



M. P. Pollution Control Board

E – 5, Paryavaran Parisar, Arera Colony, Bhopal

Phone: (0755) 2466191, Fax: (0755) 2463742, Email:pur_mppcb15@rediffmail.com Web:www.mppcb.nic.in

TENDER NOTICE THROUGH E-PROCUREMENT

Tender Notice No. MPPCB/Pur./09/2019-20

- (1.1) For M. P. Pollution Control Board (MPPCB), Paryavaran Parisar, E-5, Arera Colony, Bhopal – 462 016 invites E-tenders from the reputed manufacturers [approved by BIS/ISO for quality & precision] and / or their authorized dealer / agent /representatives, specially authorized for this tender for Supply, Installation and Commissioning of Laboratory Equipment/ Instruments for use of analytical works of various Laboratories of M.P. Pollution Control Board, Department of Environment, Govt. of Madhya Pradesh as per following details:

Sl. No.	Description of Items	Qty.	Earnest Money (EMD) (Rs.)
1	Bacteriological Incubator	01	2,000.00
2	B. O. D. Incubator	06	18,000.00
3	C.O.D. Digestion Assembly	04	20,000.00
4	Fume Hood	03	12,000.00
5	Laminar Air Flow	03	6,000.00
6	Heavy Metal Digestion Assembly	02	4,000.00
7	Total Kjeldhal Nitrogen (TKN) Assembly	01	6,000.00
8	Specific Ion Analyzer	02	10,000.00
9	Water Analysis Kit	02	6,000.00
10	Energy Dispersive X-Ray Fluorescence (EDXRF) Spectrometer	01	2,50,000.00
11	Noise Level Meter with Data Logger	09	45,000.00
12	PC Controlled UV-VIS Spectrophotometer	01	15000.00
13	Rotary Evaporator	02	8,000.00
14	Speciation Sampler	02	1,00,000.00
15	Total Organic Carbon (TOC) Analyzer	02	80,000.00
16	High-Performance Liquid Chromatograph (HPLC)	01	1,00,000.00
17	Elemental (CHNS) Analyzer	01	20,000.00
18	Flash Point Monitor	01	20,000.00
19	Water Purification System	01	20,000.00
20	Electronic Balance (220 Gm)	04	8,000.00
21	Micro Electronic Balance (6 digit)	14	5,60,000.00
22	Flue Gas Analyzer	01	20,000.00
23	Gas Analyzer for Petrol Driven Vehicles	04	16,000.00
24	Smoke Meter for Diesel Vehicles	04	12,000.00
25	Methane Analyzer	10	10000.00
26	Aerosol Particle Monitor	04	8,000.00
27	Compound Microscope	01	3,000.00
28	Weather Monitoring Station	01	4,000.00



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- (1.2) The laboratory instruments/equipments indicated above shall be procured only after receipt of budget from Madhya Pradesh Government.
- (1.3) The Tender documents will not be available in physical form and any amendment required after the publication of this notice will be available on only Board's website.
- (1.4) The Tender cost and Earnest Money Deposit (EMD) of requisite amount shall be deposited only through online in the portal. The Bidders, however, have to attach scanned copies of proof for submitting EMD online with the First Cover (Technical bid). No tender shall be considered without requisite tender fee and earnest money. **The consolidated group wise amount of EMD for different equipment is shown in the above table. It is not mandatory to pay whole amount of Earnest money (EMD) by the bidder. The bidders may quote their offer for one or more items as per their choice by selecting "Exemption Option" on the portal.**
- (1.5) The detailed terms & conditions are available in tender document. For detailed tender document and any amendment (if required) regarding the said tender shall be available on Board's Web site www.mppcb.mp.gov.in and www.mptenders.gov.in.

CRITICAL DATE SHEET

Description	Date	Time
Date of Publishing and Bid Document Download date	19.02.2020	03:00 PM
Bid Submission Start Date	27.02.2020	01:00 PM
Bid Submission End Date	18.03.2020	03:00 PM
Technical Bid Opening Date	19.03.2020	03:00 PM
Financial Bid Opening Date	Will be intimated after Technical Evaluation	

Director (Environment)



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TENDER DOCUMENT

Tender Notice No. MPPCB/Pur./09/2019-20

Dear Sir,

M. P. Pollution Control Board desires to procure laboratory equipments for its Head Quarter and laboratories spread over whole of the state. E-tenders are invited from the eligible, qualified and reputed manufacturers [approved by BIS/ISO] or their authorized representatives, specially authorized for this tender, who are capable of supplying laboratory equipment, which are shown in the tender notice. The detailed tender documents including terms and conditions are as follows:

(1) **Procedure for Submission of the Tender:** Each bidders shall submit his offer in two Covers . First Cover shall contain scanned copies of proof for submitting earnest money and tender cost online on the portal, compliance of technical specification, terms & conditions, company profile, copy of GST registration number, PAN number and authorization certificate from manufacturer for submission of offer for this tender, if offer is submitted by authorized representative and other relevant documents as specified in the bid document. Second Cover shall contain financial offer (BoQ). The tender shall be submitted online in two covers as per following details:

- (a) **First Cover (Technical Bid)** should contain scanned copy of proof for submitting requisite amount of Tender Cost and Earnest Money [EMD] on the portal. Insufficient amount furnished as earnest money and tender cost shall make the offer liable for rejection. The First Cover shall be opened on 19.03.2020 at 03:00 pm onward. The First Cover must necessarily contain self verified scanned copies of the following documents:
- (i) Detailed compliance of technical specifications in annexure –2 along with documents and relevant details to establish that the goods and the allied services to be supplied by the Bidder conform to the requirement of the tender documents such as Make & Model, functioning procedure, drawing, data, leaflet/brochure of the equipment.
 - (ii) Tender Acceptance Form as per Annexure-6.
 - (iii) Company Profile, which includes documents such as copies of documents defining constitution, legal status, Power of Attorney of firm/ resolution of Board of Directors of company, certified published annual reports for the last three continuous years showing the turn over and financial results of the Bidder duly certified by Chartered Accountant.
 - (iv) If the offer is submitted by authorized representative, he should submit authorization letter (as per annexure –“9”) from the manufacturer for submitting offer for this tender, otherwise tender offer of the firm shall not be considered and liable for rejection.
 - (v) Documentary Proof (Purchase Orders and Performance Certificate) to show that the Bidder has supplied the quoted instruments during the past three years to any Govt. Ministries/Departments/PSUs/Scientific Institutes of National repute.
 - (vi) The bidder shall have to submit the copy of GST registration number.
 - (vii) Income tax no. [PAN]
 - (viii) An undertaking shall be submitted by the bidder, regarding whether they are not black listed in any Govt. organization / institutions.



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- (ix) The details of service station in Madhya Pradesh and India should be furnished with other details.
- (x) The bidder shall also provide Bank Name, Account Name, Account Number, Account Type, Branch IFSC Code for safer & easier payment transaction through RTGS/NEFT.
- (b) Second Cover (Financial Bid):** Offers received in due time shall be evaluated technically by a committee constituted by the Competent Authority, M. P. Pollution Control Board and as per the recommendation of committee, depending upon the credentials submitted in first cover, suitability of equipment with respect to offered specifications, application and performance, the financial offer shall be opened. The date of opening of financial bids (Second Cover) will be informed later. Financial Bid shall comprises of following documents:
 - (i) Financial offer in annexure 4 or 5 [whichever is applicable] of the tender document.
 - (ii) Price Schedule for Annual Maintenance and Repair Charges after Warranty period in Annexure-3.

Instructions to the Bidders on e-tendering:

- (i) The bidder shall submit their offer in accordance with this tender document.
- (ii) The bidder, after submitting its tender, is permitted to alter/modify its tender so long as such alterations/modifications are done within the deadline for the online submission of tenders. Any alteration/modifications in the tender thereafter is not permitted.
- (iii) No tender can be withdrawn after the deadline for online submission of tender and before expiry of the tender validity period. If a bidder withdraws the tender during this period, it will result in forfeiture of the earnest money furnished the the bidder in its tender.
- (iv) The Purchaser will open on-line the Technical bids on prescribed date and time. In case the specified date of tender opening falls on / is subsequently declared a holiday or closed day for the Purchaser, the tenders will be opened at the appointed time and place on the next working day.
- (v) Physical presence of the bidder at the time of opening of tender will not be essential in the e-tendering process. At the appointed time, the bid openers would open the bids online and the details of the technical bids offered by the bidders would be known to all on the portal.
- (vi) The first cover, i.e. Technical Bids will be opened on-line, first and evaluated by the Screening-cum-Technical Committee to assess that the goods and services offered are as per the technical specifications, necessary credentials and relevant documents.
- (vii) The Second Cover, i.e. Financial Bid of only technically qualified offers shall be opened online and evaluated.
- (viii) The tender will first be scrutinized to determine whether they are complete and meet the essential and important requirements, as prescribed in the Tender



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Document. The bids, which do not meet the basis requirements, are liable to be treated as non-responsive and rejected.

- (ix) The Purchaser reserves the right to accept in part or in full any tender or reject any tender without assigning any reason or to cancel the tendering process and reject all tenders at any time prior to award of contract, without incurring any liability, whatsoever to the affected Bidder or Bidders.
- (x) Separate evaluation of Bids received for each type of tendered equipment/instrument will be carried out. Technical Bids will be evaluated on the basis of information and data provided in the bids as well as the actual performance of the equipment/ instruments being offered. Technical bids of the Bidders, who fulfill qualification criteria laid down in the tender document. If the details/data given in the technical bids are found in the conformity with the technical specification prescribed in the Annexure-1, testing of the models offered by the Bidders may be carried out by the Screening-cum-Technical Committee, if required to ascertain the actual performance of the equipment/instrument. Bidder, will arrange, at his cost, the demonstration of the equipment/instruments.
- (xi) Financial Bids of the Bidders, whose technical bids are qualified, shall only be opened. The lowest Bidder (L1) shall be determined on the basis of the Price quoted by the Bidder altogether for Supply, Installation & Commissioning which will be inclusive of Training, Demonstration, Testing etc.

(2) **SPECIAL CONDITIONS:**

- (i) All prices quoted should be CIF New Delhi for imported equipment. Other charges like transportation, insurance, F.O.R. destination and installation charges should be quoted separately. For indigenous equipment prices should be F.O.R. destination. The insurance charges, if any, must be included in the quoted price.
- (ii) Prices should be quoted for complete set of equipment including the cost of installation, minor civil works, electrical fittings and cabling etc.
- (iii) Accessories required [if any] for maintenance for a period of three years should be given separately.
- (iv) Annual Maintenance charges for three years should be quoted separately in Annexure – 3.
- (v) The technical specifications are shown in Annexure-1. The technical compliance of the offered equipment should be furnished in Annexure –2. Schedule of consignee wise breakup is annexed as annexure- 11.
- (vi) The equipment offered should necessarily contain a guarantee/warranty for its trouble free performance for a period of one year from the date of installation accept in case of equipment/instruments mentioned at serial no. 10, 12, 14,15, 16 and 17 (Page No.1 of the tender document), the warranty shall be quoted for three years from the date of installation.



