maintenance and service manual – one set	
17.0	Calibration	External calibration (optional) with external calibration weight	
18.0	Warranty	Atleast 3 years from date of installation	
19.0	General Condition of Supply	<ol style="list-style-type: none"> 1. The instrument and all its sub units should operate on 230 ± 10 volts 50 Hz power supply. 2. All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English language. 3. The supplier / manufacturer should have Indian agent to provide after sales service. 4. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-16			
Equipment Name: Moisture Analyzer			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		5. The Bidder should be a manufacturer/authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied two numbers of such equipment similar to the type specified in the past five years, which shall be in successful operation for atleast 2 years as on the date of bid opening. 6. The bidder should furnish the information on past supplies and their satisfactory performance. 7. Bidders shall invariably furnish documentary evidence (client's certificate – atleast two) in support of the satisfactory operation of the equipment as specified above. 8. Notwithstanding anything stated above the purchaser reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser. 9. Comprehensive warranty with spares for 3 years from the date of installation of the instrument should be covered.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF MULTI GAS ANALYSER FOR INDOOR AMBIENT AIR QUALITY MONITORING

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-17			
Equipment Name: Multi Gas Analyser for Indoor Ambient Air Quality Monitoring			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
1.0	Description	Multigas analyzer for ambient air quality monitoring shall capable of measuring SO ₂ , NO ₂ , CO, NH ₃ , O ₃ , H ₂ S, CH ₄ present in ambient air. It shall have an inbuilt rechargeable battery operated air sampling pump enable to draw air samples from ambient air to the analyzer with built in flow indicator and flow controller.	
2.0	Flow Range	The operational flow range is 0 to 3 litre/min.	
3.0	Principal	Employ one of the technique viz., Electro chemical sensors, Pellister as the case may be.	
4.0	Range	Should have minimum of three working ranges viz., ppb, ppm & percentage levels.	
5.0	Calibration facility	It shall have calibration facility for all gases with adjustment screw preferably Internal Calibration facility, Calibration of Zero and standard reference gas, calibration memory of 3 calibration levels gases standards, and calibration date, method storage & reactivation.	
6.0	Accuracy	Accuracy of 5% of reading traceable to NIST calibration gas.	
7.0	Logging facility	Should have logging facilities for the parameters like Time and date, concentration data, temperature, gas cell pressure, system operating and diagnostic parameters, and data fit parameters	
8.0	Housing	Entire assembly is housed in a High Impact Plastic (NEMAIP40) weather proof body according to Indian field conditions.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-17			
Equipment Name: Multi Gas Analyser for Indoor Ambient Air Quality Monitoring			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
9.0	Portability	Handy, easy to carry and monitor the ambient air.	
10.0	Demonstration	The Instrument shall be delivered & demonstrated at Central Pollution Control Board, Nisarga Bhawan, 7 th D Main, Thimmaiah Road, Shivnahalli, Bangalore – 560010	
11.0	Technical specifications		
11.1	Display	Backlit Alphanumeric LCD	
11.2	Sampling	Diffusion or Suction	
11.3	Range	O ₂ 0-30%V CO 0-500 µg/m ³ H ₂ S 0-2000 µg/m ³ , SO ₂ 0-500 µg/m ³ , NH ₃ 0-1000 µg/m ³ , NO 0-500 µg/m ³ , NO ₂ 0-500 µg/m ³ and O ₃ 0-500 µg/m ³ .	
