
Sl. No.

/ICB

TENDER NOTICE

No.C-47011/01-20/2015-16/ICB/Mat.

Dt.10.08.2015

**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

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

TENDER NOTICE NO.C-47011/01-20/2015-16/ICB/MATERIALS
DATED 10.08.2015

TENDER DOCUMENT FOR THE SUPPLY OF INSTRUMENT/ EQUIPMENT

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 : 10.08.2015 to 07.09.2015 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 08.09.2015
- Opening of Tenders : 08.09.2015 at 11.30 A.M.

DATED: 10.08.2015
DELHI -110 032

(M. Varghese)
Administrative Officer (M)

TELEPHONE : 22308202, 43102030 Extn. 242-244
FAX : 011-22308202, 22307078
e. mail : cpcb@alpha.nic.in
Website : www.cpcb.nic.in

(i)

Central Pollution Control Board
(Ministry of Environment, Forests & Climate Change)
"Parivesh Bhawan" East Arjun Nagar.
Delhi – 110032. India
Tel. Nos. 22308202, 43102030 – Extn.242-244

TENDER NOTICE

No.C-47011/01-20/2015-16/ICB/Mat.

Dt. 10.08.2015

Sealed tenders are invited on behalf of the Member Secretary, Central Pollution Control Board from the manufacturer/supplier in India & abroad for the supply of various Laboratories Instrument/Equipment.

02. The Tender Document along with detailed specifications of the Instrument/Equipment 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 28.08.2015.

- | | |
|--|--|
| Sale of Tender Document | - From 10.08.2015 to 07.09.2015 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 | - 08.09.2015 up to 10.00 AM |
| Opening date of Technical bids | - 08.09.2015 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.

(Administrative Officer)
Material

-

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

DETAILS OF TENDER NOTICE

No.C-47011/01-20/2015-16/ICB/Mat.

Dt. 10.08.2015

TENDER DOCUMENT FOR THE SUPPLY OF INSTRUMENT/ EQUIPMENT

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 **Automatic Mercury Analyser for Ambient Air – 01 No., Cool Beam Light-02 Nos., Digital Pyrometer-02 Nos., Echo Sounder – 01 No., Gas Chromatograph – 01 No., Gas Chromatograph with Methanizer-01 No., High Precision Pressure cum Vacuum Gauge (Analog) (Master Gauge) Bourdon Type Size 10 inch.- 08 set, Isokinetic Stack Sampling Assembly (Stack Monitoring Kit suitable for EPA Methods 5, 23A, 26A, 29 etc – 06 Nos., Multi Gas Analyser for indoor ambient air Quality Monitoring- 01 No., Oil Sealed Mechanical Vacuum Pump-04 Nos., Portable Calibrator – 01 No., Portable Hydrocarbon (Methane /non methane HC/THC) Analyzer-01 No., PUF Sampler (for sampling of Ambient VOC, Dioxins)-09 Nos., Vacuum Pump (suction pump)-08 Nos., Velocity meter (water)-03 Nos., Water Purification System (RO/bacteria free)-04 Nos. Weighing Micro Balance (Capacity 6.1 g, minimum display 0.001 mg)-06 Nos. Weighing Micro Balance (Capacity 220 g, minimum display 0.1 mg)-02 Nos., Weighing Micro Balance (Capacity 200 g, minimum display 0.01 mg)-01 No. AND Automatic Ambient Air Quality Monitoring Systems/Analyzers Package consist of CO-05, SO₂-05, O₃-05, NO-NO₂-NO_x-NH₃-01, PM₁₀-02, BTX Analyzer-04, Data Display System-03.**

02. The Tender Documents along with detailed specifications of the Instruments/Equipments 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 28.08.2015. 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 10.08.2015 to 07.09.2015 on all working days between 11.00 AM to 5.00 PM

(iii)

- 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 in favour of "Central Pollution Control Board", payable at Delhi.
- Last date & time for submission - 08.09.2015 up to 10.00 AM
- Opening date of Technical bids - 08.09.2015 at 11.30 AM
- Earnest Money along with Tenders - As indicated in the Tender Document

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/Equipment** 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 The warranty period for Item sl. Nos. 01, 05, 06, 08, 12, 16, 17, 18, 19 & 20 will be for **36 months** starting from the date of successful commissioning of the **Instruments/Equipment** and for the rest of the item warranty will be for a period of **twelve months**. 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/**01-20**/2015-16/ICB/Materials alongwith the item Name 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 **CIP/FOR** destination basis including total price of **Instruments/Equipments** 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 to both foreign suppliers/representatives and to the authorized Indian Suppliers importing the instrument against our supply order.**

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 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/**01-20**/ICB/2015-16/Mat. due on **08.09.2015** for **Instruments/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/**01-20**/2015-16/ICB/Materials for

- Instruments/Equipments.** All the above envelopes must be separately sealed and shall be kept in one envelope bearing the address of Central
- 2.7 Pollution Control Board and super scribed with bold letter "TENDER Instrument/Equipments(Item code No.) - NOT TO OPEN BEFORE **08.09.2015** AT **11.30 A.M.** The senders address should be mentioned in all envelopes.
- 2.7 Technical & Commercial part of the tender will be opened on due date i.e. at **11.30 A.M. on 08.09.2015** 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 Amount of **Instruments/Equipments** 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/Equipments** 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/Equipments**, their approximate quantity and point of delivery is given at Annexure -V and the detailed specification of the **Instruments/Equipments** are given in the tender document (**Page No. 23 to 95**). **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.**
- 2.28A The Item mentioned at Part-II Ser. No. ICB-15-20-Annexure IV & V Automatic Ambient Air Quality Monitoring Stations/Analysers are a package. The price compression will be made for the entire package. Therefore, rate for individual item/partial bid will not be considered for the Automatic Ambient Air Quality Monitoring Stations/Analysers Package(Part-II, Ser No.ICB-15-20, a to g)
- 2.29 Each and every folio of the Tender must be signed by the Bidder.
- 2.30 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 .
- 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 **40** 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 CIP/FOR Destination basis. The Indian agent/their authorized representative should make the**

custom duty if applicable & 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, Custom duty payment if applicable 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.
- 2.46 AMC: The Annual maintenance Charges for the instruments, after the warranty period should be mentioned in the price 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 either by the foreign Supplier or their authorized Indian representatives. valid for a period of 60 days beyond the warranty period. This clause will be a part of the Letter of Credit.

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 **Scheduled/ 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. In case 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 items 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 and 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 CIP/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.....2015

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

SCHEDULE OF EARNEST MONEY

Item Code	Description	Qty. Rqd.	EMD (in Rs.)
	PART-I		
ICB-15-01	Automatic Mercury Analyzer for Ambient Air	01 No.	2,10,000=00
ICB-15-02	Cool Beam Light	02 Nos.	1,200=00
ICB-15-03	Digital Pyrometer with sensor	02 Nos.	1,200=00
ICB-15-04	Echo Sounder	01 No.	7500=00
ICB-15-05	Gas Chromatograph	01 No.	3,00,000=00
ICB-15-06	Gas Chromatograph with Methanizer	01 No	90,000=00
ICB-15-07	High Precision Pressure cum Vacuum Gauge (Analog) (Master Gauge) Bourdon Type Size 10 inch.	08 set,	15,600=00
ICB-15-08	Isokinetic Stack Sampling Assembly (Stack Monitoring Kit suitable for EPA Methods 5, 23A, 26A, 29 etc	06 Nos.	2,16,000=00
ICB-15-09	Multi Gas Analyser for indoor ambient air Quality Monitoring	01 No	6,000=00
ICB-15-10	Oil Sealed Mechanical Vacuum Pump	04 Nos	18,000=00
ICB-15-11	Portable Calibrator	01 No.	12,000=00
ICB-15-12	Portable Hydrocarbon (Methane /non methane HC/THC) Analyzer	01 No	12,000=00
ICB-15-13	PUF Sampler (for sampling of Ambient VOC, Dioxins)	09 Nos.	54,000=00
ICB-15-14	Vacuum Pump (suction pump)	08 Nos.	9,600=00
ICB-15-15.	Velocity meter (water)	03 Nos	6,000=00
ICB-15-16.	Water Purification System (RO/bacteria free)	04 Nos.	84,000=00
ICB-15-17.	Weighing Micro Balance (Capacity 6.1 g, minimum display 0.001 mg)	06 Nos.	63,000=00
ICB-15-18.	Weighing Micro Balance (Capacity 220 g, minimum display 0.1 mg)	02 Nos.	9000=00
ICB-15-19.	Weighing Micro Balance (Capacity 200 g, minimum display 0.01 mg)	01 No.	4500=00
	PART-II		
ICB-15-20	Automatic Ambient Air Quality Monitoring Systems/Analyzers package consists of		5,25,000=00 for package of a to g
a)	Automatic Ambient 'CO' Analyzers	05 Nos.	
b)	Automatic Ambient 'SO ₂ ' Analyzers	05 Nos.	
c)	Automatic Ambient 'O ₃ ' Analyzers	05 Nos.	
d)	Automatic Ambient 'NO ₂ ' Analyzers	01 No.	
e)	PM ₁₀ Monitor	02 Nos.	
f)	BTX Analyzer	04 Nos.	
g)	Data Display System	03 Nos.	