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- (vii) The offer should clearly mention make, name of the manufacturer, detailed specifications, detailed literature about the equipment/circuit diagram/drawing of the mechanism and any other information relevant to the equipment. For any printing error/mistake in final bid will be the responsibility of the bidder and no correspondence will be entertained by the Board in future.
- (viii) The tenderer should furnish details of supplies made by him to important institutions, along with performance certificate, during last three year [Users' list]. The bidder must submit Client list along with the previous purchase order copies of similar item [s] supplied to any Central /State Pollution Control Boards / any CSIR Laboratories/Institutions of national repute.
- (ix) The firm / manufacturer submitting the offer shall only quote for one most suitable model of the offered equipment whose specification matches the Board's specifications. No alternate offers shall be considered and, if submitted, the offer shall be rejected. In case the manufacturer of any equipment authorizes more than one firm for submitting offer, then such offers shall be treated as rejected.
- (x) Scanned copy of proof for submitting Earnest money (EMD) and Tender fee online on the portal in First Cover. Offers without earnest money and tender fee shall not be considered and the relevant Covers will not be opened and their offer shall be treated as rejected.
- (xi) The bidder shall have to submit the copy of GST registration number and Income Tax registration [PAN] in First Cover otherwise the offer shall be liable for rejection.
- (xii) An undertaking shall be submitted by the tenderer that they are not black listed in any Govt. organization / institutions in First Cover.
- (xiii) The bidder shall provide exclusive company profile including necessary certificates / license for manufacture the product from DGTD / SSI/SIA etc. The bidder shall also provide Bank Name, Account Name, Account Number, Account Type, Branch IFSC Code for safer & easier payment transaction through RTGS/NEFT.
- (xiv) The specifications are clearly mentioned in the document and the Bidder is requested to submit Bid only if their offer strictly comply with 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.
- (xv) Integrity Pact: Prospective bidders have to sign a Integrity Pact as per the format given in Form-8 and submit it alongwith the Technical Bid in the first cover. Bidders are advised to read the Integrity Pact carefully, fill in the required details, sign and affix the seal and submit alongwith the technical bid. The bids which does not contain the Integrity Pact will be summarily rejected.

(3) **OTHER CONDITIONS:**

- (i) The Board reserves its rights to reject any or all the tenders without assigning any reason there for.



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- (ii) Tender found incomplete shall be rejected forthwith.
- (iii) The indigenous equipment, for which an order has been placed, after acceptance of the tender, shall have to be delivered, installed & demonstrated to the consignee mentioned in the supply order within 60 days from the date of issue of supply order. In case of late supply of the material, 2% per month penalty shall be charged. The maximum penalty for late supply shall not exceed 10% of the total ordered value. In case of unavoidable delay in supply a prior permission shall be obtained for extension in delivery period.
- (iv) The time limit for the supply of imported equipment shall be 90 days, which can be relaxed for additional 30 days by the Competent Authority. After scheduled time limit, 2% per month penalty or maximum penalty up to 10% of the total ordered value should be levied.
- (v) If the bidder is not a manufacturer himself, should have a facility for repairing and maintenance of the instrument. The details of service centers in Madhya Pradesh and India should be furnished along with other details.
- (vi) It shall be the responsibility of the bidder to deliver the material to the consignee in sound condition without any damage. Any damage or loss during transit shall be on the account of the bidder.
- (vii) The tenders shall be valid for a period of 360 days from the date of opening of Technical Bids (First Cover). In exceptional circumstances, the Board may in writing or by e.mail, solicit the Bidder's consent to an extension of the period of the Bid validity. If the Bidder agrees to the request for extension, the Bid Security shall also be extended for an equivalent period of time. Any Bidder may refuse to extend the validity of his Bid without forfeiting his Bid Security, but the Bid will not be considered. Bidders granting the requests for extension of the Bid validity will not be required or permitted to modify their Bids.
- (viii) The prices should include all taxes like GS tax, excise duty or any other tax.
- (ix) The approved firm / manufacturer shall have to submit 5% security deposit of the ordered value in the form of Bank Guarantee (Annexure-7) towards Performance Security for a period of 12 months, other wise 5% amount shall be deducted from the total ordered value.
- (x) In case the approved bidder fails to effect supply, within the specified period as per supply order, the earnest money is liable to be forfeited.
- (xi) The consignee or any other officer authorized by the Board shall have the right to reject any or all the items of the supply, if they do not confirm to specifications mentioned in the supply order. The rejected items shall be lifted by the bidders at their own cost. The consignee will not be responsible for the custody and safety of such items.
- (xii) The Board reserves its rights to affect any reasonable increase or decrease in the quantity or number of items at the time of issue of supply order in the interest of the Board.
- (xiii) All the clearance including the obtaining NMI [Not manufactured in India] certificate, custom clearance and custom duty will be the responsibility of the



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tenderer. This office will open the letter of credit [L/C] as may be required and will only sign the documents wherever required.

- (xiv) In case, if any supplier quote their rates in Indian Rupees for imported equipment and do not require custom duty exemption certificate from the Board, then the supplier has to submit import document like bill of entry, custom duty paid and NMI [Not manufactured in India] certificate from the manufacturer.
- (xv) 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 of submission of a bid not substantially irresponsible to the bid document in every respect will be at the bidder's risk and may result in the rejection of it's bid.
- (xvi) The terms of payment shall be as under:
 - (a) **Indigenous Items:** 100% of the cost of material would be paid only after receipt, satisfactory installation and demonstration of the equipments / material at site.
 - (b) **Imported equipments:** The letter of credit will be opened for total ordered value, but 50% of the cost will be released on receipt of shipment documents such as Air Way Bill, Commercial Invoice, Packing List etc. of the material and balance 50% payment shall be released only after receipt, satisfactory installation & demonstration of the equipments / receipt of material at site.
- (xvii) Conditional offers will not be accepted and liable for rejection.
- (xviii) In case of human error regarding labeling of envelop, the committee constituted for the opening of envelop shall take appropriate decision.
- (xix) In case of any dispute the decision of Chairman, M. P. Pollution Control Board shall be final & binding.
- (xx) In order to comply the instructions of Department of Commerce & Industries, Govt. of M.P., minimum 30% of the quantity of the items shall be reserved for the manufacturers / entrepreneurs from Scheduled castes/ scheduled tribes based at Madhya Pradesh.

NOTE: The tenders shall be liable for rejection in breach of any of the special or other general conditions of the tender document and no correspondence in this regard shall be entertained in future.

[P. K. TRIVEDI]
Director (Environment)



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TENDER AND CONTRACT FOR SUPPLY OF MATERIALS GENERAL RULE AND DIRECTIONS FOR THE GUIDANCE OF SUPPLIERS

- (1) All suppliers proposed to be obtained by contract will be notified in a form of invitation to tender posted in public places/News Paper.
- (2) The tender form will state the supplies to be made, as well as the date for submitting and opening tenders and the time allowed for supply, also the amount of earnest money to be deposited with the tender.
- (3) In the event of tender being submitted by a firm it must be signed separately by each member thereof or in the absence of any partner, it must be signed on its behalf by a person holding a power of attorney authorizing him to do so, such power of attorney should be produces with the tender and it must disclose that the firm is duly registered under the partnership Act.
- (4) Any person who submits a tender shall fill up usual printed form stating at what rate he is willing to undertake supply of each items. Tender which propose any alteration in the work/supply specified in the said form of invitation to tender, or time allowed for carrying out work/supply will be liable for rejection.
- (5) The Member Secretary or his duly authorized assistant will open tenders in the presence of any tenderer who may be present at the time and will enter the amount of several tenders in a comparative statement in a suitable form. Receipts for earnest money will be given to all tenderers except those whose tenders are rejected and whose earnest money is refunded on the day that the tenders are opened.
- (6) The officer competent to dispose of the tenders shall have the right of rejecting all or any of the tenders.



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CONDITIONS OF CONTRACT

- (1) The time allowed for the supply of materials as entered in the tender shall be strictly observed by the supplier and reckoned from the date of which the order to commence supply of materials shall throughout the stipulated period of the contract be proceeded with all due diligence (time being deemed to be the essence of contract) on the part of the supplier and the supplier shall pay as liquidated damage an amount equal to two percent per month or such smaller amount as the Member Secretary, M.P. Pollution Control Board, may decide on the amount of estimated cost of the whole of the materials as shown in the estimated cost of the that the supply remains un commenced or unfinished after the proper dates. In the event of the contractor failing to comply with this condition shall be liable to pay as liquidated damage an amount equal to two percent or such smaller amount as the Member Secretary may decide on the said estimated cost of the whole of the materials for every day that the due quantity of supply remains incomplete to, provided that the due quantity of liquidated damage to be paid under the provisions of this clause shall not exceed ten percent on the estimated cost of the supply of materials as shown in the tender.
- (2) If the Tenderer shall be hindered in the supply of the materials so as to necessitate an extension of the time allowed in this tender he shall apply in writing well in advance or immediately after the cause occur to the Member Secretary, M.P. Pollution Control Board who shall if in his opinion (which shall be final) reasonable grounds be shown therefore authorize such extension for a period not exceeding in 15 days. Any further extension shall be subject to the previous sanction of the Chairman.
- (3) The supplier shall give notice to the consignee officer of his intention of making delivery of materials and on the materials being approved a receipt shall be granted by him to the Consignee Officer or his assistant, and no material will be considered for payment until so approved.
- (4) On the completion of the delivery of the materials the supplier shall be furnished with a certificate by the Consignee Officer of M.P. Pollution Control Board.
- (5) The material shall be of the best description and in strict accordance with the specification and the supplier shall receive payments for such materials only as are approved and passed by the Member Secretary/Consignee Officer.
- (6) In the event of materials being considered by the Consignee Officer to be inferior to that described in the specification the supplier shall on demand in writing forth with remove the same at his own charge and cost and in the event of his neglecting to do so within such period as may be named by the Consignee officer that officer may have such rejected material removed at the contractor's risk and expense incurred being liable to be deducted from any sum due or which may become due to the supplier.



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- (7) Receipts for payment made on account of a supply when executed by a firm must also be signed by several partners except where the contractors are described in their as a firm in which case the receipt must be signed in the name of firm by one of the partners or by some other person having authority to give effectual for the firm
- (8) Under no circumstances whatever shall the contractor be entitled to any compensation/interest from Board on any account.
- (9) The supplier shall supply at its own expense all tools, plant & implements required for the due fulfillment of his contract and the materials shall remain at his risk till the date for final delivery, unless it shall have been in the mean time removed for use by the Consignee Officer.
- (10) No materials shall be brought to site or delivered on Sunday/holiday without the written permission of the Consignee Officer.
- (11) The supplier shall not sublet this contract without the written permission of the Member Secretary, M.P. Pollution Control Board. In the event of the contractor subletting his contract without such permission, he shall be considered to have thereby committed a breach of the contract, and shall forfeit his earnest money and shall have no claim, for any compensation for any loss that may occur from the materials he may have collected or engagements entered into.
- (12) The decision of the Chairman, M.P. Pollution Control Board, Bhopal shall be final, conclusive & binding on all parties to the contract upon all questions relating to the meaning of specification and instructions herein before mentioned and as to quality of materials or as to any way arising out of, or relating to the contract specifications, instruction orders of these conditions or otherwise concerning the supplies whether arising the progress of after the completion or abatement thereof.
- (13) On the breach of any term of condition of this contract by the supplier, the said Chairman shall be entitled to forfeit the earnest money, security deposit and the balance thereof that may at that time be remaining and to realize and retain the same as damages and compensation for the said breach but without prejudice to the right of the said Board to recover any further sums as damages from any sums due or which may be come due to the contractor by M.P. Pollution Control Board, or otherwise howsoever.
- (14) The Goods supplied under the contract shall be fully insured (Comprehensive) in currency acceptable as per the existing Law of India against loss or damage incidental of manufacturer or acquisition, transportation, storage, shipment, delivery, installation and training involved with the Contract naming the Board as the beneficiary. The insurance shall be paid in an amount equal to 110 percent of the EXW value of the Goods from “warehouse to warehouse (final destination)” on “all Risks” basis including War Risks and Strikes depreciated annually as per standard norms.