11.4	Calibration	Automatic zero & span with fresh air sample & Calibration gases	
11.5	Response Time	<10 seconds at 95% variant	
11.6	Power Supply	Internal Li ion battery	
11.7	Working Temperature	-5°C to 55° C	
11.8	Storage Temperature	-20°C to 45°C	
11.9	Case	High Impact Plastic (NEMAIP40)	
11.10	Accessories	Battery charger, operation manual	
12.0	Multi Gases Specifications	As detailed in Annexure-I	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Annexure-I

Technical Specifications for Multi Gas Analyzer for Ambient Air Quality Monitoring

S. No	Parameters	SO ₂	NO ₂	NH ₃	O ₃	CO	H ₂ S	CH ₄
01.	Principle	Pulsed UV Fluorescence	Chemiluminescence	Chemiluminescence	UV Photometric	Non Dispersive Infra-Red (NDIR) with Gas Filter Correlation	Electrochemical sensor	Laser absorption technique
02.	Measurement	Sulphur Dioxide in Ambient Air	NO ₂ in Ambient Air	Ammonia in Ambient air	Ozone in Ambient Air	Carbon Monoxide in Ambient Air	Hydrogen Sulphide in Ambient air	Methane in ambient air
03.	Display	Digital, backlit Alphanumeric LED						
04.	Ranges	Auto ranging 500 µg/m ³	Auto ranging 500 µg/m ³	0-1000 µg/m ³	Auto ranging 0 - 500 µg/m ³	At least four ranges upto 10000 µg/m ³	At least three ranges 0.5 – 10, 5-100, 100-2000 µg/m ³	500 to 20,000 ppb
05.	Min. Detectable Limit	1 µg/m ³	1 µg/m ³		1.0 µg/m ³	1 µg/m ³	1 µg/m ³	1 µg/m ³
06.	Zero Noise	1% of the reading						
07.	Zero Drift	< 1 µg/m ³ /24 Hrs. With automatic zero compensation						
09.	Calibration	Calibration gas portable cylinder with known concentration has to be provided alongwith the instrument for calibration purpose. It should also have pressure gas valve for Zero and Span gas.						
10.	Consumables and spares	Recommended requirements of 3 years operation						
11.	Linearity	± 1% of full scale						
12.	Sample Flow Rate	0.5 - 3 Liters / Minute						
13.	Analog Output	0 – 1 V, 0 – 10 V, 0 – 20 mA, 4 – 20 mA						
14.	Digital Output	Multi drop RS 232 port						
15.	Precision	1% reading whichever is greater						

Note: The technique to be used is in accordance with the methods prescribed in the National Ambient Air Standards. But it is cumbersome to use the Analyzers for field monitors unless it is fitted in a suitable vehicle preferably in a Tempo Traveler so that the optical system is not disturbed.

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF PM_{2.5} SAMPLER

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-18			
Equipment Name: PM_{2.5} Sampler			
Quantity: 23 (Twenty Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance
1.0	Sampler	Manual Filter based Sampler, conforming to USEPA Manual Reference / Equivalent Method	
2.0	Flow Rate	Fixed, 1m ³ / hour (16.7 lpm) controlled by Mass Flow Controller. The performance criteria shall be restricted to the requirement at par with FRM	
3.0	Elapsed Time Indicator	Up to 99.99 Hours	
4.0	Vacuum Pump	Diaphragm type, brush less Motor, Pulse dampeners has to be in-built if any pulsating pump is provided	
5.0	Flow Recorder	Memory based recording downloadable to computer and/or manually displayed on screen	
6.0	Dry Gas meter (Volume Totalizer)	Calibrated volume totalizer capable to display instantaneous volume passed with an averaging of 30 seconds or better frequency.	
7.0	Volumetric Flow rate compensation	Ambient temperature and pressure sensors to control volumetric flow rate	
8.0	Power Requirement	230 V ± 10 VAC; 50 Hz 0.5 Amp. Max.	
9.0	Size Selective Inlets	Opposed jet impaction for PM ₁₀ cut and Very Sharp Cut Cyclone / WINs impactor for PM _{2.5} Cut off	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-18			
Equipment Name: PM_{2.5} Sampler			
Quantity: 23 (Twenty Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
10.0	Special Features	The system should have an option to be used for PM ₁₀ sampling and necessary attachments should be supplied	
11.0	Calibration Unit	Calibration unit to calibrate the flow rate of the instrument	
12.0	Additional Supply	Manufacturer's standard operation kit including all required items.	
		Fittings for startup/regular operation of instrument.	