Locations of Delivery and Installation of the Instruments/Equipment

Item Code	Description	Qty Rqd.	Locations
	PART-I		
ICB-15-01	Automatic Mercury Analyzer for Ambient Air	01 No.	AL-01
ICB-15-02	Cool Beam Light	02 Nos.	BL-02
ICB-15-03	Digital Pyrometer with sensor	02 Nos.	ZOK-02
ICB-15-04	Echo Sounder	01 No.	ZOK-01
ICB-15-05	Gas Chromatograph	01 No.	ZOK-01
ICB-15-06	Gas Chromatograph with Methanizer	01 No	AL-01
ICB-15-07	High Precision Pressure cum Vacuum Gauge (Analog) (Master Gauge) Bourdon Type Size 10 inch.	08 set,	ZOL-2, ZOK-02, ZOB-2, ZOV-2
ICB-15-08	Isokinetic Stack Sampling Assembly (Stack Monitoring Kit suitable for EPA Methods 5, 23A, 26A, 29 etc	06 Nos.	ZOL-1, ZOK-01, ZOB-1, ZOV-1, AL -02
ICB-15-09	Multi Gas Analyser for indoor ambient air Quality Monitoring	01 No	ZOB-01
ICB-15-10	Oil Sealed Mechanical Vacuum Pump	04 Nos	ZOL-1, ZOK-01, ZOB-1, ZOV-1
ICB-15-11	Portable Calibrator	01 No.	ZOV-01
ICB-15-12	Portable Hydrocarbon (Methane /non methane HC/THC) Analyzer	01 No	AL-01
ICB-15-13	PUF Sampler (for sampling of Ambient VOC, Dioxins)	09 Nos.	ZOK-01, ZOB-4, ZOV-2, AL-02
ICB-15-14	Vacuum Pump (suction pump)	08 Nos.	IL-02, ZOV-01, ZOL-02, ZOK-03
ICB-15-15.	Velocity meter (water)	03 Nos	ZO BH-02, ZOK-01
ICB-15-16.	Water Purification System (RO/bacteria free)	04 Nos.	BL-01, ZOBH-01, ZOB-01, ZOV-01
ICB-15-17.	Weighing Micro Balance (Capacity 6.1 g, minimum display 0.001 mg)	06 Nos.	ZOB-01, ZOBH-01, ZOK-01, ZOL-01, ZOV-01, POA-01
ICB-15-18.	Weighing Micro Balance (Capacity 220 g, minimum display 0.1 mg)	02 Nos.	IL-01, ZOK-01
ICB-15-19.	Weighing Micro Balance (Capacity 200 g, minimum display 0.01 mg)	01 Nos.	ZOB-01

PART-II			
ICB-15-20	Automatic Ambient Air Quality Monitoring Systems/Analyzers package consists of		Delhi/New Delhi
a)	Automatic Ambient 'CO' Analyzers	05 Nos.	Air Lab, Portable Station, Sirifort, DTU, Pragati Maidan,
b)	Automatic Ambient 'SO ₂ ' Analyzers	05 Nos.	-do-
c)	Automatic Ambient 'O ₃ ' Analyzers	05 Nos.	-do-
d)	Automatic Ambient 'NO ₂ ' Analyzers	01 No.	Air Lab.
e)	PM ₁₀ Monitor	02 Nos.	Sirifort, DTU
f)	BTX Analyzer	04 Nos.	Portable Station, Sirifort, DTU, Pragati Maidan,
g)	Data Display System	03 Nos.	Sirifort, DTU, Pragati Maidan,

ABBREVIATIONS:

AL = Air Laboratory, HQs Delhi
TOL = National Reference Trace Organics Laboratory, HQs Delhi
IL = Instrumentation Lab, HQs Delhi
WL = Water & Wastewater Laboratory, HQs Dehi
BL = Bio-Science Laboratory, HQs Delhi
ZOL = Zonal Office- Lucknow

ZOK = Zonal Office, Kolkata
ZOV = Zonal Office, Vadodara
ZO BH = Zonal Office, Bhopal
ZOS = Zonal Office, Shillong
ZOB = Zonal Office, Bangalore
POA = Project Office- Agra

DTU = Delhi Technology of University

PRE CONTRACT INTEGRITY PACT**General**

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made onday of the month of2015, 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

3. 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 manufacturer/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 acting 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.

4. 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.

5. 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 encase 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.
Designation
Deptt./MINISTRY/PSU

CHIEF EXECUTIVE OFFICER

Witness

Witness

1.....

1.....

2.....

2.....

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF AUTOMATIC MERCURY ANALYSER FOR AMBIENT AIR

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-1			
Equipment Name: Automatic Mercury Analyzer for Ambient Air			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
	General Requirements	The system will be used for continuous real time TGM (Total Gaseous mercury monitoring) in ambient air. It should be portable enough for short term monitoring purpose in locations for fugitive / process emission monitoring too. The system should have approval of USEPA / TUV / MCerts or equivalent international organization for mercury monitoring	
Part I: TECHNICAL SPECIFICATIONS FOR AMBIENT AIR MERCURY ANALYZER:- Total Gaseous Mercury (TGM)			
1.	Analyzer	The main system should be modular capable for measurement of Total Gaseous Mercury (TGM) in Ambient Air. The modular system shall be optionally expandable to measure Gaseous elemental mercury (GEM), Gaseous oxidized mercury (GOM) and Particulate bound mercury (PBM)	
2.	Detection technique	Cold vapour Atomic Absorption / fluorescence detection	
3.	Detection limit	<0.1 ng/m ³	
4.	Range	0.1-2000ng/m ³	
5.	Sampling cycle	user programmable	
6.	Linearity (0.1-200ng/m ³)	2%	
7.	Sample volume Determination	High Precision Mass Flow meter	
8.	Sampling	Continuous (no gap in data stream)	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-1			
Equipment Name: Automatic Mercury Analyzer for Ambient Air			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
9.	Sample Flow Rate	User selectable	
10	Calibration	Automatic self-calibration using internal permeation source.External multipoint calibration facility should be available	
11	Zero Air Generator	System must have a Zero Air Generator to provide mercury free air for calibration purposes, either as internal unit or separate unit	
12	Carrier Gas	Gas cylinder, regulator etc. to be supplied if required during operation	
13	Heated sample line	System must have a heated sample line to minimize condensation and loss of mercury during sample transfer to the detector intake	
14	Data Acquisition	Display as programmed cycle (real time is preferable)	
15	Input / Output	USB Host Port-2, USB Device port-1, Network port-1, Analog chart outputs-2, RS 232 Serial output-1, Status & Control input-1, Sample & Gas Input-1,	
16	Power Requirement	230V AC, 50-60Hz,	
17	Display	High resolution touch screen	
18	Access	Remote	
19	Environmental Conditions	Ambient Temp. 15-50°C, Humidity 0 - 100 %	
Part II (Optional) : TECHNICAL SPECIFICATIONS FOR AMBIENT AIR MERCURY ANALYZER:- Particulate Mercury			
1	Analyzer	Being capable of particulate or solid phase mercury determination in air and other matrix	
3	Concentration range	1 pg/m ³ to over 1000 pg/m ³	
4	Sampling cycle	User Selectable	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZO's)			
Code Number: ICB-15-1			
Equipment Name: Automatic Mercury Analyzer for Ambient Air			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
5	Sample Flow Rate	10 l/min	
6	Carrier	Zero Air	
7	Power Requirement	220 ± 10 V, 50 Hz	
Part III (Optional) : TECHNICAL SPECIFICATIONS FOR AMBIENT AIR MERCURY ANALYZER:- Elemental & Ionic Mercury			
1	Analyzer	Being capable of Automated and unattended mercury speciation (Elemental & Ionic) and determination in Ambient Air	
2.	Concentration range(Oxidized)	1 pg/m ³ to over 1000 pg/m ³	
3	Sampling cycle	User Selectable	
4	Denuder heater temp	500°C	
5	Power Requirement	220±10 V, 50 Hz	
6	Display	LCD	
Part IV : TECHNICAL SPECIFICATIONS FOR AMBIENT AIR MERCURY ANALYZER : Calibration System			
1	Calibration System	Should be capable of Automated and unattended daily calibration through internal calibration sources	
		Programmable zero and span calibration	
		Facility for external and / or internal multipoint calibration by NIST certified standard (Source)	
Part V : OTHER REQUIREMENTS:			
1.	Data Logger	System should include inbuilt data logger with direct Printout facility	
2.	Data retrievability	Data should be retrievable through USB, RS 232.	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-1			
Equipment Name: Automatic Mercury Analyzer for Ambient Air			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
3.	Computer Peripherals	All the computer peripherals (including Laptop) should be included in the offer.	
4.	Spares and Consumables	Sufficient for three years hindrance free operation	
5.	Installation	Installation should be done free of cost	
6.	Training	Training shall be provided to two CPCB personnel at site during installation free of cost	
7.	Other Inclusions	NIST certified calibration standards - Two sets	
		Operation Manual and Maintenance Manual (Two copies each)	
		Calibration certificate from manufacturer	
8.	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 software to be supplied should be in English language. The supplier / manufacturer should have Indian agent to provide after sales service. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. 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 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-1			
Equipment Name: Automatic Mercury Analyzer for Ambient Air			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
		<p>successful operation for at least 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 – at least 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 and consumables for three years continuous operation from the date of installation of the instrument should be covered.</p>	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF COOL BEAM LIGHT

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-2			
Equipment Name: Cool Beam Light			
Quantity: 2 (Two) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
1.	Description	Gooseneck Cool Beam light for illumination of objects for microscopic viewing.	
2.	Main Body	Should be compact with inbuilt handle and made up of durable powder coating.	
		Flexible light pipe unit (preferably with two pipes) with focusing lens should be fit easily in illuminator port opening.	
3.	Light source	150 W halogenated bulb lamp alongwith 2 additional spare halogenated bulb.	
4.	Illumination	Should provide shadow free, glare free cold illumination	
5.	Accessibility to light source	Easily accessible for bulb replacement.	
6.	Power requirement	230 ± 10 V 50 Hz AC	
7.	Power supply cord	Length more than 1.5 metre with power plug.	
8.	Other requirements	There should be no noise or vibrations during operation.	