[P. K. TRIVEDI]
Director (Environment)



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Annexure-“1”

Tender No. MPPCB/Pur./01/2019-20

TECHNICAL SPECIFICATIONS

LABORATORY EQUIPMENTS



M. P. Pollution Control Board

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Item No. 1

Aerosol Particle Monitor

Principle	Omni-directional air inlet with PM ₁ separation
Sampling Rate	10 / 16.67 Liter per Minutes constant
Filter Media	47mm Diameter Teflon membrane
Display	Digital display of flow rate, ambient temperature, filter temperature and barometric pressure
Flow Control	Critical Orifice System or better
Sample Volume	Total Air Volume will be recorded in Dry Gas Meter
Sampling Control	Automatic Sampling with Programmable Timer for 24 Hours
Power	Single Phase AC 220 Volts
Weight	Handy & Portable, Less than 8 Kgs.
Environmental Conditions	Ambient to 48°C, < 90%RH
Optional Accessories	Filter media and other additional accessories required for five years operation



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Item S. No.2

BACTERIOLOGICAL INCUBATOR

Size (Inner chamber)	:	605x605x910mm (approx.)
Temperature Range	:	Ambient to 70°C
Accuracy	:	±0.2°C
Timer	:	99hrs/ ontinuous
Chamber/Body	:	Tripple wall construction. Inner Chamber made of stainless steel SS-304 grade & middle wall made of G.I. sheet. Outer body made of M.S. painted in epoxy powder with perforated adjustable SS shelve 03No.
Power Supply	:	220/230Volt Single phase, 50Hz/AC

- Air Circulatory fan should be provided for circulation of hot air in between inner chamber.
- Digital Temperature Controller cum Indicator
- Display: up to one decimal point
- Door with glass window should be provided.
- Wheel base should be provided.



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Item S. No.3

B.O.D. INCUBATOR

Sl. No.	Specifications	Requirements
1.	Description	Digital Display, Vertical BOD Incubator for incubation of environmental samples for measurement of Biochemical Oxygen Demand having both cooling and heating facilities.
2.	Construction	Triple walled construction, Outer body made of Mild Steel with White Powder coated enamel.
3.	Shelves	Three adjustable Stainless Steel Perforated Shelves.
4.	Glass Door	Full view inner toughened Glass Door with Aluminium Frame closes on a resilient gasket and permits inspection of the specimens, without disturbing the thermal conditions of the chamber.
5.	Mounting	Cooling Unit is placed on heavy duty Iron angle frame below the Chamber with castor wheel
6.	Door	Door with magnetic gasket and lock & key arrangement
7.	Inside Chamber	Stainless Steel with ribs for adjusting perforated shelves at convenient illumination Lamp (15W) will be provided inside the Chamber
8.	Inside Chamber Size	900mm x 580mm x 650mm (H x W x D)
9.	Inside Chamber Capacity	0.339 cubic meter (12 cubic ft.)
10.	Insulation	75 mm gap between the walls is filled with PUF insulation to avoid thermal loss
11.	Temperature Range	5 – 60 °C with an accuracy of ± 0.2 °C or better



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Item S. No.4

C.O.D. DIGESTION ASSEMBLY

- Microprocessor based COD Digestion System with Air Condensers of 20 Reaction vessels.
- 20 Samples at a time.
- Construction: Compact design made of Mild Steel construction body and aluminium block consisting of 20 holes to take reaction vessels.
- Stainless Steel Insert Rack to hold COD reaction vessels.
- Tube support rack to place reaction vessels along with stand.
- Stand to hold air condensers.
- Capacity of glass vessels: 250 ml each with 42 mm dia.
- Auto alarm / Buzzer for user's attention.
- Auto Power off mode on completion of COD digestion.
- Graphical digital LCD /LED display.
- Temperature Range: 40 to 400°C.
- Temperature Accuracy: $\pm 1^\circ\text{C}$ with Temperature Controller
- Sample Size: 20 ml (As per APHA Method 1:2:3) with USB port with memory programs and ramps. Built in software giving live schematic process flow feature.
- Timer: Integrated Programmable time and digital display of set value and process value.
- Glassware: 20 reaction Vessels along with 20 Air Condensers.
- Heating Block: Aluminium Solid Metal block.
- Air Condensers: Reflux condensers with ground joint.
- Automatic safety features like auto over temperature protection.



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Item Sl. No. 5

COMPOUND MICROSCOPE

Specifications	Requirements
Description	Binocular Microscope with electrical illumination for magnification and observation of bacteria, viruses, slides, biological material etc. with built-in attached facility of display of magnified objects.
Objectives	Parfocalled, parcentered, achromatic
Functions	Count, capture, measure, record, amalgamate, Internal meeting
Illuminator	20W halogen with rheostat
Stage Dimensions	145 mm x 135 mm x 76 mm x 50 mm movement range
Pixel	640 x 480 with PCI card
Resolution	320 x 240, 480 TV lines
Shutter Speed	30 fps
Output	Digital
Cable(s)	USB, RCA – Video, S – Video
Data Transfer	7.5 MB/sec
Data Formats	BMP, JPG, MIG
Magnification	4x ,10x, 40x and 100x
Power Supply	230 ± 10 Volts AC, 50 Hz
Accessories	Spare Halogen Lamp – One, Spare Eyepiece, Cable & Plug



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Item Sl. No. 6

ENERGY DISPERSIVE X-RAY FLUORESCENCE (EDXRF) SPECTROMETER SYSTEM

General: The technical specifications in this Section are indicative and not exhaustive. Bidder should offer the advanced and efficient model of Equipment/Instrument. Equipment/Instrument having better specifications may be accepted, however, without any price preference.

Supply Details: Supply of Equipment/Instruments complete with accessories, spares, consumables, etc. as specified in this section.

General Requirements: The work herein specified shall be performed by fully competent workman in a through professional manner. All materials furnished by the Bidder shall be new, and shall conform to applicable Indian Standards of any international standard. The manufacturer shall provide one set of Software of the equipment in USB media, for the equipment/Instrument. The same shall be handed over to the user Laboratory at the time of conducting Site Acceptance Test. No-objection certificate (NOC) or Type approval from Atomic Energy Regulatory Board (AERB) of India should be submitted for the Equipment / Instruments deploying radiation source or as applicable, along with the Technical Bid. Alternatively, the NOC or Type approval certificates must be submitted within 30 days from the date of opening of the technical bids of the tender.

S.N.	Specifications	Requirements
1.0	System	ED-XRF System for elemental analysis of Particulate matter collected on filter papers, solids, semi solids, Pressed powder, Loose powders, Liquids, Fused beads, Slurries, Granules, Filters Films and coatings under Vacuum and Helium atmosphere.
2.0	Analysis Range	As per EPA IO 3.3 Test Method for 44 specified elements & for others 10 ng to 1000 ng absolute or better.
3.0	Analysis Time	=< 45 minutes per sample.
4.0	Element detection Range	Fluorine to Uranium.
5.0	Excitation Source/ probe Beam	Both direct and polarized type is acceptable with computer controlled secondary target system or beam transmission filters. The system should be provided with an X ray generator of suitable capacity to power a X-Ray tube with Rhodium and/Silver Anode material to excite all element from F to U.
5.1	Window size	The X ray tube should be preferably be of metal ceramic insulation with thin Be window of not more than 75µm.
5.2	Power etting	The power setting of X ray tube should be controlled through software. The tube should be controlled through software. The tube should operate at minimum voltage of 50kV and minimum current of 3000µA. The X ray beam should either be off-centred, or in concert with a sample spinner, ensure that all of the 47 mm filter substrate is viewed by the beam during the analysis.
6.0	Detector	High resolution silicon Drift detector with peltier cooling system with thin Be window of not more than 10µm.
6.1	Resolution	< 145eV @5.9 KeV. The detector for the full analytical range of environmental analysis.



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6.2	Count Rate	Should be linear to atleast 1.5Mcps
7.0	Device instrument/ software and application software for composition analysis	The software should have facility to set standard sample and also have facility for standard less analysis for bulk quantitative samples such as oxides, metals and composition coatings using standard samples and calibration curve.
7.1		The quantitative analysis software should have various correction methods including intensity calculation, drift correction, Blank correction, internal standard correction and overlap correction.
7.2		The software should have a wide array of user defined utilities such as selecting and viewing data, changing data display format, changing a processing profile, editing quantitative conditions, reloading and saving analytical conditions
7.3		The software should have various report templates that can be user editable. The report templates must be able to extract and Incorporate data such as image calibration curve, analytical results and statistical data. The report must be printable.
7.4		The software should have a database comprising of content and intensity library. The content library should be editable such as adding, deleting, copying and saving.
7.5		The software should be able to analyse the less volume and Irregular shapes samples effectively.
8.0	Quality Control Support	performing high accuracy qualitative as well as quantitative analysis of elements and materials in sample using standard samples and calibration curve.
8.1		It should meet the limit of Quantification (LOQ) as per EPA IO 3.3 Test Method, accuracy and repeatability for air filters with respect to NIST SRM 2783 (Standard Reference Materials, National Institute of Standards and Technology)
8.2		Supplier should provide Certificate on Installation Qualification (IQ), Performance Qualification (PQ) & Operational Qualification (OQ) during the installation of the instrument. The activity should cover limit of detection and limit of quantification.
9.0	Minimum Detection Limit	For Air filter paper as per Annexure 'A'. Minimum detection limit for soil/ sediment, solid material sample may be specified by bidder.
10.0	Sample Changer	Minimum 10 position automatic sample changer with facility for individual spinning for improved statistics for unattended operation.
11.0	Air Filter Sample Holder	Minimum 20 holders to accommodate 27mm, 35 mm and 47 mm filter substrates.
12.0	Sample Spinner	The EDXRF should be fitted with a sample spinner mechanism with 30rpm speed.
13.0	Operation Environment	15 to 35 °C
14.0	Measurement Area	Regular samples: - Solids 27 mm – 51.5 mm diameter. Air filters – Air filter samples of diameter (27mm, 35mm and 47mm filter substrates).