		Operation and Maintenance manual for each unit.	
		Spares and Consumables for three years operation	
13.0	Optional		
	Filter Paper Supply	PTFE membrane filter with PMP (poly methyl pentene) support ring (2 µm, 47 mm)	6 packets (pack of 50 filters each)
14.	General Conditions of Supply	<ol style="list-style-type: none"> The instrument and all its sub units should operate on 230 ± 10 volts 50 Hz power supply. All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English language. The supplier / manufacturer should have Indian agent to provide after sales service. 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-18			
Equipment Name: PM_{2.5} Sampler			
Quantity: 23 (Twenty Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		<ol style="list-style-type: none"> 4. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. 5. The Bidder should be a manufacturer/authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied two numbers of such equipment similar to the type specified in the past five years, which shall be in successful operation for atleast 2 years as on the date of bid opening. 6. The bidder should furnish the information on past supplies and their satisfactory performance. 7. Bidders shall invariably furnish documentary evidence (client's certificate – atleast two) in support of the satisfactory operation of the equipment as specified above. 8. Notwithstanding anything stated above the purchaser reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser. 9. Comprehensive warranty with spares for 3 years from the date of installation of the instrument should be covered. 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF PORTABLE CALIBRATOR

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-19			
Equipment Name: Portable Calibrator			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Generation Principle	Dilution air flow rate adjusted from 30 to 300 L / H and standard gas diffusion by temperature controlled permeation source from 20°C to 50°C ± 1%.	
2.0	Permeation Source	2 sources (1 or 2 gases among SO ₂ , NO ₂ , H ₂ S, NH ₃ or other).	
3.0	External Source	External inlet for connecting a third titrated gas from a cylinder at low pressure.	
4.0	Ventilating Source	Regulated by a proportional command circuit with temperature compensation.	
5.0	Operating Temperature	Guaranteed performance between 10°C and 50°C.	
6.0	Dilution air flow rate	Continuously adjustable by potentiometer or control panel (built in pump).	
		Visualised by 20 characters fluorescent display.	
7.0	Dilution air flow rate regulation	Through built in mass flow meter (1% precision)	
8.0	Programming Commands	16 Keypad on control panel	
9.0	Power Supply	230 V ± 10 Volts; 50 Hz AC by internal switching.	
		12 V DC Ni/Cd Rechargeable Battery (NI-CAD)	
		External 12 V DC source power filter	
10.0	Internal Battery Autonomy	10 hours, permitting continuous operation of the ventilation micro pump and temperature control of the permeation source.	
11.0	Switching to Internal Battery	Automatic	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF PUF SAMPLER (FOR SAMPLING OF AMBIENT VOC, DIOXINS)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-20			
Equipment Name: PUF Sampler [for sampling of Ambient SVOC (PAHs & PCBs), Dioxins]			
Quantity: 9 (Nine) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Description	High Volume sampler for Ambient particulate and volatile / semi volatile organic sampling (VPAH, PCBs, Dioxin / Furan, VOCs etc.)	
2.0	Regulatory status	Should conform sampling and quality assurance of USEPA Methods TO-4A, TO-9A and TO-13A	
3.0	Inlet (size cut off)	PM ₁₀	
4.0	Flow controller	Robust Motor speed control / Elapsed Time Indicator	
5.0	Flow rate	User selectable (200 – 280 LPM)	
6.0	Elapsed time indicator	Up to 9999 hours with two decimals	
7.0	Motor Blower	Diaphragm type, brush less motor OR 2 Stage Vacuum Motor Or Equivalent	
8.0	Timer	Mechanical / Electronic Programmable timer	
9.0	Power requirement	230 ± 10 V AC, 50 Hz	
10.0	Filter Media	10 cm diameter (4" Dia) circular filter attachment / mounting platform	
11.0	Calibration Unit	Calibration unit to calibrate the flow rate of the instrument	
12.0	PUF / XAD Holding Cartridges	10 Nos. Stainless steel Cartridges for PUF and 10 Nos. Removable glass cartridges with Stainless steel jacket for XAD.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-20			
Equipment Name: PUF Sampler [for sampling of Ambient SVOC (PAHs & PCBs), Dioxins]			
Quantity: 9 (Nine) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		Both types of cartridges should fit to the system and it should be leak proof.	