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TECHNICAL SPECIFICATIONS OF DIGITAL PYROMETER WITH SENSOR

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-3			
Equipment Name: Digital Pyrometer with Sensor			
Quantity: 2 (Two) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
1.	Description	Portable, compact digital Pyrometer with extended infrared sensor head for non-contact temperature measurement.	
2.	Range	- 40° to 1999°F (- 40° to 1100°C)	
3.	Resolution	1° C	
4.	Accuracy	± 1%	
5.	Digital display	4 digits, characters ½" high LCD	
6.	Operating Temp	0° to 52°C	
7.	Power Supply	9V Rechargeable battery	
8.	Battery Life	100 hours	
9.	Response Time	1-10 seconds	
10.	Warm-up Time	Instantaneous	
11.	Probe Cord Length	1.5 meters approx.. with steel jacket Coiled Cord detachable	
12.	Sensor Probe length	6" to 8" steel casing with 5 to 6 mm outer diameter for laboratory use	
13.	Sensor	Thermocouple K type	
14.	Cold junction compensation	Automatic.	

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TECHNICAL SPECIFICATIONS OF ECHO SOUNDER

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)										
Code Number: ICB-15-4										
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. In case of "Non Complied", detail shall be mentioned)	
1.	Description	Portable Echo Sounder with proper cable, battery charger, accessories etc. for depth measurement at Deep water lakes, tributaries sea / ocean								
2.	Display	TFT LCD								
3.	Echo Color	8 colors (including background color) according to echo intensity. The background color is selectable from blue, light blue, white and black.								
4.	Basic Range	5 to 300 meters and can be changed on the system menu								
5.	Range Shift	Up to 300 meters								
6.	Zoom Range	Times 2,3, 4 and 5 ranges								
7.	Bottom Lock Expansion Range	5/10 meters								
8.	Auto Mode	Automatic adjustment of range and gain								
9.	Display Mode	High Frequency (200K), Low Frequency (50), Dual (200K and 50K ½ display on each), Zoom (200K 50K zoom) and A-scope Display								
10.	Zoom Display	Marker Zoom, Bottom Zoom and Bottom-lock Expansion								
11.	Display Advance Speed	Lines/TX: Freeze, 1/8,1/4, ½, 1/1,2/1								
12.	TX Frequency Output Power	50 and 200kHz (alternately transmitted), 300W								
13.	Pulse-length/TX rate	Display end depth (m)	5	10	20	40	80	150	300	
		Pulse-Length (ms)	0.2	0.2	0.2	0.4	0.8	1.5	3.0	
		TX Rate (pulse/min)	600	600	600	375	187	100	50	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-4			
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. In case of "Non Complied", detail shall be mentioned)
14.	Alarm	Fish and Bottom alarms, Temperature alarm	
15.	Sensor	Compound Temperature sensor option	
16.	Power supply	Display unit 12-24 VDC (-10%,+30%) : 1.0 - 0.6A	
17.	Operating Temperature	0°C to +50°C	
18.	Relative Humidity	85% at 40°C	
19.	Water proofing	Display Unit: IPX4	
20.	Vibration	±1mm ±10%, 2(5) to 13.2Hz maximum acceleration 7 m/s ² , 13.2 to 100Hz	
21.	Mode of operation	Auto and manual option	

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TECHNICAL SPECIFICATIONS OF GAS CHROMATOGRAPH

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
1.0	INSTRUMENT COMPOSITION		
	Gas Chromatograph	One set	
	Capillary Column with accessories	One set each of specified columns under technical specifications	
	ECD Detector	One set	
	FPD Detector	One set	
	FID Detector	One set	
	GC Data Station	One set	
	Auto Sampler	One set	
	Gas purification panel	One set	
2.0	TECHNICAL SPECIFICATION		
2.1	GC System	Computer controlled Data Workstation based compatible Gas Chromatograph with 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	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
		Auxiliary; if FID, then three Injectors, two Detectors.	
2.4	Display	Functional keyboard with four line alphanumeric display	
		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	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
	Volume	More than 10 Litres	
	Operating temperature	Maximum 4 °C above ambient to 450 °C	
	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	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
4.5	EPC setting facility	Computer work station system	
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	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
7.0	PTV INJECTOR		
	Injection volume	Large volume splitless injections	
	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; one detector to be standby.	
	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	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
	Pressure / Flow control	Electronic pressure/flow control	
	Minimum Detection Limit (MDL)	Less than 10 fg/sec of Lindane	
	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	Optional Detectors	Optional detectors (TCD / NPD / FID) to be selected as per requirement.	
9.1	Thermal Conductivity Detector	Thermal conductivity detector with excellent sensitivity to all compounds excluding the carrier gas, capillary column compatible, filament with automatic protection.	
	Minimum Detectable limit	400 pg tridecane / ml with helium carrier	
	Sensitivity	9 μV / ppm nonane at 160 mA at the bridge with detector temperature of 100 °C.	
	Maximum temperature	400 °C in 1 °C increment.	
	Linearity	>10 ⁵ ± 5% entire range	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
	Make up gas	0 to 12 ml / min	
	Reference gas	0 to 100 ml / min	
	Standard EPC	For He, H ₂ , Ar or H ₂ matched to carrier gas type.	
9.2	NPD Detector	NPD detector with direct heating with induction current.	
	Minimum Detection limit	< 0.4 pg N/S, < 0.2 pg P/S with Azobenzene / Malathion / Octadecane mixture	
	Selectivity	25000 to 1 g N/g C, 75000 to 1g P/g C with Azobenzene / Malathion / Octadecane mixture	
	Dynamic range	>10 ⁵ N, > 10 ⁵ P with Azobenzene / Malathion mixture	
	Operational Temperature Range	~ 400 °C in 1 °C increment	
	Standard EPC	Standard EPC for three gases Air – 0-200 ml/min; Hydrogen 0-30 ml/min; Makeup gas 0-100 ml / min	
9.3	FID Detector	Electronic pressure control	
	Temperature operating limit	Operating temp. (maximum) should not be less than 450 °C	
	Detection	Flame out detection facility	
	Ignition	Auto Ignition facility	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
	Dynamic range	Linear dynamic range $\pm 10\%$; 10^7 with N_2	
10.0	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	
11.0	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 μ m film thickness Film - 14% cyanopropyl phenyl and 86% dimethyl polysiloxane co-polymer column	
		Ultra-125 m x 0.2 mm ID having 0.33 μ m film thickness Film - 100% dimethyl polysiloxane	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
		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-225 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	
12.0	DATA STATION		
12.1	Licensed Application Software	Latest 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	
	Quality control	Software must have Quality Control Protocols	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
	Data display / handling	Software should be capable for data display, handling, data export/import and reporting	
12.2	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)	
	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 USB2 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 Printer 1200 x 1200 dpi 12 PPM black	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
12.3	Softwares	Pre-loaded Windows based latest version operating system with Licensed CD should be compatible with operational software.	
		MS Office 2010 Professional or latest with media, manual and Licensed CD	
		Preloaded Norton Antivirus with latest version of 3 years lifetime along with Licensed CD	
13.0	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.)	
	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	

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Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
	Gas Cylinders	H ₂ , N ₂ and Zero Air	
		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: <div style="text-align: right;"> Hydrogen - one Nitrogen - one Zero - one </div>	
	GAS PURIFICATION PANEL	Should comprise one set of each of following traps/purifiers, while remaining traps/purifiers may be supplied as spares	
	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.	
	Carrier gas purifier	High capacity carrier gas purifier 4 Nos.	
	H ₂ gas purifier	High capacity H ₂ gas purifier 2 Nos.	
	Oxygen trap	High Capacity Oxy trap capacity more than 125 cc- 2 Nos.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
14.0	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.	
	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	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
15.0	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.	
16.0	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.	
17.0	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 their satisfactory performance. 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-5			
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. In case of "Non Complied", detail shall be mentioned)
		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.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF GAS CHROMATOGRAPH WITH METHANIZER