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15.0	Safety Provision for the Instrument and Operation	The EDXRF should have provisions for switching of X-rays in case of an incorrect command or if the door/lid of EDXRF is opened via operation. The EDXRF should be safe from X-ray radiations emitting out of it and should have NOC/type approval from AERB, India.
16.0	Data Storage, Transfer and Display	The system should be supplied with a latest desktop PC with 19 inch colour LCD/LED Monitor and colour laser printer and atleast 1 TB hard drive and 16 GB RAM. The PC should be of a reputed brand HP/ Compaq/IBM/ Dell.
17.0	Power Supply	The EDXRF should work at standard 230 V, 50Hz single phase input supply. Necessary UPS to be supplied by vendor.
18.0	Vacuum Helium and Purge system	The system should have provision to measure samples in an inert atmosphere. For this vacuum/helium purge system should be provided. Also vendor should provide cylinder and regulator.
19.0	ServiceSupport	Necessary Hardware and software kits and tools for supporting remotely through telephone or internet connection
20.0	Other Points	The successful bidder shall give an undertaken that the spares must be made available for at least 10 years from the date of installation and commissioning. Compliance of specifications shall be authenticated by the manufacturer point by point. The bidders must satisfactorily demonstrate the suitability of the equipment offered by them for environmental applications specified in the tender documents by analyzing the samples provided by MPPCB as a part of tender evaluation process.
21.0	Scope of Work	The vendor own complete responsibility for delivery, Installation and commissioning of EDXRF to the satisfaction of MPPCB.
22.0	Additional Items	
22.1	Helium gas regulator – Two numbers	Helium gas regulator (two stage) with necessary tubing and connectors.
22.2	Helium Gas Cylinders-Two Numbers	High pressure seamless steel cylinder fitted with high purity Helium gas. Should be ISI marked conforming to IS 7285 specifications. Flat bottom with valve as per complete neck ring and cap painted as specified under Gas Cylinder Rules along with Hydraulic test certificate and explosive certificate from Chief Controller of Explosives, Nagpur as per BIS standards.
22.3	Operation Kit	Manufacturers standard operation kit including all required items, fillings for start-up/ regular operation of instrument
22.4	Operation/Maintenance Manual	Operation and maintenance manual for each unit
22.5	Analytical Manual	Analytical manual including applications for various system
22.6	Service Manual	Service manual with one set of required tools 46 for each sub-system/ unit
22.7	Trouble Shooting Charts	Trouble Shooting Charts
22.8	Spare Parts Catalogue	Spare Parts Catalogue



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22.9	Application Notes	Application notes for trace metal analysis in environmental, biological, geological, metallurgical and industrial samples.
22.10	Dust Cover	Dust Cover
22.11	Consumables	For five Years Operation
23.0	Installation	The vendor shall provide installation, system checks of the spectrometer and all accessories and energy calibration.
23.1	Pre- requirements	The pre-requirement if any shall be communicated well before the installation
24.0	Training, Warranty & AMC	One week informal on-site training on the use and operation of the instrument completion of installation followed by compulsory (all expenditure inclusive) one week training to two scientists per instrument on software training, operation, maintenance and trouble-shooting aspects of instrument at manufacture's application laboratory abroad
24.1		Comprehensive 3 years' warranty with spares from the date of installation of the instrument should be covered. Warranty will start from the date of complete installation.
24.2		During Warranty period preventive maintenance and breakdown visits to be made. All parts to be replaced during warranty or repairs should be done free of cost.
24.3		Two visits by application Specialist is to be made during each year of warranty. No charges will be paid by MPPCB for this.
25.0	Essential Calibration Standards	List of Standards (Micro Matter TM Technology Inc., Canada or similar certified standards) of air filters to be supplied by the vendors: The standards for each of the following elements as single standards (Na, Mg, Al, Si, P, S, Cl, K, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Ge, As, Se, Br, Rb, Sr, Y, Mo, Rh, Pd, Ag, Cd, In, Sn, Sb, Te, I, Cs, Ba, La, W, Au, Hg, Tl, Pb) in the concentration range of ~0.5-2.0µg/cm ² , and ~3-8µg/cm ² respectively, with appropriate mounting, along with 3 blanks.
25.1		standards each of the following 6 elements as multi element standard should also be supplied: Al, Si, Ti, Fe, Mg, Ca in the concentration range of ~0.5-2.0µg/ cm ² , ~3-8µg/cm ² , ~15- 20µg/cm ² , respectively S, K, V, N, Cu, Zn in the concentration range of ~0.5-2.0µg/cm ² , ~3-8µg/cm ² , ~15-20µg/cm ² , respectively.
25.2		NIST Traceable Standard Reference Material 2783 air filter standard.
26.0		Optional
26.1		accommodate at least 40 samples at a time for a 47 continuous analysis
26.2		Calibration standards for solid/ solid waste/ semi solid waste/ powdered material for following elements may be provided as optional item; Na, Mg, Al, Si, P, S, Cl, K, Ca, Cr, Fe, Ni, Zn, Se, Sn, Pb, Mn, Co, Cu, As, Cd and Sb
26.3		The vendor should quote the all the essential accessories required to make the EDXRF a self sufficient, independent unit.
		The vendor should quote all the spare parts as optional item



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		required for smooth functioning of the instrument under the real environmental conditions at least for five years. The vendor should also clearly mention spare part number, its description and unit price.
26.4		Additional 2 years AMC should be quoted as an optional item, after expiry of warranty
27.0	General Conditions of Supply	
27.1		The instrument and all its sub units should operate on 230 ± 10 volts 50 Hz power supply.
27.2		All the operation and maintenance manuals, circuit diagrams, application notes and application software to be supplied should be in English language.
27.3		The supplier / manufacturer should have Indian agent to provide after sales service.
27.4		The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier.
27.5		The Bidder should be a manufacturer / authorized representative of a manufacturer.
27.6		Bidders shall invariably furnish documentary evidence Brochure/catalogue, client's certificate – at least two) in support of the satisfactory operation of the equipment as specified above.
27.7		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.
27.8		To check the performance of the equipment/instrument, after installation and commissioning at site, the Bidder is required to conduct analysis. In addition, laboratory samples will be also analyzed before acceptance.
28.9		Bidder should have its Application Laboratory in India to provide primary support, including periodic calibration, as required. Details of the Application Laboratory may be submitted.



ELECTRONIC ANALYTICAL BALANCE

- Capacity : 220 g [± 10 g acceptable]
- Tare Range : Full scale display
- Sensitivity : 0.0001 g [0.1mg]
- Std. Deviation : 0.1 mg
- Linearity : ± 0.4 mg
- Pan diameter / size : Minimum 80 mm
- Ambient Temperature : Ambient to 40 Deg.C

Perfect self calibration, Motor cal-built in weight for internal calibration, External calibration, Built-in RS-232 Interface, Printer connectivity supported with standard weighing chamber, Power source- 230V 50 Hz. Over weight protection.

Glass draft shield with sliding doors. As soon as the mains connected and switched ON, the unit will perform all function self test with all display segments for half second and then normal display will be displayed.



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Item No. 8

ELEMENTAL (CHNS) ANALYZER

- ❖ It should be based on the principle of Continuous flow Thermal Catalytic combustion, followed by TPD (Temperature programmed Absorption column) Separation & Thermal Conductivity Detection (TCD) of all elements C, H, N, S, & O in various field upgradable mode as CHNS/O, CHNS, CHN, CNS, CN, N & O from sub ppm level (50ppm) to 100%.
- ❖ Completely PC controlled instrument through windows operating system, preferable Windows 10 or higher version.
- ❖ Instrument should have digital pressure and flow sensors. No manual flow sensors are entertained Detector range (for C, H, N, S, O) : 0.01% to 100% & Cl: sub ppm to percentage.
- ❖ Detector range from 0.005% to 100%.
- ❖ Precision less than or equal to 0.1 % abs.
- ❖ Sample size: 0.1 mg to 1000mg or more. The instrument should be capable to accept 40 mg absolute carbon in any sample.
- ❖ Auto – sampler: Electromechanical auto-sampler system with 50 positions or more in single tray for both solids and liquid samples.
- ❖ Furnace: Must have dual furnace system for combustion / reduction with independent temperature control up to 1200°C for each furnace.
- ❖ Analysis time up to 10 mins. For CHNS estimation.
- ❖ The Analyzer should have computer controlled injection of any volume of pressurized oxygen independently from carrier gas.
- ❖ Analyzer must be quoted with 500 Consumables Kit with standards for CHNS & 1000 for Oxygen & 1000 Consumables for Cl. Liquid & solid Sample preparation / sealing device, UHP grade Gas Cylinders with original certificates and two-stage SS Pressure regulators for Oxygen and Helium Gas.
- ❖ Microbalance with 0.001 mg resolution (Mettler / Sartorius make) with interface to analyzer for direct transmission of weighing data.
- ❖ Please quote separately for all standards, spares and consumables required for 3 years (with detailed break-up) along with Annual Maintenance Contract (AMC).



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Item No. 9

FLASH POINT MONITOR

SPECIFICATIONS	REQUIREMENT
Description	Portable, Electrically heated equipment to measure flash point of waste, oils, lubricating oils, waste oils, waste fuels, petroleum products, water liquid, paints as per latest flash point ASTM Standards method ASTM D 6450 & D 7094
Controller	Microprocessor based process controller – cum – indicator. Flash Point measurement by continuously Closed Cup with RTD sensor.
Sample Volume	Small, 1 to 10 ml
Ignition	Electric arc ignition inside closed measuring chamber, Ignition transformer having O/P of 10.6 KV DC from 230 ±10V AC i/p
Temperature Range	Up to 400°C
Temp. Readout & Control	Digital, Built-in temperature control
Heater	800 watt Electronic heater with energy regulator
Flash Detector	Automatic Ionization principle based flame detector sensor with audible signals and on screen prompt
Stirrer	At least two speed or more
Measuring Time	5 – 10 minutes per sample
Pressure correction	Automatic
Cooling	Force cooling facility
Interface	<ul style="list-style-type: none">• Computer & Printer• Connection for external keyboard or bar code reader
Calibration	Simple, factory calibrated with calibration certificate from NABL accredited calibration laboratory. Should be supplied with calibration Liquid - 2 bottles
Power Supply	230 ± 10 V AC 50 Hz single phase
Safety Features	Fire safe with fire sensor over temperature cut off facility
Accessories	Syringes, ignitor, electrical cable, instruction manual (2 Nos.), calibrated thermometer from NABL accredited calibration laboratory.
Other Accessories	Sample Cup 4 ml for ASTM D 6540 – 01 No. Sample Cup 7 ml for ASTM D 7094 – 01 No Sample Cup Carrier – 01 No Brass eraser – 02 nos. Power Supply Cable RS 232 printer cable Other accessories necessary of operation of equipment (if any)



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Item Sl. No. 10

FLUE GAS ANALYZER

1.	Gases to be measured	CO, O ₂ , CO ₂ , SO ₂ , NO, NO ₂ , HC, H ₂ S, NO _x and combustion efficiency
2.	Sensors	IR or Electro – chemical Sensors with high accuracy and life span of 3 to 5 years
3.	Gas Flow	At least 1 Liter / min.
4.	Temperature Measurable	Up to 500°C
5.	Operating Temperature	0 to 45 °C
6.	Power Supply	Battery operated along with built-in charger on Mains 230 V ± 10 VAC, 50 Hz ± 3%
7.	Flue Gas Probe	Stainless steel Shaft, Sintered Filter with Silicon hose and handle.
8.	Pre Programming	For Natural Gas, Light Oil, Heavy Oil, LPGs, Propane, Butane, Coke, Coal etc.
9.	Parameter wise specifications	Please see annexure- "A"
10.	Software/ operator	Easy to handle Key Board operated and user friendly, Data Format transferable to user software.
11.	Weight	Light weight /Portable housed in sturdy Carrying Case
12.	Calibration Certificate	Calibration and certificate of approval from recognized agency like EPA, TUV
15.	Documents	Instruction manual for operation

Annexure-"A"