		Necessary number of gaskets and other accessories should be included in offer.	
13.0	Software support (Optional)	Built in software support for flow calibration, audit and leak check	
14.0	Instrument Housing	Entire assembly is housed in a weather proof metal carrying case / Anodized aluminum cabinet with SS fasteners.	
15.0	Operation Kit	Manufacturer's standard operation kit including all required items, fittings for start up / regular operation of instrument.	
16.0	Operational & Maintenance Manual	One No.	
17.0	Calibration manual	One No.	
18.0	Additional accessories, Spares and consumables	For two years trouble free operation / sampling at once a week over 52 weeks to be provided along with list of items including Glass fiber filters, PUF & XAD sampling at once a week over 52 weeks.	
		4" Dia PUF Block – 100 Nos.	
		4" Dia Glass holding cartridge – 10 Nos.	
		Micro quartz filter media 4" round for PUF – 2 Boxes containing 100 Nos. each.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF ROTATORY EVAPORATOR WITH VACUUM PUMP & CHILLER

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-21			
Equipment Name: Rotatory Evaporator with Vacuum Pump & Chiller			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Equipment Composition		
1.1	Rotavapor	One Set	
1.2	Heating Bath	One Set	
1.3	Vacuum Controller	One Set	
1.4	Glass Assembly	One Set	
1.5	Vacuum Pump	One Set	
1.6	Re-circulating Chiller (Optional)	One Set	
1.7	Spares & Consumables	One Set	
2.0	General Specifications		
2.1	Operating Voltage	230 ± 10 Volts 50 Hz AC (preference will be given to without power transformer model)	
2.2	Power On / Off Switch	Separate for each component	
2.3	Footprint	Less than 0.20 m ²	
2.4	Power Supply Extension Strip	Two Nos. capable to operate all sub units of the system	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-21			
Equipment Name: Rotatory Evaporator with Vacuum Pump & Chiller			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
3.0	Technical Specifications		
3.1	Rotavapor		
	Rotation Speed	Control and digital display	
	Vapour Temperature	Sensor and Digital display	
	Jack	For elevation and submersion of evaporating flask,	
		Jack operation - electrical by pressing of button as well as manual	
3.2	Heating bath		
	Material	Corrosion resistant coated with PTFE or stainless steel	
	Capacity	About 4.0 Litres	
	Heating Element	Under Pan heating element for ease of bath cleaning	
	Temperature Control and Display	Provision for setting of temperature by user, digital display	
	Temperature Range	Settable from Ambient to 180 °C	
	Temperature Accuracy	1.0 °C	
	Flask Accommodation	50 - 3000 ml	
3.3	Vacuum Controller		
	Vacuum Display	Digital display	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-21			
Equipment Name: Rotatory Evaporator with Vacuum Pump & Chiller			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Vacuum Control	Capable of controlling vacuum set by user for unattended operation	
	Programming Facility	Vacuum programming for evaporating mixture of solvents	
	Programme Storage Facility	Facility to store user customised programmes	
3.4	Glass Assembly		
	Condenser	Vertical, compatible connectivity for vacuum pump & water jet pump	
	Joint Adapter	Press fit type Adapter for connecting evaporating flask to condenser	
	Evaporation Flask Volumes	25 ml, 50 ml, 100 ml, 250 ml and 500 ml	
	Extension Joints	Adapter Joints for smaller volume evaporation flasks	
	Receiving Flask (Condensed Solvent)	Spherical 1000 ml with ball joint and clamp	
	Clips for assembling of Evaporation Flask	Non corrosive press fit assembly	
3.5	Vacuum Pump		
	Vacuum Pump Type	Mono Block, PTFE Diaphragm type	
	Final Vacuum	About 10 mBar	
	Suction Volume	About 1.5 m ³ / hour or more	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-21			
Equipment Name: Rotatory Evaporator with Vacuum Pump & Chiller			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	Communication with Vacuum Controller	Vacuum level communication with vacuum controller	
	Glass Heads	Inert Glass Heads	
	Control of Solvent Vapour built-up	Secondary Condenser for minimization of Laboratory Pollution	
3.6	Re-circulating Chiller (Optional)		
	Type	Compact, bench top type model	
	Water Cooling	Down to about -10 °C (using CFC Free Gas)	
	Water Recirculation	Leak Proof Recirculation of cold water to and from condenser	
	Distribution	Capable of supplying chilled water to atleast two Rotavapor Units	
	Power Consumption	Energy saving, less than 1500 Watts	
3.7	Spares & Consumables		
	Sufficient spares & consumables such as PTFE fittings, diaphragm, organic solvent resistant tubing resisting use of toluene, dichloromethane, acetone, hexane, methanol etc.		