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZO)s			
Code Number: ICB-15-6			
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. In case of "Non Complied", detail shall be mentioned)
1.0	INSTRUMENT COMPOSITION		
	Gas chromatograph	One set	
	FID Detector	One set	
	Capillary Column with Accessories	One set	
	Data Processing / Automatic Data Station	One set	
	Gas Purification Panel	One set with mentioned traps/purifiers	
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 four heated zones (2 inlets, 2 detectors) in addition to the oven.	
	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, detector gas flow rates and all detector parameters. A dedicated key should allow unattended and automated system leak simultaneous check.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-6			
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. In case of "Non Complied", detail shall be mentioned)
	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 gas phase and liquid 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 up to 400 °C	
	Temperature set point	±1 °C	
	Temperature stability	± 0.01 °C for 1 °C ambient change	
	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)	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-6			
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. In case of "Non Complied", detail shall be mentioned)
	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.	
2.4	Injector Mounting	Two injectors mounting, one split / splitless and one Gas phase sample injection system.	
	Injector Operation	Ambient temperature operations	
	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	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-6			
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. In case of "Non Complied", detail shall be mentioned)
	Purge System	Efficient septum purge system, purge time adjustable.	
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 three sample loops (500 µl, 2 ml and 1 ml) 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.	
	Temperature programming ramp	Atleast 3 temperature programme ramps	
3.0	DETECTOR	Detector would be FID	
	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.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-6			
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. In case of "Non Complied", detail shall be mentioned)
	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	
	Programming	Should be completely programmed by either a dedicated controller or the GC keyboard.	
4.0	METHANIZER	Should be a modular system, compatible to be attached with main GC system. The system should work offline/online with methanizer	
	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-15-6			
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. In case of "Non Complied", detail shall be mentioned)
	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.	
5.0	COLUMNS	DB 1701 or equivalent 30 m x 0.25 mm ID having 0.25 µm film thicknesses Film – 14% cyanopropyl phenyl and 86% dimethyl polysiloxane copolymer column	
		DB 624 or equivalent 50 m X 0.32 mm ID with 1.8 µm film thickness	
6.0	DATA STATION		
6.1	Application Software	Basic Programming facility	
		Provide accurate and reproducible integration	
		Compatible for atleast two simultaneous chromatograms	
		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	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-6			
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. In case of "Non Complied", detail shall be mentioned)
6.2	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)	
	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 USB2 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 Printer 1200 x 1200 dpi 12 PPM black		
6.3	Softwares	Pre-loaded Windows latest version 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	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-6			
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. In case of "Non Complied", detail shall be mentioned)
7.0	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, PCP'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.	
	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.	
	Air compressor	Air Compressor (GT free) with air filter and regulator unit 1 No.	
7.1	GAS PURIFICATION PANEL	Should comprise one set of each of following traps/purifiers, while remaining may be supplied as spares	
	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.	
	Carrier gas purifier	High capacity carrier gas purifier 4 Nos.	
	H ₂ gas purifier	High capacity H ₂ gas purifier 2 Nos.	
	Oxygen trap	High Capacity Oxy trap capacity more than 125 cc- 2 Nos.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-6			
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. In case of "Non Complied", detail shall be mentioned)
8.0	SPARES AND CONSUMABLES	To be supplied for two years trouble free operation	
	Column nut	2 Nos.	
	Washer	2 Nos.	
	Graphite / vespel ferrules	20 Nos.	
	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.	
	Gas tight syringe (100 µl)	4 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.	
9.0	OPTIONAL ITEMS		
	Propane gas standard	Gas standards of Propane (one each for 20 ppm, 200 ppm and 3000 ppm) in air	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-6			
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. In case of "Non Complied", detail shall be mentioned)
	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 50 ppm Hexane in Air.	
	Toluene / air standard	Gas mixture standard containing 20 ppm Toluene in Air	
	Methanol / air standard	Gas mixture standard containing 100 ppm Methanol in Air	
	BTX Standard	Gas mixture standard containing 100 ppb each of Benzene, Toluene and Xylene.	
	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.	
10.0	OPERATION AND MAINTENANCE TRAINING	Complimentary (all expenditure inclusive) one week training to at least two scientists on application, routine maintenance and software training at their application laboratory in the country.	
11.0	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. The main unit and all the sub units of the instrument should be 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-6			
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. In case of "Non Complied", detail shall be mentioned)
		<p>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 from the date of installation of the instrument should be covered.</p>	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF HIGH PRECISION PRESSURE CUM VACUUM GAUGE (ANALOG) (MASTER GAUGE) BOURDON TYPE

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-7			
Equipment Name: High Precision Pressure Cum Vacuum Gauge (Analog) (Master Gauge) Bourdon type			
Quantity: 8 (Eight) sets			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
1.0	Resolution/Least count	0.005 bar	
2.0	Accuracy	0.1% of full scale	
3.0	Bourdon tube	Beryllium copper alloy	
4.0	Socket material	316, LSS (Low carbon stainless steel)	
5.0	Case	Aluminum black painted	
6.0	Dial	Aluminum green with black markings and anti-parallax	
7.0	Dial Diameter	10" (250 mm)	
8.0	Range	-1.0 bar to 1.5 bar	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF ISOKINETIC STACK SAMPLING ASSEMBLY (STACK MONITORING KIT SUITABLE FOR EPA METHODS 5, 23A, 26A, 29 ETC.)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-8			
Equipment Name: Isokinetic Stack Sampling Assembly (Stack Monitoring Kit Suitable For EPA Methods 5, 23A, 26A, 29 etc.)			
Quantity: 6 (Six) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
1.0	Description	Isokinetic Stack Sampling Assembly to carry out isokinetic stacks sampling in accordance with USEPA test methods 5, 23A, 26A and 29 (Emissions sampling for particulate phase & Gas phase, dioxins/furans, Halides and metals from industrial emission sources).	
2.0	Isokinetic Source Sampling Control Panel (One set)	Calibrated Direct Reading Metric Unit Dry Gas Meter, 10 Liter per Revolution, 0.1 Liter Resolution. Calibrated to 1.0 ± 0.05, Deviation from average less than 2%.	
		Dual Inclined Manometer, 254 mm Vertical Scale, 25.4 mm Incline, 0.1 mm Incline Resolution, Positive Brass Shutoff Valves for Transport. Data display in metric unit.	
		Individual Programmable, Digital Solid-State Temperature Controllers for Probe and Filter Oven Circuits	
		LED Temperature Readout for K-Type Thermocouple with 7-Station Selector Switch, -105°C to 1,372°C to Range	
		Auxiliary Thermocouple Jack for Handheld Temperature Readout	
		Power, Pump, Timer, Null Solenoids and Orsat Pump Switch Controls	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-8			
Equipment Name: Isokinetic Stack Sampling Assembly (Stack Monitoring Kit Suitable For EPA Methods 5, 23A, 26A, 29 etc.)			
Quantity: 6 (Six) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
		Individually Fused Circuitry Located on Easily Accessible Fuse Panel	
		4-pin military style amphenol power distribution connector meets AN-3057-6 specifications	
		Resettable Elapsed Digital Timer	
		Modular Electrical and Plumbing Panels	
		Fully Removable Front and Rear Access Doors	
		Lightweight portable	
		230 ± 10 V AC / 50Hz Power supply operated with electronic plug	
		Stainless Steel Valves and Quick Connects	
		Complete Orsat Option Assembly: Orsat Pump, Rotameter, Valve and Quick Connects	
		Leak free Quick connections for gas, pressure and vacuum lines	
		Lockable transport case with soft foam	
3.0	Vacuum Pump Assembly (One set)	Fully Enclosed Rotary Vane Vacuum Pump or equivalent	
		Leak Free Vacuum Pump, 1/4HP, 88LPM @ 2.5 cm Hg, 57 LPM @ 38 cm Hg, 66 cm Hg Maximum Vacuum	
		Equipped with 2 m Vacuum Hoses and Nonreversible Stainless Steel Quick Connects to Eliminate the Possibility of Cross Connection	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-8			
Equipment Name: Isokinetic Stack Sampling Assembly (Stack Monitoring Kit Suitable For EPA Methods 5, 23A, 26A, 29 etc.)			
Quantity: 6 (Six) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
		230 ± 10 V AC/50Hz power supply operated	
		Lockable transport case with soft foam inner.	
4.0	Description		
5.0	Long Umbilical Cable with Quick Connects (One Set)	30 meter in length	
		Flexible Construction with Expandable Abrasion Resistant Low Friction Over braid Jacket	
		One High Vacuum Sample Line (300 psi) with appropriate Quick Connect Couplings, Three Pressure Lines, Two for Pitots with appropriate Quick Connect Couplings and One for Orsat Line with appropriate Quick Connect Coupling	
6.0	Type K Thermocouple Lines (Five Nos.)	One 5-conductor electrical cable with 4-pin amphenol connector or equivalent	
		One full length stranded nylon strain relief cable	
7.0	Short Umbilical Cable with Quick Connects (One set)	10 meter +/- 3 meters in length	
		Flexible Construction with Expandable Abrasion Resistant Low Friction Overbraid Jacket	
		One High Vacuum Sample Line (300 psi) with appropriate Quick Connect Couplings, Three Pressure Lines, Two for Pitots with	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-8			
Equipment Name: Isokinetic Stack Sampling Assembly (Stack Monitoring Kit Suitable For EPA Methods 5, 23A, 26A, 29 etc.)			
Quantity: 6 (Six) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
		appropriate Quick Connect Couplings and One for Orsat Line with appropriate Quick Connect Coupling	
		(5) Type K Thermocouple Lines	
		One 5-conductor electrical cable with 4-pin amphenol connector or equivalent	
		One full length stranded nylon strain relief cable	
8.0	Isokinetic Sampling Nozzles (One set)	7 Sizes from #4 (1/8") to #16 (1/2") packed in a Foam Lined Case	
		One set each of Stainless Steel and Glass Nozzle Set, includes 5/8 " Stainless Steel nuts and ferrules(both steel and Teflon)	
9.0	Short Sample Probe/S-Type Pitot Tube/Thermocouple Assembly (One set)	316 Stainless Steel welded construction - 1 meter effective length – 1 No.	
		Stainless steel Type S Pitot Tube manufactured according to the design specifications and dimensional requirements stated in USEPA Method 2	
		K-type thermocouple assembly attached	
		Orsat sample tube attached	
		Pyrex glass liner with #28 ball with O-ring	
		Removable probe liner heater compatible with 220VAC/50Hz Power	
		Heated probe shall be able to attain maximum temperature of 200 °C.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-8			
Equipment Name: Isokinetic Stack Sampling Assembly (Stack Monitoring Kit Suitable For EPA Methods 5, 23A, 26A, 29 etc.)			
Quantity: 6 (Six) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
		Cyclone for PM ₁₀ cut shall be provided with necessary accessories and joints	
10.0	Long Sample Probe/S-Type Pitot Tube/Thermocouple Assembly (One set)	316 Stainless Steel welded construction - 2 meter effective length (One No.)	
		Stainless steel Type S Pitot Tube manufactured according to the design specifications and dimensional requirements stated in USEPA Method 2	
		K-type thermocouple assembly attached	
		Orsat sample tube attached	
		Pyrex glass liner with #28 ball with O-ring fitted under the probe	
		Removable probe liner heater compatible with 230 ± 10 V AC/50Hz Power supply	
11.0	Heated Box Assembly	Heated box assembly. One set modular heated box assembly to hold the filter outside the stack	
		Proper heating system capable to heat the box up to 200 ° C.	
		Fitted with temp. sensor to continuously monitor the temperature.	
12.0	Ball Joint with O-Ring Glassware Sets and Transport Cases (4 Sets)	Four complete trains of glassware including filter assemblies, Impinger bottles with stems, associated connecting glassware and impinger clamps for conducting isokinetic sampling as per EPA Method 5	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-8			
Equipment Name: Isokinetic Stack Sampling Assembly (Stack Monitoring Kit Suitable For EPA Methods 5, 23A, 26A, 29 etc.)			
Quantity: 6 (Six) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
		Glassware is Heavy Wall Borosilicate Glass with Precision Ground #28 Ball with O-Ring and Sockets Connections, Leak-Free Seal with or without O-Rings Lockable transport cases with soft foam to accommodate glassware for Shipping	
13.0	Cold Boxes For Impingers (2 sets)	Impinger box insulated and water proof and hold 6 to 8 impingers Has stout handle with centering loop and mounting locations for the aluminum slide block on opposing sides for the impinger inlet strain relief and impinger outlet adapter	
14.0	Umbilical Adaptors (2 sets)	316 Stainless steel construction equipped with #28 socket, compatible thermocouple, appropriate male quick-connect and support arm that inserts in the impinger box slide bracket	
15.0	Suspension Rail Systems (2 sets)	Suspension Rail systems constructed of 16 gauge galvanized steel and 3 meters in length to support the modular sample case and other trains with adjustable hangers to allow safe alignment and maneuvering of the probe into the port Includes a dual roller trolley for each rail, snap hooks for quick set-up and dismantling	
16.0	Cleanup and Recovery Kit (2 sets)	The kit include following items Glass Funnel Polypropylene Funnel	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-8			
Equipment Name: Isokinetic Stack Sampling Assembly (Stack Monitoring Kit Suitable For EPA Methods 5, 23A, 26A, 29 etc.)			
Quantity: 6 (Six) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
		All Teflon ½" probe brush	
		¼ in Teflon Probe brush Extension with 3/8 " coupler – 4 meter length	
		1-Liter Polypropylene Wash Bottles - 2 Nos.	
		500 mL TFE Wash Bottle - 2 Nos.	
		Nylon Nozzle Brush Set: ½ " , 3/16", 5/16" sizes – One set	
		Teflon-coated Tweezers	
		Portable balance, 1-2000g with 0.5 g resolution	
		Programmed calculator for field calculation.	
17.0	Equipment Calibration Kit (1 set)	1 Set of critical orifices for routine dry gas meter/orifice calibration	
		1 set of digital calipers for measuring nozzle diameters.	
18.0	Other Requirements	All necessary accessories in accordance with the methods 5, 23A, 26A and 29 have to be supplied (as example submersible pump for cooling in method 23).	
		All the components like Manometer, Pitot tube, DGM, Thermocouple, Sets of Nozzel etc, should be supplied with calibration certificate traceable with National/International agency.	
		A digital calibrated Anneroid barometer (with certificate) should be supplied along with the kit.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-8			
Equipment Name: Isokinetic Stack Sampling Assembly (Stack Monitoring Kit Suitable For EPA Methods 5, 23A, 26A, 29 etc.)			
Quantity: 6 (Six) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
		The supply shall include all the spares and consumables required for at least 3 years of hassle free operation.	
		The system should be under comprehensive warranty for three years	