Parameter	Range	Resolution	Accuracy
TEMPERATURE MEASUREMENT			
Flue Temperature	0.1°C use high temperature probe for gases > 600°C / 1112 °F	0.1° (C/F)	0.1° C ± 0.3% of reading
Inlet temperature	0°- 600°C	0.1°(C/F)	0.1° © ± 0.3% of reading
GAS MEASUREMENT			
Oxygen (O ₂)	0 to 21%	0.1%	± 0. 2%
Carbon Monoxide (CO)	0 to 4000 ppm	1 ppm	± 5% of mv (200 to 8000ppm CO) ±10% of mv (2001 to 4000ppm CO) ± 10ppm CO (0 to 199 ppm CO)
Pressure	0 – 150 mbar	0.01 mbar / kpa	± 0.05% full scale
Carbon Dioxide (CO ₂)	0 to 20 Vol. %	0.01 vol. %	± 0.3 Vol. % CO ₂ + 1% of mv (0 to 20 Vol. % CO ₂) ±0.5 vol % CO ₂ + 1.5% of mv (>5 to 20vol % CO ₂)
Efficiency	0 – 100%	0.1%	--
Flow Velocity	0 to 40 m/s	0.1 m/s	--
Pressure	- 200 to + 200 hPa	0.01 mbar	±1.5% of mv (-200 to -50 hPa) ±1.5% of mv (+50 to 200 hPa) ± 0.5 hPa (- 49.9 to + 49.9 hPa)



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Hydrocarbon (HC)	0-10000 ppm	10 ppm	< 400 ppm (0 to 5000ppm) < 10% of mv (> 10000ppm)
Nitric Oxide (NO)	0 to 4000ppm	1 ppm	±5% of mv (100 to 1999.9 ppm NO) ±10% of mv (2000 to 4000 ppmNO) ± 5 ppm (0 to 99 ppm NO)
Nitrogen Di Oxide (NO ₂)	0 to 500 ppm	0. 1ppm	± 5% of mv (100 to 500 ppm NO ₂) ± 5 ppm (0 to 99.9 ppm NO ₂)
Sulphur Dioxide (SO ₂)	0 to 5000 ppm	1 ppm	±5% of mv (100 to 2000 ppm SO ₂) ±10% of mv (2001 to 5000 ppm SO ₂), ± 5 ppm (0 to 99 ppm SO ₂)
Hydrogen Sulphide (H ₂ S)	0 – 300 ppm	0. 1 ppm	±5% of mv (40 to 300 ppm H ₂ S) ± 2 ppm (0 to 39.9 ppm H ₂ S)



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Item No. 11

Fume Hood

Type of Hood	Low Constant Volume (LCV) type Bench Fume Hood										
Overall Dimension (Approx.)	Width 1500 x Depth 915 x Height 2300 mm										
Inner Dimension	Width 1300 x Depth 645 x Height 1200 mm										
Fume Hood Structure consisting of	<ul style="list-style-type: none"> Structure Frame in 2.0 mm thick GI construction Inner lining, rear baffles and top baffles in 6 mm thk. Phenolic resin construction Outer panels in 1.2 mm thick GI Construction, Aerodynamic Shape front posts, in GI Construction, Flip-on type Airfoil in 1.6 mm thick SS Construction, Streamlined shaped exhaust duct collar in PP Const., Combination type, Frame less design Sash in toughened glass Const. with full length sash handle in anodized Al construction. Sash movement mechanism with counter weight. Twin Tube type fitting with fluorescent lamps. 										
Fume Hood Worktop	<ul style="list-style-type: none"> In Jet Black granite construction having raised rails on all four sides with 1 No. oval shaped cup sink, in PP const. on left rear side 										
Service Valves – 4 Nos. (LHS)	<ul style="list-style-type: none"> Having body in forged brass const., extended spindle in brass construction, color coded knobs in plastic const. angular shaped serrated nozzles, in epoxy coated forged brass const., 1.5 mt long flexible tubing with end fittings for following services: <table border="0" style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;">Service</th> <th style="text-align: left;">Tube Construction</th> </tr> </thead> <tbody> <tr> <td>Compressed Air</td> <td>PU-4</td> </tr> <tr> <td>Vacuum</td> <td>SS Braided Teflon Hose</td> </tr> <tr> <td>Nitrogen</td> <td>PU-4</td> </tr> <tr> <td>Potable Water</td> <td>Nylon braided PVC Hose</td> </tr> </tbody> </table> 	Service	Tube Construction	Compressed Air	PU-4	Vacuum	SS Braided Teflon Hose	Nitrogen	PU-4	Potable Water	Nylon braided PVC Hose
Service	Tube Construction										
Compressed Air	PU-4										
Vacuum	SS Braided Teflon Hose										
Nitrogen	PU-4										
Potable Water	Nylon braided PVC Hose										
Electrical Services	<p>With internal wiring (all in Non-FLP const.) 5.0 A piano type switch for light – reputed make 10A single pole MCB for power – reputed make Push Button with LED for Fan - reputed make 5/15A pin socket with switch/MCB– reputed make</p>										
Controls	Air velocity Monitor with low air alarm – reputed make										
Fume Hood Understructure	Fabricated out of heavy gauge rectangular shape hollow pipes in MS construction, duly finished with corrosion resistant specially coatings.										
Fume Hood Under Cabinet for Chemical Storage	Detachable design general purpose twin cabinets fabricated out of GI sheets consisting of Special arrangement for air ventilation inside the cabinet, twin doors in double wall const., flushed type recessed handle., Chemical resistance FRP lining inside the cabinet wall, 110° special design door hinges in SS const., 1 No fixed shelf, recessed base frame in heavy duty GI const., Twin castors for easy removal of the cabinet.										
Accessories	200 mm dia Duct damper in PP const complete with pre drilled flanges on both sides, manual operation handle and extended spindle, suitable for motorized drive., Scaffold Grill (1300 x 750 mm) in vertical rod design, fabricated out of 12.0 mm dia. SS316 rods having 150 mm pitch between two rods.										



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Item Sl. No. 12

GAS ANALYZER FOR PETROL VEHICLES

Measuring Method : Non Dispersive Infrared
Measurable Components : Carbon Monoxide (CO) and Hydrocarbon (HC)
 Carbon dioxide (Co2) and Oxygen (O2) automobile exhaust gases.

	Measurement	Resolution
CO	: 0 ... 10 % Vol.	0.01 % Vol.
HC	: 0 ... 9999 ppm vol.	1 ppm
CO ₂	: 0 ... 20 % Vol.	0.1 % Vol.
O ₂	: 0 ... 22% Vol.	0.01 % Vol.
Lambda (λ)	: 0.20 ... 2.000	0.001

Reproducibility Within 1% of full scale
Stability Within 1% of full scale/hour at constant temperature
Instrument deviation within 1% of full scale
Accuracy Within 2% of scale at Constant temperature
Response Time 90% response within 10 second with 5 meters amp
Drift Zero & Span drift \pm 3% FS (3 Hr) or less
Calibration By span gas
Accuracy of span within \pm 1-2% of the concentration state
Warming up time within 5 minutes
Interference effect from other gas Ambient Condition Less than 0.2 units
 a) **Temperature** Ambient to 50 Deg. C
 b) **Humidity** Less than 95% R.H.
Display Bright LCD/LED or better
Printer Built – separate
Power supply 220 \pm 10 V AC; 50 Hz \pm 3%
 Approval certificate from ARAI, Pune should be attached.
 Equipment should be light-weight to carry with external printer.
 Accessories For two years: Filter Paper for fine and coarse Part two packets of each)
 Equipment (4 Gas Analyzer) 2. Power Supply Adaptor 3. Probe and Hoses 4. Mains Cord
 5. RS 232 Cable or better

OPTIONAL ACCESSORIES

1. Engine Speed (magnetic type (two Wheelers) and Pickup (Four Wheelers) Type
2. Oil Temperature
- (c) Computerization Software CD if any required



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Item No. 13

HEAVY METAL DIGESTION ASEMBLY

Features	Requirement
Glassware	8 Reaction Vessels & Water Condensers
Temperature	Minimum upto 250 °C \pm 1%
Capacity	8 samples at a time
Display	Graphic LCD /LED module with large fonts or better
Timer	Programmable up to 99 Hrs. 50 Min
Dimension (Approx.)	515 x 483 x 990 mm
Power	230 V 50 Hz
Accessories	digestion block, Insert rack for digestion tubes, Insert rack for water condenser, Multi-level console, Water condenser, Heavy metal condensation traps, Digestion tubes, Tubing set, Cooling water lines Drip tray, PVC exhaust manifold, Water jet pump



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Item No. 14

LAMINAR AIR FLOW

The equipment should be I.S.O., C.E., W.H.O., G.M.P. Certified & I.S.I. marked. Class 100 requirements as per US Federal Standard 209E.

- Automatic device to switch of the air flow /Motor when door is close.
- Standby mode (Idealing) increases filter life, avoids re cleaning of working table.
- UV / Fluorescent Light inter Lock: either UV Tube for the users safety. Will glow or Fluorescent tube will glow.

Construction: All Laminar Flow Clean Air cabinets are basically constructed out of thick teak wood board, which is termite and insect proof, fire retardant and weather resistant. All exterior surfaces are covered with white Laminates. Interior surfaces are epoxy painted. Work Table is made of S.S. and side panels of thick transparent plexi glass.

Air Flow and Filtration: Laminar Flow principle involves double filtration of air. Atmospheric air is drawn through pre filter and is made to pass through highly effective Minipleat HEPA (High Efficiency Particular Air) filters having efficiency rating as high as 99.99% with cold DOP and 99.99% with Hot DOP, thus retaining all air borne particles of size 0.3 micron and larger. Double filtered air blows in laminar flow through the work table at designed velocity of 90 ft. min. \pm 20%

Blower Motor Assembly: Duly balanced, direct drive motor blower units sized to provide adequate air flow volume over the entire surface of HEPA filter. Fitted with reputed make motor and operates with minimum Noise Level than 65 dB on 'A' scale and Vibration less than 2.5 um rms.

Lighting: Work area properly illuminated by diffused, glare free fluorescent light providing 800 LUX, or as per requirement with transparent front door, Oil free Filter Pressure Manometer, Built-in U.V. Germicidal light, Cock for gas, air, or Vacuum line. Power Requirement: 230 V, 1 Phase, 50 Hz, AC Supply.

Working Area	: 4' x 2' x 2'
Size of HEPA filter	: 4' x 2' x 3'
Number of HEPA Filter	: 1
Number of Pre Filter	: 2
Illumination	: 2 x 40W



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Item No. 15

HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC) SYSTEM

S.N.	Specifications	Requirements	
A.	TECHNICAL SPECIFICATIONS		
1.0	Liquid Chromatography System	One Set	
1.1	Pump	High Pressure Quaternary Pump System	
1.2	Flow Range	0.01 to 5.00 ml/min or better	
1.3	Pressure Range	400 bar or more	
1.4	Flow Accuracy	± 1% or 10µL/min whichever is better	
1.5	Flow Rate Precision	≤ 0.075 % or lower	
1.6	Degasser	Inbuilt on-line vacuum degasser	
1.7	Auto Sampler	Standard Sample Capacity: Having a capacity of 100 positions or more for 2 ml vials or better with programmable needle wash facility	
	Injection Repeatability	RSD < 0.3 % (for 10µL injections)	
	Carry Over	0.01%	
	Injection volume accuracy	< 2%	
	Syringe pump combination	Should have built in high accuracy digital syringe pump	
1.8	Oven	Block heating / cooling type	
	Column oven Temperature	Column oven Temperature Range: 5°C above room temperature to 55°C with Peltier cooling	
	Temperature Control Precision	± 0.1°C	
1.9	Columns		
	Guard Column	C-18 reversed-phase guard column, 10mm x 2.6 mm ID, 0.5 µm particle size – 4 Nos.	
	Analytical Column	C-18 reversed-phase, 250mm x 4.6 mm ID, 5 µm particle size – 1 Nos.	
		C-18 reversed-phase, 100mm x 2.0 mm ID, 5 µm particle size – 1 Nos.	
		C-18 reversed-phase, 150mm x 0.5 mm ID, 5 µm particle size – 1 Nos.	
		C-18 reversed-phase, 150mm x 2.0 mm ID, 3 µm particle size – 1 Nos.	
	Software	Automatic calibration, calibration verification & Analysis with provision for inputs of sample extract volume, dilution & injection volume etc. Report Formats customization (Laboratory Information, Sample Information, Chromatogram, Peak Table including RT, compound name, peak area, quantity/concentration, unit etc.) QA-QC parameters	
1.10	Detector		
	UV-Visible Detector	Light Source	Deuterium and Tungsten
		Wavelength Range	190 – 900 nm or more
		Slit Width	Programmable, 1 , 2, 4, 8, 16 nm
		Wavelength Accuracy	± 1 nm
		Wavelength Precision	± 0.1 nm
		Drift	< 0.9 X 10 ⁻³ AU/hr at 254 nm
		Noise Level	± 0.25 X 10 ⁻⁵ AU (for response of 1 s, 250 nm, air cell)