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF ULTRAPURE WATER SYSTEM

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-22			
Equipment Name: Ultrapure Water System			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	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 of similar make.	
		Should not include any glass or fragile components except display screen	
		Should be capable of preparing two grades water i.e. reagent grade and ultra pure water grade.	
2.0	Power Supply	230 ± 10 volts, 50 Hz.	
3.0	1st Stage System	The system should operate on municipal water supply, which will be made available to the system from an overhead tank.	
		Should be able to operate further inlet water quality of Total Dissolved Solids (TDS) upto 1000 ppm and free chlorine upto 0.5 ppm	
	1 st State System output water requirement	Resistivity : 10-15 meg Ohms cm	
		Total Organic Carbon : < 50 ppb	
		Flow rate : Atleast 10 litre / hr	
		Silicate rejection : 99.9%	
		Free chlorine : Nil	
	1 st State System should comprise	(Activated carbon with anti-scaling compound	
TFC Polyamide RO cartridge with >100 Dalton cut off having 95-99% of organic and inorganic rejection			

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-22			
Equipment Name: Ultrapure Water System			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
		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	
		254 mm UV lamp or suitable filters for < 1 CFU / ml bacteria count.	
		Automatic cut off when there is inadequate water in the feed water line and when the intermittent tank is full to the capacity.	
		Should display conductivity, Resistivity, temperature etc. for feed water and product water.	
4.0	Intermittent tank	Compact suitable shape storage tank of HDPE or inert material, enabling better maintenance and non-contamination of stored water. The tank bottom should be conical or tapering with storage capacity of 100 litres.	
		Tank of same manufacturing make must be fitted with built in sensors for low/medium/high water level and vent filters having CO ₂ and volatile organic adsorbent and membrane filter for particle / biological removal.	
5.0	2nd Stage System	Ultra Purification Water System should take feed water from stage 1 via intermittent tank and provide output water of following quality:	
		Resistivity : 18.2 meg Ohms cm	
		Total Organic Carbon : 1-5 ppb	
		Microorganism : < 1cfu / ml	
		Flow rate : 1 litre / min	
		Cell constant (Resistivity cell) : 0.01 cm ⁻¹	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-22			
Equipment Name: Ultrapure Water System			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
	2 nd Stage System should comprise	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.	
		On line TOC monitor capable of measuring 1-300 ppb	
		A dual – wavelength UV lamp (185 nm and 254 nm) for low TOC	
		Attached with volumetric dispensing	
		Display panel to provide system performance and operating parameter including alarm signals to enable auto diagnostics.	
6.0	Additional item	Operation and maintenance manual – Two sets	
		Two sets of each cartridges for both 1 st & 2 nd system with two nos. of spare UV lamps. If filter used for microbes filtration then two sets of filters to be provided.	
		One maintenance kit for each system	
7.0	Other requirement	Company / authorized distributors must provide five satisfactory performance / installation certificate during last three years.	