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-15-9			
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. In case of "Non Complied", detail shall be mentioned)
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)	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-9			
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. In case of "Non Complied", detail shall be mentioned)
		weather proof body according to Indian field conditions.	
9.0	Portability	Handy, easy to carry and monitor the ambient air.	
10.0	Demonstration	Instrument shall be delivered & demonstrated at Central Pollution Control Board, Zonal office-Bangalore, Nisarga Bhawan, 7 th D Main, Thimmaiah Road, Shivnahalli, Bengaluru – 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 20,000ppb
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						
08.	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.						
09.	Consumables and spares	Recommended requirements of 3 years operation						
10.	Linearity	± 1% of full scale						
11.	Sample Flow Rate	0.5-3 Liters / Minute						
12.	Analog Output	0 – 1 V, 0 – 10 V, 0 – 20 mA, 4 – 20 mA						
13.	Digital Output	Multi drop RS 232 port						
14.	Precision	1% reading whichever is greater						

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF OIL SEALED MECHANICAL VACUUM PUMP

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-10			
Equipment Name: Oil Sealed Mechanical Vacuum Pump			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
1.0	Description	Oil Sealed Mechanical Vacuum pump should be Two Stage Rotary Vane type.	
	Nominal Pumping Speed 50 Hz	9.7 m ³ /h	
	Pneurop Pumping Speed 50 Hz	8.5 m ³ /h	
	Ultimate partial pressure	10 ⁻⁴ mbar	
	Ultimate total pressure open gas ballast	10 ⁻² mbar	
	Water vapour capacity	125 g/h	
	Water vapour pressure 50 Hz	20 mbar	
	Power requirement	230 ± 10 V AC, 50 Hz Single phase	
	Oil capacity	1.0 litre	
2.0	Oil Filter	Should be equipped with oil filter / oil mist eliminator	
3.0	Maintenance Kit	Maintenance kit consisting of seals, shaft sleeves, valves, shaft seals, O' rings should be provided for maintenance.	
4.0	Vacuum pump Oil characteristics	Paraffin based mineral oil, Density approx. 0.886, Flash Point 260 °C	

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-15-11			
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. In case of "Non Complied", detail shall be mentioned)
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 PORTABLE HYDROCARBON (METHANE / NON-METHANE HC / THC) ANALYZER