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		Cell path length, cell volume	STD flow cell
		Maximum Sampling Rate	80 Hz
		Time Programmable	Wavelength, Wavelength range, Polarity, Peak width, Lamp bandwidth, auto- balance
		Communication	LAN, Controller-area network (CAN), RS-232
		GLP Features	Data Recovery Card to prevent data losses, RF-ID for electronics records of flow cell and UV lamp condition
		Safety and Maintenance	Extensive diagnostics, error detection and display through instant graph, leak detection. Electronic temperature control (ETC) for the complete optical unit.
	Fluorescence Detector	Light Source	Xenon Flash Lamp
		Detection Type	Programmable single wave length (excitation and emission)
		Frequency	296 Hz to 74 Hz
		Wavelength Accuracy	± 3 nm
		Wavelength Repeatability	± 0.2 nm
		Excitation Monochromator	230-800 nm or above, bandwidth 20 nm or better
		Emission Monochromator	230-900 nm or above, bandwidth 20 nm or better
		Cell path length, cell volume	STD flow cell
		Maximum Sampling Rate	74 Hz
		Time Programmable	For Wavelength, Polarity, Peak width, Lamp bandwidth, auto- balance wavelength range
		Communication	LAN, Controller-area network (CAN), RS-232C
		GLP Features	Data Recovery Card to prevent data losses, RF-ID for electronics records of flow cell and UV lamp condition
		Safety and Maintenance	Extensive diagnostics, error detection and display through instant graph, leak detection. Electronic temperature control (ETC) for the complete optical unit.
2.0		COMPUTER SYSTEM	
	Make	Reputed Brand such as HP/Dell/Lenovo	
	Processor	Intel Core i7 processor of latest generation	
	RAM	8GB DDR RAM (upgradable to 16 GB DDR RAM)	
	HDD	500 GB SATA or More	
	Monitor	21" LED Flat Color (Digital)	
	DVD Writer	DVD – Multi-drive	
	Ports	2 serial, 1 parallel and 2 USB front 3 Rear USB 2 Port, 1 VGA 4 Bays (2 external & internal) with LAN 1 PS, 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 Laser jet Printer 1200 x 1200 dpi 12 PPM with	



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		duplex printing
	Software	Preloaded Windows 10 or latest operating system with Licensed CD
		Preloaded Norton Antivirus with latest version of 3 years lifetime along with Licensed CD
3.0	All the required accessories	Inline filter/Frit: 100 Nos.
		Solvent Filter: 25 Nos.
		Pump Seal : 50 Nos.
		Auto sampler needles: 10 Nos.
4.0	Manuals	Operation and Service Manuals in CD format & 2 Nos. Print copies for each sub-system should be supplied.
5.0	Operation & Maintenance Training Component	Two weeks training to two Scientists on operation, maintenance and trouble shooting aspect of the instrument at manufacturer's facility/application laboratory.
6.0	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 software 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 successful operation for atleast 2 years as on the date of bid opening. 6. The bidder should furnish the information on past supplies and their satisfactory performance. 7. Bidders shall invariably furnish documentary evidence (client's certificate – atleast two) in support of the satisfactory operation of the equipment as specified above. 8. Notwithstanding anything stated above the purchaser reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser. 9. Comprehensive warranty with spares for 3 years on complete system from the date of installation of the instrument should be covered.



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Item No. 16

MICRO ELECTRONIC BALANCE

Capacity	Up to 31g
Readability	0.001mg or better
Repeatability	0.001mg or better
Linearity Deviation	0.015mg or better
Eccentricity (test load)	0.015 mg or better
Weighing Pan	30 mm or better.
Door Cleaning	Door cleaning should be easy & fast
Hands free Operation	Sensors should be provided for hands free operation for auto door opening.
Dosing Guide	Balance display should be with graphical track to guide dosing
Direct Dosing	Balance pan should be capable for attachment to keep flask, test tube etc so that balance can be used for other application such as sample weighing along with filter weighing
Touch Screen	TFT
Status	Indication calibration over due, leveling error and other such warnings.
Level Adjustment Guide	Level Bubble
Internal Adjustment	Time and Temperature based adjustment with internal weights
Antistatic Solutions	Supplied with antistatic kit to remove static charge on filter paper, flask or tare container.
Data Transfer	Balance should be compatible for secure data transfer via software
Operation	<ul style="list-style-type: none">• Balance should be supplied with Software which can be configured and customizable with method for various applications such as sample preparation etc as per customer SOP. It will not allow user to deviate from any step of SOP.• Option to enter process parameters such as batch number, Sample Id etc on balance display.• User management should be available.• All system related activities should be recorded.• Option for generating data in csv, txt etc file.



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Item No. 17

METHANE ANALYZER

Gas Measured	Methane (CH ₄)
Lower Detection Limit	10 ppm
Measurement range	10 ppm to 4.0 Vol.%
Accuracy	2% of reading
Linearity	Better than 2%
Resolution	10 ppm
Drift	Negligible (<5% of measurement range between maintenance intervals)
Sampling rate	As per application
Response time (T ₉₀)	t ₉₀ < 2 s
Repeatability	±0.5% of reading
Operating temperature	-5 to +50 °C
Heat up time	60 s
Battery type	NiMH battery or better
Battery life	6 h or better
Display type	LCD/LED or better
Storage temperature	Ambient to +60 °C



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Item No. 18

NOISE LEVEL METER WITH DATA LOGGER

Specifications	Requirement
Measurement Range	should cover 30 – 130 dBA
Frequency weighting	A & C
Accuracy	± 1.4dB
Resolution	0.1 dB
Display	Digital [Leq, SPL, L _{max} and L _{min}]
Time Weighting	Fast 125 ms/ Slow 1 second
Power supply	Rechargeable Battery system
Computer Interface	Data Logging system with RS 232 interface or better
Calibration	Automatic Calibration
Temperature	Ambient to 50°C
Memory	Sufficient memory to store at least 8 hrs. data for all parameters given in modes and octave band analysis.
Accessories Required	Calibrator [see specification], Microphone [spare, see specification], Tripod Stand, Wind screen, Rechargeable Batteries, Carrying Case or kit, Extension cable with pre amplifier

Calibrator:

Level (dB)	Two – one each in lower and higher range
Frequency	1khz.
Accuracy	± 0.5 dB at 25°C
Adaptors	As applicable

Microphone:

Type	Premacharge air –condenser unit
Response Type	Free Field 'O' degree incidence
Response Accuracy	min. IEC 651 type I
Operating Temperature	Ambient to 55°C
Range	30 – 130 dB(A)

Data Logger:

Communications with data logger should be possible using a standard RS 232 cable or better along with compatible modems in order to provide communications facilities (Radio/Telephone). Compatible software supplied with the data logger shall be able to handle all communication requirements.

Printer: Thermal/Dot Matrix Printer with LCD display, 16 Key Keyboard, GPS interface, Real Time Clock and Serial interface for instrument and computer shall be provided. This Printer should be battery operated with charger.



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Item Sl. No. 19

PC-CONTROLLED UV – VISIBLE SPECTROPHOTOMETER

Specification	Requirement
Type	Double beam Optics
Light source	Tungsten-halogen and deuterium
Wavelength range	should cover 190-1100 nm range or better
Band Width	0.5 to 20 nm variable Band Width
Wavelength accuracy	± 0.1 nm
Wavelength reproducibility	± 0.1 nm
Grating	Concave holographic grating with minimum 1050 lines/nm or better
Stray Light	0.02% T at 220nm (NaI) or better
Photometric Accuracy	$\pm 0.004A$
Photometric reproducibility	< 0.1 nm
Photometric Noise	Photometric Noise at 700 nm (0A) must be less than 0.00005A or better
Power Requirement	220 VAC $\pm 25\%$, 47 to 53 Hz
Pre-aligned Deuterium and Tungsten-Halogen lamps with automatic switch-over	
PC Controlled software should include molecules for scan, Time Drive, Wavelength Programming, Concentration, Bio Assay, Kinetics, Oligo Quant, Validation, Report Builder, Airthmetic etc. as standard features of the software. Instrument should supplied with calibrated holonium filter for internal calibration.	
Upgradability	Offered Instrument should be having a facility to upgrade with Integrating Sphere Accessories for Solid samples and Variable Teperature accessories for Liquid samples, Instrument should also be able to accommodate Small Cuvettes for low Volume Samples including Nano Sticks for Nano Samples.
Accessories	Suitable Computer System, Printer, Suitable Online UPS, Cuvettes: 10mm path length, 3.5 ml approx (02 Nos.)



ROTARY EVAPORATOR

Rotary evaporator suitable for processing of samples for analysis of organics. Should have a diagonal design, a reproducible and digital of RPM with a Buchi type or equivalent movable and high vacuum proof sealing. Should be provided with Ball servo lifter. Water bath, sealing for the RE system, spare clams for the evaporating and receiving flask, a self contained and chemical resistant. The system should have following specifications:

[A] Rotavapor :

Operating voltage	100 – 240 V
Frequency	50/60 Htz.
Power consumption	60 W
Rotation Speed	20 – 280 rpm
Flask size	50- 4000 ml
Max. Flask capacity	3 kg
Display	Rotation speed and vapor temperature
Approval	Reputed Certification

[B] Heating Bath:

Operating voltage	100 – 120 V or 220 – 240V
Frequency	50/60 Htz.
Heating Power	1300W
Power consumption	1700 W
Flask size	up to 4000 ml
Controlled temperature range	20 – 180°C [water and oil]
Display	actual and specified temperature, water /oil
Temperature deviation	± 2°C
Approval	Reputed Certification

[C] Evaporating Flask: The evaporating flask should be pear shaped with standard joint and capacity 250ml.

[D] Drying Flask: The drying flask should be suitable for powdery substances. The integrated baffles encourage through mixing and prevent crushing of the sample. The drying flask should be complete with standard joint having the capacity of 500ml.

[E] Receiving Flask: The receiving flask should be round shaped with ball joint having capacity 500 ml.



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Item No. 21

SPECIFIC ION ANALYZER

Micro-processor controlled bench-top Specific Ion Electrode Meter with electrodes is required for the measurement of pH, Fluoride, Cyanide, Nitrate and Ammonia in water, waste water, aqueous extracts of solid & hazardous wastes, etc.