		Minimum two years comprehensive warranty from the date of installation.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF VELOCITY METER (WATER)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZO's)			
Code Number:ICB-14-23			
Equipment Name: Velocity Meter (Water)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Velocity Meter (Water)	Portable Ultrasonic Digital water velocity meter / flow meter for measurement of velocity / flow of water & waste water in rivers, canals, drains, waste channels etc.	
2.0	Measurement	Volume flow i.e. M ³ / Hr, M ³ / Day; Mass Flow ; Flow speed ; Flow direction	
3.0	Measuring Principle	Ultrasonic time difference correlation principle	
4.0	Signal converter	Ultrasonic Portable signal converter	
5.0	Display	In-built digital display 3.5 digit	
6.0	Flow Velocity	0.5 meter/second to 20 meter/second or better	
7.0	Repeatability	Less than ±0.25% reading	
8.0	Measurable Fluids	Water & waste water (<10.0% solids in volume)	
9.0	Power supply	Rechargeable battery more than 15 hrs. operation with battery charger	
		Adapter for 230 ± 10 volts, 50 Hz. AC	
10.0	Operating temperature	-10.0 °C to 100 °C	
11.0	Operation Manual	Hard copy - two sets and CD format - one	
12.0	Installation & Training	Onsite by trained personnel	
13.0	Warranty	Three years comprehensive warranty with free maintenance	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF WATER PURIFICATION SYSTEM (RO/BACTERIA FREE)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number : ICB-14-24			
Equipment Name : Water Purification System (RO/bacteria free)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Feed water Requirements:		
	Quality	Potable (Tap) Water	
	Conductivity	< 2000 µS/cm (@ 25 °C)	
	pH	4 - 10	
	Maximum LSI	< 0,3	
	Calcium (as CaCO3)	< 300 ppm (when system water recovery More Than 50 %)	
	Total Chlorine level	Should work favourably for Total Chlorine greater than 2 PPM.	
	Fouling index	Should work favourably for fouling index greater than 12.	
	Feed water pressure	1 bar minimum, 2 bar maximum	
Flow rate	> 5 l/min at 2 bar (1.3 gal/min at 29 psi)		
2.0	General		
2.1	Water connections		
	Solenoid valve feed	½ inch NPTM or ½ inch M-GAZ	
	System feed	½ inch tubing	
	Product	8 mm tubing	
	RO reject	1 1/2 inch tubing	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number : ICB-14-24			
Equipment Name : Water Purification System (RO/bacteria free)			
Quantity: 3 (Three) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
2.2	Electrical requirements		
	Power Supply	230 ± 10V 50 Hz AC	
	Data port connection	RS-232	
	Drain requirements	> 5 l/min (> 1.3 gal/min)	
2.3	System Performance		
	Product flow rate	Nominal flow rates more than 1 L/Min 7- 30 °C, 30 l/h	
	Water recovery	Application Specialist will optimize recovery based on feed water and pre treatment	
	Ion rejection	95 - 99 %	
	TOC	< 5 PPB with inbuilt TOC monitor	
	Particles	> 99 %	
	Microorganism	< 1 cfu/ml	
3.0	Inlet Booster Pump (Optional)	Inlet booster pump to increase pressure to > 2 bar to feed water purification system in case of low inlet pressure	
4.0	Spares & Consumables	Two sets of spare cartridges used in the system to be provided along with the system	
		Pre cartridge to remove suspended matter, organic matter and color	
5.0	Guarantee / Warranty	Comprehensive Guarantee / Warranty should be valid for three years.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF WEIGHING MICRO BALANCE (CAPACITY 5.1 G, MINIMUM DISPLAY 0.001 MG)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-25			
Equipment Name: Weighing Micro Balance (capacity 6.1 g, minimum display 0.001 mg)			
Quantity: 6 (Six) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Capacity	6.1 g	
2.0	Readability	1 µg	
3.0	Repeatability	± 1 micrograms	