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-145-12			
Equipment Name: Portable Hydrocarbon (Methane / Non-Methane HC / THC) Analyzer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
1.0	General	Portable Hydro Carbons (Methane/ Non-Methane HC/THC) Analyzer for Source Monitoring complying USEPA Method 25, 18 with suitable hardware & consumables including source-sampling facilities as per method.	
2.0	Instrument Configuration	Explosion proof, Microprocessor controlled system with data logger,	
		Preferably LEL alarm settings facility for HCs.	
		Should be able to rapidly analyze for a wide range of Fixed Gases and Volatile Hydrocarbons i.e. C1-C12/VOC's. in stack or fugitive emissions	
3.0	Principle	The NDIR or Field Portable GC (TCD or other Non FID) or other EPA Technique based instrument	
		Should be capable to measure Methane, non-methane hydrocarbon and total hydrocarbons (with suitable columns) and report separately.	
		Built in temperature compensation. Analytical procedures follow the guidelines set forth in EPA Method 25, 18 with rapid analysis time 5 to 10 analyses during each 1-hour.	
		Typical detection limit should be approx 1.0 ppmv for VOC's and 0.010% for fixed gases preferably.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-145-12			
Equipment Name: Portable Hydrocarbon (Methane / Non-Methane HC / THC) Analyzer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
4.0	Sample line	Proper heated Sampling probe at about 140 degree Celsius and of suitable length (Minimum 2-3 meter or more) to prevent condensation with proper online filtering system	
5.0	Sampling System	Should be in built (preferably diaphragm pump) which draw the sample streams through the lines at approximately 1-5 liters per minute, keeping them continually purged and then attached to a sampling manifold which introduces the samples to the analytical system.	
		The Sensor/detector sensitivity should be 1 ppm for Hydrocarbons and linearity should be from MDL to 100% of its maximum range.	
7.0	MDL	2 ppm as Methane, 1 ppm Propane or better	
8.0	Resolution	1 ppm or better	
9.0	Precision	3% of Measured Value	
10.0	Analysis Time	<180 Seconds to 90 % of reading or better	
11.0	Output	Analog Standard as well as Digital display, RS-232 output.	
12.0	Software, Data Exchange	Windows based data station compatible to computer through serial port or USB port.	
		Dynamic data exchange compatibility for converting analytical results into EXCEL / WORD etc.	
		In-built Printer for printing reports	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-145-12			
Equipment Name: Portable Hydrocarbon (Methane / Non-Methane HC / THC) Analyzer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
13.0	Power	Rechargeable battery with one additional pack of battery	
14.0	Accessories	Operation and Maintenance Manual in English language	
		Sampling probe & Calibration adapter	
		Toolkit – One set	
15.0	Calibration Standards	Methane / Propane (20 ppm & 100 ppm) in Helium/Nitrogen with cylinder & regulator sufficient for 2 year regular operation	
16.0	Spares and Consumables	For three years trouble free operation (Provide detailed list).	
17.0	Training & Installation	Free of cost Installation & Training to CPCB officials	
18.0	Warranty	Three years comprehensive warranty.	
19.0	General Conditions of Supply	<ol style="list-style-type: none"> 1. All the operation and maintenance manuals, circuit diagrams, application notes and application softwares to be supplied should be in English language. 2. The supplier / manufacturer should have Indian agent to provide after sales service. 3. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. 4. 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 	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-145-12			
Equipment Name: Portable Hydrocarbon (Methane / Non-Methane HC / THC) Analyzer			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
		<p>operation for atleast 2 years as on the date of bid opening.</p> <p>5. The bidder should furnish the information (Address, Telephone Nos. & E-Mail) on past supplies made during last 5 years and their satisfactory performance.</p> <p>6. 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>7. 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 PUF SAMPLER (FOR SAMPLING OF AMBIENT VOC, DIOXINS)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-13			
Equipment Name: PUF sampler (for sampling of Ambient VOC, Dioxins)			
Quantity: 9 (Nine) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
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	Relay system based motor speed control, Orifice/Volumetric flow control with proportional control valve/MFC	
5.0	Flow rate	User selectable (200 – 280 LPM) displayed flow along with flow recorder	
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	Volume Totalizer	Should be available for totalization of volume	
10.0	Power requirement	230 ± 10 V AC, 50 Hz	
11.0	Filter Media	10 cm diameter (4" Dia) circular filter attachment / mounting platform	
12.0	Calibration Unit	Calibration unit to calibrate the flow rate of the instrument	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-13			
Equipment Name: PUF sampler (for sampling of Ambient VOC, Dioxins)			
Quantity: 9 (Nine) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
13.0	PUF / XAD Holding Cartridges	10 Nos. Stainless steel Cartridges for PUF and 10 Nos. Removable glass cartridges with Stainless steel jacket for XAD.	
		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.	
14.0	Software support (Optional)	Built in software support for flow calibration, audit and leak check	
		Data downloading facility with USB facility	
15.0	Instrument Housing	Entire assembly is housed in a weather proof metal carrying case / Anodized aluminum cabinet with SS fasteners.	
16.0	Operation Kit	Manufacturer's standard operation kit including all required items, fittings for start up / regular operation of instrument.	
17.0	Operational & Maintenance Manual	One set	
18.0	Calibration manual	One set	
19.0	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 – 200 Nos.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-13			
Equipment Name: PUF sampler (for sampling of Ambient VOC, Dioxins)			
Quantity: 9 (Nine) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
		4" Dia Glass holding cartridge – 10 Nos.	
		Micro quartz filter media 4" round for PUF – 5 Boxes containing 100 Nos. each.	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF VACUUM PUMP (SUCTION PUMP)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-14			
Equipment Name: Vacuum Pump (Suction Pump)			
Quantity: 8 (Eight) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
1.0	Description	Two Stage Rotary Vane type pump operated on 230 ± 10V 50 Hz Single Phase AC supply, light weight.	
2.0	Nominal Pumping Speed 50 Hz	9.7m ³ /h	
3.0	Pneurop Pumping speed 50 Hz	8.5 m ³ /h	
4.0	Ultimate partial pressure	10 ⁻⁴ mbar	
5.0	Ultimate total pressure open gas ballast	10 ⁻² mbar	
6.0	Water vapour capacity	125 g/h	
7.0	Water vapour pressure 50 Hz	20 mbar	
8.0	Max. nominal power rating	0.5 kW	
9.0	Oil capacity	1.0 L	
10.0	Oil Filter	With oil filter/ oil mist eliminator.	
11.0	Maintenance Kit	Should include lip seals, shaft sleeves, valves, shaft seals, 'O' rings, for maintenance of the vacuum pump.	
12.0	Vacuum Pump Oil Characteristics	Paraffin based mineral oil, Density 0.886, Flash Point 260 °C	

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-15-15			
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-15-16			
Equipment Name: Water Purification System (RO/bacteria free)			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
1.0	Feed water Requirements:		
	Quality	Potable (Tap) Water	
	Conductivity	< 2000 µS/cm (@ 25 °C)	
	pH	4 - 10	
	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.	
	Feed water pressure	1 bar minimum, 2 bar maximum (29 psi min, 86 psi max)	
	Flow rate	More than 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	½ inch tubing	
2.2	Electrical requirements		
	Power Supply	230 ± 10V 50 Hz AC	
2.3	System Performance		

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-16			
Equipment Name: Water Purification System (RO/bacteria free)			
Quantity: 4 (Four) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
	Product flow rate	Nominal flow rates more than 1L/Min 7- 30 °C, 30 l/h	
	Ion rejection	95-99 %	
	Organics rejection	> 99 %	
	Particles	> 99 %	
	Bacteria	< 1 cfu/ml	
3.0	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-15-17			
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)	ø 30 mm / 1.2 in Standard pan ø 50 mm / 1.9 in Standard 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	Level indicator, adjustable feet, operational manual	
12.0	Warranty	Minimum 3 years warranty	

CENTRAL POLLUTION CONTROL BOARD, DELHI

TECHNICAL SPECIFICATIONS OF WEIGHING MICRO BALANCE (CAPACITY 220 G MINIMUM DISPLAY 0.1 MG)

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZOs)			
Code Number: ICB-15-18			
Equipment Name: Weighing Micro Balance (capacity 220 g minimum display 0.1 mg)			
Quantity: 2 (Two) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
1.0	Analytical Balance (Single Pan) with power supply unit windows based communication software with standards RS232C Port & cable with calibration certificate	One	
	Capacity	82 gm / 220 gm	
	Readability	0.01 mg / 0.1 mg	
	Readability	0.01 mg in the range of 82 gm & 0.1 mg for 220 gm	
	Weighing range	82 gm for 0.01 mg and 220 gm for 0.1 mg.	
	Reproducibility	0.01 mg up to 82 gm, 0.05 mg up to 220 gm for 0.1 mg accuracy.	
	Display	LCD with backlit	
	Calibration	Built in motorized weight	
	Pan Size	Ø 80 mm min	
	Weighing units	mg, gm	
	Operating Temperature	5 °C to 40 °C	
	Power Supply	Operate on 230 ± 10 volts 50 HZ AC	
2.0	Accessories for Micro Balance :	Standard weight Box- 1 mg to 200 gm with NIST or equivalent conforming calibration certificate	

CENTRAL POLLUTION CONTROL BOARD, DELHI

Procurement of instruments / equipment for Central Pollution Control Board Laboratories (HQs & ZO's)			
Code Number: ICB-15-18			
Equipment Name: Weighing Micro Balance (capacity 220 g minimum display 0.1 mg)			
Quantity: 2 (Two) Nos.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
3.0	Additional Items		
	Operational and maintenance Manual	Two Set	
	Service Manual	One Set	
	Requisite Tools	One Set	
	Dust Cover	One Set	
4.0	Warranty	Three years from the date of installation.	
5.0	General Condition of Supply	(i) Should Operate on 230 ± 10 volts 50 HZ. (ii) All the operation and maintenance manuals circuit diagrams, application notes 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 space in future for atleast 10 years. (v) The main unit and all the subunits of the Analytical balance should be serviced by the Indian representative of supplier. (vi) Bidders should invariable furnish documentary evidence in support of the satisfactory operation of the Analytical balance. (vii) Demonstration of the Analytical balance should be provided by the bidder at installation site.	

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-15-19			
Equipment Name: Weighing Micro Balance (capacity 200 g minimum display 0.01 mg)			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
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	ø 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-15-19			
Equipment Name: Weighing Micro Balance (capacity 200 g minimum display 0.01 mg)			
Quantity: 1 (One) No.			
S. No.	Specifications	Requirement	BIDDER'S RESPONSE: (Bidder shall indicate "Complied" or "Non Complied" as applicable in each row. In case of "Non Complied", detail shall be mentioned)
16.0	Power	230 ± 10V, 50 Hz AC, Automatic shut-off	
17.0	Calibration	Built-in auto-calibration and 2 x 100 gm weight. Calibration certified from NIST certified or equivalent calibration laboratory should be supplied.	
18.0	Warranty / Guarantee	Comprehensive guarantee should be valid for three years.	