S. No.	Specification	Requirement
I	Ion meter	
1	Description	Bench-top microprocessor controlled with RS-232-C output facility specific ion electrode meter for measurement of pH, temperature, fluoride, cyanide, nitrate and ammonia in water, waste water, aqueous extracts of solid & hazardous wastes, etc. through individual electrodes that work both on AC power and battery operated. The front panel should be splash proof, corrosion resistant and impact resistant.
2	Mode	pH, Concentration, temperature, MV
3	Display	Graphic LCD display, LCD dot matrix 128 / 64 dps panel with backlight and feather touch keys.
4	Timer	Date and time can be called up and recorded any time.
5	Range	0 to 19999 mg/lit or PPM
6	Resolution	Up to three significant figures
7	Relative accuracy	± 0.2 mV or $\pm 0.05\%$ reading whichever is greater
8	Units of measurement	PPM, M, mg/lit, % PPB, none
9	Calibration points	3 to 5
10	Calibration editing	yes
11	Calibrating features	Timed end point, linear point to point, non-linear selectable auto-blank, low concentration range stability
12	Memory	Up to 2000 data points with time & date stamp
13	Methods	To store up to 10 methods allow for customized procedures
14	Ready	Indication of stable value reached
15	Provision of data transfer	Provision of USB and RS 232 ports for data transfer
16	Requirement	In case of power failure, secure storage of all calibration and programme data.
17	Other provisions	In stirrer for mixing of sample, arm cum stand to hold the electrodes to place in to the samples, Universal AC power adapter to work at 230 volts, with 4 Aas battery operated, Printed quick start
18	Other provisions	In stirrer for mixing of sample, arm cum stand to hold the electrodes to place in to the samples, Universal AC power adapter to work at 230 volts, with 4 Aas battery operated, Printed quick start
II	pH electrode – 1 No.	
1	pH Range	0.1 to 14.00
2	Resolution	0.1
3	Relative accuracy	± 0.05



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4	Temp. range	0.0 to 1000C
5	Temp. accuracy	± 1.00C
6	Connector type	Water proof
7	Slope	80 – 120%
8	Calibration	Three to five points calibration (automatic buffer recognition)
9	Temperature Compensation	Automatic throughout the range
10	Reagents to be supplied	500 mL each of pH 4, 7 and 10 buffers; storage solution; cleaning solution and pH electrode storage bottle.
III	Ammonia electrode (high performance) – 1 No.	
1	Type	High performance ammonia electrode with water proof BNC connector and 1 meter cable.
2	Construction	Gas sensing combination
3	Measurement range	0.01 to 10,000 ppm
4	Optimum temperature range	0 to 500C
5	Reference electrode	Built-in type
6	Reagents to be supplied	One set of reference filling solution, ISA, 0.01 M NH ₄ Cl calibration standard.
7	Spares	Pre-assembled outer body and membrane cap for high performance ammonia electrode, pack of 3
IV	Fluoride electrode	
1	Construction	Solid state half-cell
2	Measurement range	0.02 ppm to saturated
3	Optimum temperature range	0 to 500C
4	Reference electrode	Epoxy Body, Ag/AgCl Internal, easy-to-clean sleeve Junction. The recommended reference electrode for precise pH measurement and for many ISE measurements. Shipped with suitable
5	Reference electrode	Epoxy Body, Ag/AgCl Internal, easy-to-clean sleeve Junction. The recommended reference electrode for precise pH measurement and for many ISE measurements. Shipped with suitable
V	Cyanide electrode	
1	Construction	Cyanide solid-state, Epoxy-Body Electrode with BNC connector.
2	Measurement range	0.2 to 250 ppm
3	Optimum temperature range	0 to 500C
4	Reference electrode	Suitable epoxy-body built double junction reference electrode along with the filling solutions to be supplied.
5	Reagents to be	One set of 100 or 1000 ppm standard in alkaline solution and



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	supplied	other electrode & double junction reference electrode fill solutions for optimum results to be supplied.
VI	Nitrate electrode	
1	Construction	Plastic membrane half cell nitrate electrode
2	Measurement range	0.1 to 100 ppm
3	Optimum temperature range	0 to 500C
4	Reference electrode	Suitable epoxy-body built double junction reference electrode along with the filling solutions to be supplied.
5	Reagents to be supplied	500 ml 100 mg/lit nitrate standard as nitrogen and one set of electrode & double junction reference electrode fill solutions for optimum results to be supplied.



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Item Sl. No. 22

SMOKE METER FOR DIESEL VEHICLES

Sl. No.	Specifications	Requirement
1.	Result compatibility	Measurement results should be fully compatible with Hartridge Smoke Unit (HSU)
2.	Range/Accuracy/Resolution	
	(A) OPACITY	
	Measuring Range	0 – 100%
	Accuracy & repeatability	± 1% of full scale
	Resolution	0.1 %
3.	(B) ABSORPTION	
	Measurement Range	0 – 99.00 M ⁻¹
	Accuracy & repeatability	Better than 0.10 M ⁻¹
	Resolution	+ 0.01 M ⁻¹
4.	© RPM Sensor	RPM sensor should be universal which can be work with any diesel engine (CRDI, Common Rail Engine etc)
	Measurement Range	400 – 6000 rpm
	Accuracy & repeatability	± 10%
	Resolution	± 1 rpm
5.	(D) OIL TEMPERATURE	
	Measurement Range	0 – 150 ^o C
	Accuracy & repeatability	+ 2 ^o C
	Resolution	± 1 ^o C
6.	Application	For free acceleration test only
	Calibration	Automatic (self-calibration immediately after switch – on or at the press of a key.
	Approval (India)	ARAI (Certificate should be submitted)
	Display	Digital
	Standard	LCD/LED or better
	Linearity Check	Built in Linearity check to confirm the overall calibration of smoke Meter at any given time.
	Probes	Set of probe of three different size (10,16 and 27 mm internal diameter) to cater all size of exhaust pipe.
	Trolley	Should be trolley mounted
	Computer interfacing	Data communication to a computer or terminal or other compatible devices is possible through built in Serial in /Out socket (RS – 232 Interface). Start of operation and its remote controlling is also should be via computer or Terminal or other Compatible devices.
	Automatic Calibration	Calibration should be automatic at the time of switch on along with physical calibration system with standards.
	Compliance Standard	MORTH/CMVR/TAP-115/116 issue No. 2, Part VIII or latest compliance standard.



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Item Sl. No. 23

SPECIATION SAMPLER

The Speciation Sampler required for collecting atmospheric species in gaseous and particulate form for analysis in a laboratory. PM_{2.5} and PM₁₀ impactors shall ensure sharp size cut point similar to FRM.

Sl. No.	Specifications	Requirement
1.	Analytes	Speciation Sampler should provide analysis of following analytes: PM _{2.5} -Mass and Trace Metal, Organic and elemental carbon, sulphate, Nitrate and other ions/elements
2.	System Configuration	Basic 4 channel configuration
3.	Sample Collection	The sampler should houses suitable peciation sampling cartridges for collecting gaseous and / or particulate matter-related species.
4.	Programmable Flow	Up to 18 Litre per minute
	Mass Flow Controller	Four individual mass flow controller shall be provided to operate and maintain flow rate up to 16.7 LPM
5.	Internal Data Storage	Internal Data , Input Data and filter data
6.	DataInput/Output	Suitable key pad/ display for data retrieval and user programming. Suitable interface shall be provided for data retrieval and remote operation. System shall support advance protocols and software.
7.	Meteorology	The sampler should store the following meteorological information: Average Ambient Temperature, Average Ambient pressure, Average Ambient RH. Optional arrangement shall be provided for wind wane/anemometer with records of average wind velocity, speed, direction per second.
8.	Operating Temperature	Ambient to 45 deg. C.
9.	Regulatory	Speciation Sampler should be designed to comply with USEPA
10.	Electrical	Instrument should be compatible with Indian Conditions.
11.	Accessories	Suitable Computer System/Laptop, Printer and any other accessories required for the operation of the instrument.



M. P. Pollution Control Board

E – 5, Paryavaran Parisar, Arera Colony, Bhopal

Phone: (0755) 2466191, Fax: (0755) 2463742, Email: pur_mppcb15@rediffmail.com Web: www.mppcb.nic.in

Item Sl. No. 24

TOTAL KJELDAHL NITROGEN ANALYSER (TKN Assembly)

The analyzer should be fully automatic / semiautomatic system consisting of a digestion unit, a scrubber unit, and a distillation unit.

1. Digestion unit: Automated with integrated programmable control, Should have electrically heated (230 ± 10 Volts, 50 Hz AC) metal blocks. It should be capable of providing a temperature range from 100°C – 440°C With $\pm 10^{\circ}\text{C}$ repeatability. Should have inbuilt temperature controller with digital display and LED display along-with manual temperature adjustment. Heating time setting with steps from 1- 150 minutes. Should have the capacity to accommodate at least eight numbers of digestion tubes each of at least 250ml capacity, should have leak proof integrated condensers (fumes carriers) made up of glass, fixed on a movable panel along-with adopter for outlet to the scrubber unit. Proper digestion exhausts system.

(d) **Scrubber unit :** Should be an oil free centrifugal suction type, with manual vacuum adjustment facility. Corrosion and impact resistant provided with condensate and acid fumes collection vessels. Should operate on 230 ± 10 Volts, 50 Hz, AC power supply.

3. Distillation unit : Fully programmable distillation unit including sample dilution, alkali and receiver addition, distillation and tube draining facility. Validated procedure/certification for TKN distillation like AOAC, EPA, DIN, ISO etc, Should be made-up of standard quality borosilicate glass. Should possess a steam generator made-up of borosilicate glass along with heater and have 3 step manual control facility i.e. standby, water inlet and distillation. Should have inbuilt bellows pump for accurate reagent (alkali / acid) dispensing. Should have ventilation valve. Should have timer for 5 – 15 minutes with audio signal. Steam inlet tube should be of PTFE. Unit should have quick clamping device for digestion tube with adaptor. Should operate on 230 ± 10 Volts, 50 Hz, AC power supply. Complete unit should provided with one set of digestion tubes along-with the servicing, operating and maintenance manuals. Can able to monitor and measurement of distillate temperature. Self adjusting cooling water control facility Safe feature for safe distillation. Can be upgradeable whenever required

Accessories: 2 set of digestion tubes, Digestion tube stand, Spillage tray for the condensers, Tube removing device.

Spares: Spares and accessories for its 2 years of continuous use. Digestion tablet.