4.0	Linearity, micrograms	± 4 micrograms	
5.0	Linearity, 0 -500 µg	± 2 micrograms	
6.0	Operating Temperature	5°C to 40 °C, 85% RH or less	
7.0	Pan Size (mm / in)	∅ 30 mm / 1.2 in Std pan ∅ 50 mm / 1.9 in Std filter	
8.0	Automatic zero tracking	Standard feature (can be turned off by menu code)	
9.0	Calibration	Self Calibration	
10.0	Power Source	230 ± 10 V AC with AC adapter with scale	
11.0	Standard Equipment	230 ± 10 V AC Adapter, level indicator, adjustable feet, RS-232, manual	
12.0	Warranty	Minimum 3 years warranty	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF WEIGHING MICRO BALANCE (CAPACITY 220 G, MINIMUM DISPLAY 0.001GM)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-26			
Equipment Name: Weighing Micro Balance (capacity 220 g, minimum display 0.001gm)			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Readability	0.01 mg upto 60 grams. 0.1 mg upto 220 grams	
2.0	Weighing Range	Upto 220 grams	
3.0	Taring Facility	Entire range	
4.0	Repeatability	0.02 mg up to 60 grams, less than 0.1 mg up to 220 grams for 0.1 mg accuracy weighing	
5.0	Sensitivity Drift	Maximum ± 2 ppm / $^{\circ}\text{C}$	
6.0	Display	LCD	
7.0	Calibration adjustment	Internal, fully automatic adjustment and by external weight	
8.0	Power Supply	Should operate on 230 ± 10 volts, 50 Hz, AC	
9.0	Standard weights for calibration (Optional)	Certified Calibrated weight of E2 or F1 Class traceable to National Physical Laboratory (NPL) / International Standards with original certificate for the entire range	
10.0	Other requirement	The instrument should be supplied with instruction / operation / maintenance manual and dust cover.	
11.0	Warranty	Three years comprehensive.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF WEIGHING MICRO BALANCE (CAPACITY 200 G MINIMUM DISPLAY 0.01 MG)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-27			
Equipment Name: Weighing Micro Balance (capacity 200 g minimum display 0.01 mg)			
Quantity: 2 (Two) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
1.0	Display	Backlit LCD display with touch screen operation	
2.0	Weighing units	various units of weight	
3.0	Maximum Capacity	50 g / 200 g or more	
4.0	Readability	0.01 mg / 0.1 mg or better	
5.0	Tarring Range	0 ~ 200 g or wider	
6.0	Repeatability	0.015 mg upto 50 gm; Less than 0.05 mg upto 200 gm	
7.0	Linearity	± 0.5 mg	
8.0	Settling Time	5 second / 20 second or less	
9.0	Adjustment with internal weights	Push button adjustment	
10.0	Adjustment with external weights	200 g	
11.0	Temperature Sensitivity	± 2.5 ppm / °C	
12.0	Weighing Pan Size	∅ 75 mm or larger	
13.0	Free height above weighing pan	200 mm or more	
14.0	Instrument safety	Weighing cell with overload protection	
15.0	Accessories	Protective in-use cover, tweeze, standard tool kit, Instruction / Operation & maintenance manual	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-14-27			
Equipment Name: Weighing Micro Balance (capacity 200 g minimum display 0.01 mg)			
Quantity: 2 (Two) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. Technical Literature / published document should be submitted to prove compliance)
16.0	Power	230 ± 10V, 50 Hz AC, Automatic shut-off	
17.0	Calibration	Internal, fully automatic adjustment and by external weight	
18.0	Calibration Weight (optional)	0.1 mg, 1 mg, 10 mg, 100 mg, 1 gm, 10 gm, 50 gm, 100 gm, 200 gm with original certificate for the entire range traceable to National Physical Laboratory (NPL) / International Standard	
18.0	Warranty / Guarantee	Comprehensive guarantee should be valid for three years.	

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 II 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 of bidders desirous to quote more than one item, separate envelop 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 tender document.**