1.0 REAL TIME AIR QUALITY MONITORING SYSTEM

(CO, SO₂, NO_x, NH₃, BTX, PM₁₀, PM_{2.5} and O₃ Analysers)

(General Specifications for all Analysers)

- 1.1 The analysers should be 19" rack mounting model with facilities for fixing the analysers from front side.
- 1.2 The front panel should have ON / OFF Switch.
- 1.3 The display of the entire important status signal viz. Sample flow, temperature, concentration, range selection, manual / auto mode, zero / span mode and all error messages should be on front panel.
- 1.4 The analysers should operate at operating voltage 230 volts \pm 10 volts AC and 50 Hz \pm 3%. The power supply input to be protected against spikes from and to the analyser by an LC filter. The power connection cable should be CEE type complete with 15 Amperes plug adaptable to Indian mains socket.
- 1.5 The analysers must function properly in Indian conditions without any defect between 0 – 50° C ambient temperature, 10 – 95% relative humidity and in high ambient dust levels. The data capture rate should not be less than 90% of operational time.
- 1.6 The analysers shall be supplied with all ancillaries necessary for operation with pump (preferably in built) and any other items such as charcoal scrubber, Teflon air sample intake filter, drier, Teflon / Nition tubing suitable for connection to air sampling manifold. All such items are to be itemized. Dust filter in all the analysers should be provided before solenoid valve to protect frequent chocking of solenoid valve.
- 1.7 The connector systems for out-going signal for recording and the computer terminal should be on back panel with screw type connecting pins.
- 1.8 All ambient gas analysers shall approved by USEPA / TUV / MCERTS / EN as required by the specification for individual equipment / parameters. Method of measurement used shall also comply with the stipulation on National Ambient Air Quality Standards (NAAQS) 2009 (Details of Methods of Measurement is available at MoEF and CPCB websites). All analysers shall be micro – processor controlled with automatic calibration using an external dilution calibrator and calibration standards. All analysers should be fully integrated in the rack cabinet, fully calibrated & tested before supply and ready for start – up at the respective sites. Analyzer must exhibit performance equal to or better than values specified in the Calibration & test certificate provided with each analyzer.
- 1.9 The manufacturer shall specify the cross sensitivity of measurement for all the analysers.
- 1.10 Each set of analyzers shall be supplied with two copies of elaborate operation manuals comprising details in three parts:
 - Parts (I) should comprise installation, operational and troubleshooting details;
 - Parts (II) should have details about preventive, routine and corrective maintenance;
 - Parts (III) should comprise details of all electrical, electronic and pneumatic circuit diagrams, details of each spare parts, Catalogue No. etc. and details of each electronic card / PCB's; and
 - Parts (IV) Schematic diagram for possible repair & maintenance.
- 1.11 Digital Output:
Multi drop RS 232 port shared between Analyzers, Dust Monitor (PM_{2.5} & PM₁₀) and computer for data, status and control.
- 1.12 Software compatibility:
The analyzer should be compatible with station software – SAM – Wi and Central Server with XR Premium Software.

2.0 AMBIENT AIR QUALITY MONITORING ANALYSERS

(A) AMBIENT OXIDES OF NITROGEN (NO-NO₂-NO_x) ANALYSER

01.	Principle	:	Chemiluminiscence
02.	Measurement	:	NO / NO ₂ / NO _x in Ambient Air
03.	Display	:	Digital
04.	Ranges	:	Auto ranging 0-2000 PPB
05.	Minimum Detectable Limit	:	1 PPB
06.	Noise Level	:	0.5 PPB
07.	Zero Drift	:	< 1 PPB/24 Hrs.
08.	Span Drift	:	< 2% in 15 days of full scale
09.	Response Time	:	30 seconds or less
10.	Linearity	:	± 1% of full scale
11.	Digital Output and Analog Output	:	Analog output 0 - 1 V, 0 - 10 V, 2 - 20 mA / 4 - 20 mA for Digital
12.	Digital Output	:	Multi drop RS 232 port
13.	Consumables and spares	:	Recommended requirements of 3 years of continuous operation along with the list of Items.

(B) AMBIENT AMMONIA ANALYSER (NH₃)

01.	Principle	Chemiluminiscence NH ₃ conversion to NO by oxidation. NO ₂ also converted to NO. the difference obtained by measuring NO in output of two sample stream as equal to NH ₃
02.	Measurement	Ammonia in Ambient Air
03.	Display	Digital
04.	Ranges	Auto ranging 0-1000 PPB
05.	Minimum Detectable Limit	1 PPB
06.	Noise Level	0.2% of reading
07.	Zero Drift	< 5 PPB /24 Hrs.
08.	Span Drift	< 2% in 15 days of full scale
09.	NH ₃ /NO converter	Quartz at approx 1000 ⁰ C
10.	Linearity	± 1% of full scale
11.	Response time	180 second
12.	Rise / fall Time 95% of the final value	< 30 Sec
13.	Digital Output	Multi drop RS 232 port
14.	Digital Output and Analog Output	Analog output 0 - 1 V, 0 - 10 V, 2 - 20 mA / 4 20 mA for Digital
15.	Consumables and spares	Recommended requirements of 3 years operation along with the list of Items.

(C) AMBIENT SULPHUR DIOXIDE (SO₂) ANALYSER

01.	Principle	:	Pulsed UV Fluorescence
02.	Measurement	:	Sulphur Dioxide in Ambient Air
03.	Lower Detectable Limit	:	1 PPB
04.	Ranges	:	Auto ranging 0 - 500 PPB
05.	Display	:	Digital
06.	Noise Level	:	0.50 PPB or 1% of the reading
07.	Zero Drift	:	< 1 PPB / 24 Hrs. With automatic zero compensation
08.	Span Drift	:	< 2 PPB full scale in 15 days
09.	Precision	:	0.5 ppb or 1% reading whichever is greater
10.	Digital Output and Analog Output	:	Analog output 0 – 1 V, 0 – 10 V, 2 – 20 mA / 4 – 20 mA for Digital
11.	Digital Output	:	Multiple drop RS 232
12.	Consumables and spares	:	Recommended requirements of 3 years of continuous operation along with the list of Items.

(D) AMBIENT OZONE (O₃) ANALYSER

01.	Principle	:	UV Photometric
02.	Measurement	:	Ozone in Ambient Air
03.	Display	:	Digital
04.	Range	:	Auto ranging 0 - 500 PPB
05.	Minimum Detectable Limit	:	2.0 PPB
06.	Noise	:	± 1.0 PPB
07.	Zero Drift	:	< ½% per month
08.	Span Drift	:	< 1% per month
09.	Calibration	:	With built in Zero and span generator
10.	Linearity	:	Continuous ± 1%
11.	Digital Output and Analog Output	:	Analog output 0 – 1 V, 0 – 10 V, 2 – 20 mA / 4 – 20 mA for Digital
12.	Digital Output	:	Multiple drop RS 232
13.	Consumables and spares	:	Recommended requirements of 3 years of continuous operation along with the list of Items.

(E) AMBIENT CARBON MONOXIDE (CO) ANALYSER

01.	Principle	:	Non Dispersive Infra-Red (NDIR) with Gas Filter Correlation
02.	Measurement	:	Carbon Monoxide in Ambient Air
03.	Display	:	Digital
04.	Ranges	:	At least four ranges Auto ranging 0 - 100 PPM.
05.	Minimum Detectable Limit	:	0.1 PPM
06.	Zero Noise	:	0.05 PPM with time constant ± 30 seconds
07.	Zero Drift	:	< 0.2 PPM/7 days
08.	Span Drift	:	< 1% full scale in 24 hrs.
09.	Linearity	:	Continuous ± 1%
10.	Digital Output and Analog Output	:	Analog output 0 – 1 V, 0 – 10 V, 2 – 20 mA / 4 – 20 mA for Digital
11.	Digital Output	:	Multiple drop RS 232
12.	Consumables and spares	:	Recommended requirements of 3 years of continuous operation along with the list of Items.

(F) PM₁₀ MONITOR

Based on the principle of β -ray attenuation by particulate sampled through the instrument and collected on fiberglass filter tape. Before and after sampling β -ray radiation is measured by scintillation / G.M. counter. An internal microprocessor handles all sequences and automatically calculates the concentration of SPM.

01. Principle : Continuous measurement of PM₁₀ in ambient air
02. Particle Size Cut Off : 0 - 10 Microns
03. Measuring Range : 0 to 2000 $\mu\text{g}/\text{m}^3$
04. Resolution : 1% of the concentration
05. Minimum Detectable Limit : 2 $\mu\text{g}/\text{m}^3$
06. Detector : Plastic Scintillator / GM Counter
07. Air Flow Rate : At - least 1.5 m³ / hrs. (Adjustable to 1 m³/hr)
08. Filter Material : Glass Fiber Filter
09. Display : Digital
10. Sampling Head : Dynamic heated sampling head for measurement of PM₁₀, with adjustable temperature 20 – 70 °C
11. Calibration : Reference membrane facility should be provided for calibration of analyser at multipoint.
12. Compatibility : Analyser should be compatible with protocols mentioned in DAS section
13. Roll Length : Approximately 30 meters
14. Measurement Result : 1 hr average or lesser
15. Consumables and spares : Recommended requirements of 3 years of continuous operation along with the list of Items.

(G) PM_{2.5} MONITOR

Based on the principle of β -ray attenuation by particulate sampled through the instrument and collected on fiberglass filter tape. Before and after sampling β -ray radiation is measured by scintillation / G.M. counter. An internal microprocessor handles all sequences and automatically calculates the concentration of SPM.

01. Principle : Continuous measurement of PM_{2.5} in ambient air
02. Particle Size Cut Off : 0 – 2.5 Microns
03. Measuring Range : 0 to 1000 $\mu\text{g}/\text{m}^3$
04. Resolution : 1% of the concentration
05. Minimum Detectable Limit : 2 $\mu\text{g}/\text{m}^3$
06. Detector : Plastic Scintillator / GM Counter
07. Air Flow Rate : At - least 1.5 m³ / hrs. (Adjustable to 1 m³/hr)
08. Filter Material : Glass Fiber Filter
09. Display : Digital
10. Sampling Head : Dynamic heated sampling head for measurement of PM_{2.5} with adjustable temperature 20 – 70 °C
11. Calibration : Reference membrane facility should be provided for calibration of analyser at multipoint.
12. Compatibility : Analyser should be compatible with protocols mentioned in DAS section
13. Roll Length : Approximately 30 meters
14. Measurement Result : 1 hr average or lesser
15. Consumables and spares : Recommended requirements of 3 years of continuous operation along with the list of Items.

(I) BTX MONITOR / ANALYSER

1.0 GENERAL

A complete monitor / analyzer system including continuous automatic sampling (pump etc.), sampling, analyzer, detector, calibrator, computer hardware and software for instrument control, data storage, display, acquisition, processing and for selective determination of volatile compounds in ambient air optimized for Benzene, Toluene, Ethyl Benzene and o, m, p -Xylenes. Compatible to power supply (voltage 230 volts \pm 10 volts AC and 50 Hz \pm 3%). Continuous unattended measurement system of individual BTEX should work without cryogenic cooling. System should have protocol compatible to communicate & transfer data to main computer through modem and subsequently to CPCB/SPCB website preferably having features of security, data validation & alarms etc. Raw data storage capacity without erase minimum for three month or more. The system should be delivered with all necessary spares, consumables, tubing etc. for making it functional

2.0 TECHNICAL SPECIFICATIONS

2.1 Analytical instruments/pump (single stage membrane) monitoring for automatic sampling, concentration of the organic compounds on an adsorption trap. Subsequent sample injections by thermal desorption and separation by wide bore capillary gas chromatography. Sample volume controlled by thermal mass flow controller (dust protected). Sample flow range may be 20 -100 ml/min or more (adjustable). Sample volume should be between 400 ml – one liter or more of ambient air over a 10-15 min sampling cycle. All sample transfer tubing's should be in stainless steel flow / pressure sensor to be preferred with digital display.

2.2 DETECTOR

Photo Ionization Detector (**PID**) or other equivalent detector **as per EPA/EU/TUV** approved specs, which do not require hydrogen or other gas to operate it. The system should have auto-clean & auto calibration facilities. PID Lamp eV should be 10.6eV. PID sensitivity sensor should be available to check sensitivity.

2.3 MINIMUM SPECIFICATIONS

Lowest detector limit	: 0.1 $\mu\text{g}/\text{m}^3$ (0.03 ppb) or less for Benzene (There should be no interferences on Methylcyclopentane, 2, 2, 3 - trimethylbutane, 2, 4 - dimethylpentane, Tetrachloromethane, Cyclohexane, 2, 3 - dimethylpentane, 2 - methylhexane, 3 - ethylpentane, Trichloroethylene, n - heptane, isooctane with BTX components.)
Temperature Range	: 5 - 35°C or more
Measuring Range	: 1 - 1000 $\mu\text{g} / \text{m}^3$ or better (0.3 ppb to 270 ppb)
Repeatability	: Retention Time : <0.1% RSD Amount : <1.0% RSD
Typical Cycle Time	: Total Cycle Time should not exceed 15/30 min. approx. i.e. Sample Collection Time - 15 min. approx. Analytical Time – 15 min. approx.

2.5 CALIBRATION UNIT WITH SPAN GAS / IN BUILT CALIBRATION WITH /PERMEATION TUBES AND GAS MIXING / DILUTION FACILITY

In Built Calibration/Permeation Tubes Facility in the analyzer with the certified permeation tubes and span or calibration gas mixture (low conc. in ppb range, stable for at-least 6 months) with S.S. container/cylinder, regulators with filters should be provided. Calibration

unit having gas flow (approx): 10 ml / min (calibration gas); 1.4-2.0 lit / min (dilution gas) with auto gas selection/dilution option for automatic calibration for ppb level calibration gas (10-30 ppb of individual compound of interest). Manual and software selectable valves for sample, calibration span and blank zero air gases. Dilution factor between 1 : 50 to 150.

2.6 MEMORY AND CONTROL FACILITIES

Method auto load and system restart after power failure. Methods storage capacity with timed events programs for control of system parameters in permanent memory.

Diagnostics & Fault status; gas supply (low press). System stability (temperature and sample flow). Detector signal (low) and communication should be in digital form on monitor by LED's & be controlled from computer.

Output signals: Analog 0-1 mV, Serial RS 232 for data intermission and CP-BUS for monitor control from remote. Both digital & analog outputs should be available.

2.7 Hardware/Software(s)

Latest PC with operating system/software. Basic Window based latest software's (English version) consisting instrumental control features as well as data storage, acquisition, processing and handling in desired/customized format including sorting of data (1 / 4 / 8 / 12 / 24 hourly, days wise /date wise reporting as microgram / m³ or ppb (selectable) & averaging, data capture rate s etc.).

Data presentation / graphical & statistical processing & data transfer to Excel including time series, correlation matrix etc. is required.

Communication software with protocol compatible to communicate & transfer data from BTX monitor to central computer through modem (preferably including sample chromatogram) and from central computer to CPCB website preferably having features of security, data validation & alarms etc.

System should have remote access to BTX monitor.

Resident program as well BTX control / monitor user program with monitor startup / off / status, blank / calibration and sample gas measured, fault status, carrier gas if any, and communication errors indications. Updation of response factors automatically after calibration run. Auto tune facility. Raw data storage capacity without erase minimum for three month or more.

3.0 SPARES FOR 3 YEARS

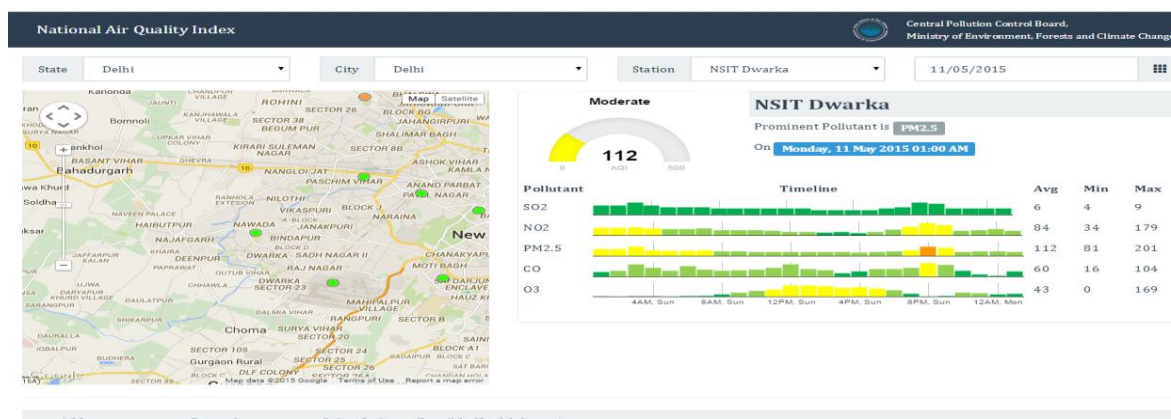
The system should be delivered with 3 years comprehensive warranty including all necessary spares such as electronic boards/circuits consumables, tubing, filters for removal of dust & unwanted impurities (moisture / hydrocarbons etc.); septas, ferrules, teflon tubing, traps/columns if applicable etc. for making the analyzer functional / continuous operation without breakdown along-with list of items with quantity.

3.0 SPECIFICATIONS OF DAY LIGHT & NIGHT VISIBLE DATA DISPLAY SYSTEM

- 3.1 Size of display System : 4' x 12'
- 3.2 Visibility range : 200 Meters (Day Time)
- 3.3 Nos. of display Line : 4
- 3.4 Display of colour elements : True Colour
- 3.5 Minimum life span of the system : 10 Years
- 3.6 Smallest Character Size : 260 mm x 190 mm (approx.)
- 3.7 Operating and Non-Operating Temperature : 0 – 50 ° C
- 3.8 Humidity Tolerance Range : 0 – 100%
- 3.9 Languages supported by the display : English & Hindi
- 3.10 Color Gradient : Cluster LED based
- 3.11 Display Characters (Example):

S. No.	Parameters	Concentration ($\mu\text{g} / \text{m}^3$)	Standard Limit ($\mu\text{g} / \text{m}^3$)
3.1.1	Particulate Matter (PM ₁₀)	400	100
3.1.2	Particulate Matter (PM _{2.5})	160	60
3.1.3	SO ₂	35	80
3.1.4	NO ₂	79	80
3.1.5	CO	3320	2000
.....
.....

The display of above variable data should be supported with moving messages / slogans to be changed from time to time and AQI Display as below in true color.



- 3.12 Input Power requirement : 230V 50 Hz
- 3.13 Type : Cluster LED based
- 3.14 Display Mounting : Weather proof casing to cope up with local condition
- 3.15 Computer System : Software compatible with latest version

- 3.16 General : The display system should be capable to transfer the data from computer to Display Board through Modem System. The system should also have the facility to display the environment message, environmental picture through video camera / VCR / CD Player etc. for public awareness.
- 3.17 Power Cable Laying : Depending upon location, cabling is to be done by the firm.
- 3.18 Modem at Station to pick up data and transmit it to LED. : GSM based data transmission technique has to be implemented. LED is to be placed away from station premises. The firm will provide the Modem and connectivity.

CHECK LIST FOR THE BIDDER

1. Bid on original Tender form only.
2. Earnest money or necessary documentary proof for exemption of earnest money with the part 1 of the bid.
3. Price bid must be Part II of the bid in the form provided at Annexure II of the tender document.
4. 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”.
5. 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.
6. **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.**