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Item Sl. No. 25

TOC ANALYZER

S.No.	Specifications	Requirement
1.0	INSTRUMENT COMPOSITION	
	TOC Instrument	One Set
	Auto Sampler/Diluter	One Set
	Data Work Station	One Set
2.0	TECHNICAL SPECIFICATIONS	
2.1	Basic System	Computer Controlled integrated system with inbuilt diagnostics capable of analyzing Solid/Sludge samples as well as aqueous sample
		TOC Analyzer should be capable for oxidizing all kind of environmental samples and must be controlled through single point, using instrument software without any hardware changes/replacement during changeover from solid to liquid mode or vice-versa. All features of analyzer should be controlled from Computer Keyboard and software.
		TOC analyzer must work on high temperature combustion followed by multi-channel NDIR detection for measurement of the evolved CO ₂ and O ₂ as carrier as well as oxidant. Analyzer should be capable of inorganic carbon removal in solid samples.
		TOC analyzer with High-speed data acquisition system, quality control protocols, calibration, auto-optimization and auto tuning of system with status display.
		AOC analyzer should be with Auto sampler provision for range selection (auto and manual both features)
2.2	Measuring Range	For Solid Sample: 5µg to 30 mg or better Carbon absolute
		For Liquid Sample: 50 ppb to 20,000 ppm (with or without dilution)
2.3	Sample Volume	For Solid Sample: 1 Gram or more
		For Liquid Sample: 2 ml or more
2.4	Detector	Non-dispersive infrared (NDIR) with Mass Flow Controller to ensure constant flow
2.5	Furnace Temperature	Furnace temperature should be adjustable / user selectable through software in both liquid and solid mode.
		For Solid samples: at least 900°C or more
		For Liquid samples: (catalytic combustion) at least 680°C or more
3.0	Auto Sampler/Diluter	Auto sampler / Diluter should be compatible with TOC analyzer, with sipper tube, sample delivery system, providing automatic analysis including measurement and rinse time
	Carrousel	At least 50 or more positions carrousel with 25 ml capacity tubes.
	Automation	Automatic acidification for TIC removal, replicate injection, automatic draining of vials, individual Stirring in vials with adjustable stirring speed.
	Auto Diluter	Should be programmable complete with inert PTFE coated probe with PTFE inner tubing, spare extension tube complete with all accessories, racks, bottles etc.
	Sample line flushing	Should automatically flush the sample line and prepare sample for injection.
4.0	Data Work Station	Program facility with multitasking software displaying method sample and analysis status.
4.1	Application Software	Instrument control reintegration / report multi level calibration



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		Calculation of data and report formatting. External and dilution calibration, automatic correction for interferences and measurement with internal standards.
		Measurement of transient signals
		Comprehensive quality control protocols including preparation blanks, multiple quality control standards, calibration, check samples, spike recoveries, duplicates calibration failure and QC limits.
		Provision for statistical analysis. Should control whole TOC system, sample introduction, calibration, data retrieval, data acquisition and reporting. Auto optimization of NDIR, customizable instrument status display.
4.2	Computer System	
	Make	Reputed brands such as HP/Compaq/IBM/Dell
	Processor	Intel Intel Pentium – Core 2 Duo processor or latest version
	RAM	4 GB upgradable up to 8 GB or more
	HDD	500 GB or more
	Monitor	19.5" LCD/TFT color (Digital)
	CD ROM	52 x CD ROM
	Ports	Parallel and 2 USB front, 6 Rear USB PS/ 2 Port, 1 VGA integrated Port line in/out port
	Key Board	Cordless 104 key compatible
	Mouse	Cordless optical mouse with pad
	Ethernet	32 bit auto selectable 10/100 MBPS
	Graphics	Internet ready with integrated graphics
	Sound	<ul style="list-style-type: none"> • Integrated Sound card • Inbuilt stereo speakers with controllable sound and digital display
	Printer	Laser jet printer black
	UPS	Compatible required branded make like TATA Libert/API/Uniline/Emerson having power Back up system for 1 Hour. Battery Type: Sealed Maintenance Free Lead Acid long life Battery. Battery Expected Life 5 Years or more. Display: indicator display and alarm system.
	Software	Pre-loaded windows 7.0 Professional/ Windows latest version operating system with Licensed CD.
		MS Office 2000 Standard with media, manual and Licensed CD
		Preloaded Antivirus with latest version along with Licensed CD
5.0	Additional Items	Manufacturers standard Accessories
		Operating kit comprising all required items pump, tubing, transfer tubing bottles 500 ml and 250 ml. Sample degassing accessories etc. for start up/regular operation of instrument.
		Operation and maintenance manual for each unit along with CD
		Application Notes (CD-ROM) for TOC analysis in environmental, geological, metallurgical, biological and industrial samples.
		One set of multi and single Range calibration Standards for TOC analysis
		Service Manual along with CD of required tools for each system/unit.
		Spare Part catalogue
		Trouble Shooting charts
		Dust Cover for each unit
		O2 Gas Regulator (2 stage) with necessary tubing and connectors



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		Spares and consumables for two years operation of the system for main TOC unit and other peripheral system including Homogenizer, tubing, O-rings etc.
		Micropipettes <ul style="list-style-type: none">• 10/20 : 100/200 μl, 1μl increment : One set• 50/100 : 1μl increment : One set• 100/200: 1000 μl, 1μl increment : One set
5.1	Gas Cylinders	Zero Air with regulator
5.2	Gas Purification System	Suitable High Capacity Gas Purification system installed at Gas Panel (included)
6.0	Operation and Maintenance Training	The principal supplier has to impart on site operation training at the time of installation followed by Complementary (all expenditure inclusive) one week training to four scientists on operation and maintenance aspects of the application at the local application centre and one week training to two scientists at laboratory facility at manufacturer's site at abroad.
7.0	Warranty	Free maintenance services will be provided by the supplier during the period of warranty. After warranty period, Comprehensive Maintenance and Repairs of the equipment supplied including supply of spares etc. (excluding consumable items) for next 36 months will be
8.0	General Conditions of Supply	<ul style="list-style-type: none">• The instrument and all its sub units should operate on 230\pm10 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 Facility to provide after sales service.• The main unit and all its sub units should be serviced by the Indian representative of supplier.• In case of breakdown of the system, the servicing to be done immediately by the supplier during the warranty period. Maximum down time period 1 week (6 working days)



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Item Sl. No. 26

Water Analysis Kit

pH	Range	0 to 14.00pH
	Resolution	0.01pH
	Accuracy	± 0.01 pH ± 1 Digit
	Sensor	Combined Electrodes
	Temp. Compensation	Auto and manual
MV/ ORP	Range	± 1999mV
	Resolution	1 mV
	Accuracy	± 1.0 mV ± 1 digit
	Sensor	Combined Electrodes
Conductivity /TDS	Range	0 to 100 mS, (5 ranges) 0 ppm to 100 PPT (5 ranges at TDS factor)
	Accuracy	± 1% of F.S ± 1 digit
	Sensor	Conductivity cells (0.1 to 5.0 CC)
	Temp Compensation	Auto / Manual
Salinity:	Range	0 to 40 PPT
	Resolution	0.1 PPT
	Accuracy	± 2% of F.S ± 1 digit
	Sensor	Conductivity cells (0.1 to 5.0 CC)
	Temp Compensation	Auto / Manual
Dissolve Oxygen	Range	0 to 20 ppm
	Resolution	0.1 ppm
	Accuracy	± 1% of F.S ± 1 digit
	Sensor	Au/Ag Probe
	Temp Compensation	Auto / Manual
Temperature	Range	0 to 100 degree Celsius
	Resolution	0.1 degree Celsius
	Accuracy	± 0.5 degree Celsius ± 1 Digit
	Sensor	PT-100
Colorimeter	Range	0 to 2.0 Abs,0 to 100%T&Conc.0-1999
	Resolution	0.01 Abs, 0.1 %T
	Accuracy	± 0.5 Abs
	Sensor	Photo Diode
	Source	Tungsten lamp
	Filters	Blue-440nm,Green-540nm,Red660nm
Turbidity	Range	0 to 1 NTU, 0 to 10 NTU, 0 to 100 NTU
	Accuracy	± 2% of F.S
	Sensor	Photo Diode
	Source	Tungsten lamp



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General	Display	LCD 2 line, 20 Character, Alphanumeric
	Power	230V,50Hz +/-% or Internal Battery with charger
	Accessories	Combined Electrode, Conductivity Cell, D.O. Probe, Temp. Probe, 4 No's Test tube for Colorimeter & Turbidity meter 3 No's filter



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Item Sl. No. 27

WEATHER MONITORING STATION

WIND DIRECTION	The sensor to provide low starting threshold, fast response and accuracy over a wide operating range in adverse environmental conditions. Specifications are as follows:	
	Accuracy	± 4%
	Wind Direction Operating Range	0 – 360
	Starting Threshold	0.5 m/s
	Distance Constant	1.1 m or air maximum
	Damping Ratio	0.4 at 10 initial angle of attack
	Temperature operating range	- 10°C to 60°C
WIND SPEED	The anemometer to provide a low starting, wide dynamic response and high accuracy over a wide range of wind speeds and a variety of environmental conditions. Specifications are as follows:	
	Maximum Operating range	0 – 50 m/s
	Distance constant (Vinyl)	1.5 m of air maximum
	(Stainless Steel)	2.4 m of air maximum
	Heavy duty	3.0 m of air maximum
	Temperature Range	- 10°C to 60°C
	Accuracy	(e) m/s or 1%, whichever is Greater.
	Impedance	4.7 k ohm
Power Requirement	12VDC, 4.5 mA or 6VCD at less than 1 mA	
AMBIENT TEMPERATURE	Temperature measurement system specifications are as follows:	
	Calibrated temperature range	- 10°C to 60°C
	Response	10 seconds in still air
	Linearity	± 0.1°C
	Accuracy	0.15°C
RELATIVE HUMIDITY	Specifications are as follows:	
	Measuring range	0 to 100% RH
	Accuracy	± 1.0 % [5 – 95% RH]
	Response Time	:< 2 minutes for RH 10% to 90% < 5 minutes for RH 40 To 90% Typically 10 seconds
	Linearity	Better than ± 2%
	Reproducibility	0.5%
	Temperature Range	- 10°C to 60°C
SOLAR RADIATION	The detector should be able to measure short – wave radiation which comprises the direct component of sunlight and the diffuse component of skylight. Specifications are as follows:	
	Sensitivity	80 micro amps per 1000 W m ²
	Temperature dependence	0.15 % per °C Max.
	Response Time	10 microseconds
	Linearity	1% from 0 to 3000 watts m ²



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	Cosine Response	Corrected up to 80 angle of incidence
	Orientation	No effect on instrument Performance
	Calibration	Calibrated against an Eppley Precision, Spectral Pyranometer [PSP] under natural day light conditions. Absolute error under these conditions is 5% maximum, typically – 3%
RAIN FALL	Specifications are as follows:	
	Measuring Range	0.2 mm to 100 mm/hr
	Accuracy	≤ 0.2mm or 1% for ≤ 50 mm /hr, 2% for > 17.50
	Temperature Operating Range	-10°C to 60°C

SPECIFICATION OF DATA LOGGER: Data Logger with 8 analog and 24 digital inputs. Ability to log channels at different intervals and should have capability of averaging and displaying real time data and averaged data over a period of 1 min., 10 min., ½ hr, 1 hr, 4hrs, 8 hrs, 24 hrs, 1 month and year. Communication between data logger and computer using standard multi drop RS 232 Connector. The data logger should have internal battery with charger. The data logger should support PSTN line or GSM modem for data transfer.

SOFTWARE FOR DATA ANALYSIS: Software should be compatible to Window XP. For analysis like averaging for different timings including daily and monthly averages, plotting diurnal variation and daily variation, making wind rose.



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Item No. 28

WATER PURIFICATION SYSTEM

S.N.	Specifications	Requirements
1.0	Water Purification System	
	Ultrapure water and Pure Water with separate dispense provision	Compact, wall mountable with storage tank of 50 Litres or more, capable dispensing separately both Ultrapure water, i.e. Type-I (18.2 MΩ resistivity) for providing reagent water to various advance instruments like ICP-MS and Pure Water i.e. Type-II (15.0 MΩ resistivity) for rinsing and washing purpose.
2.0	OUTPUT QUALITY OF WATER	Ultra-pure (Type I) water
		Flow Rate (L/Min) 0.05 to 2 (Programmable flow rate is preferable)
		Ultra-pure water resistivity (MΩ.cm at 25°C) 18.2
		Conductivity (μS/cm) < 0.055
		Microorganism (cfu/ml) < 0.01
		Particulates >0.20 μm ³ (Particulates/ml) < 1
		Pyrogen Levels (EU/ml) < 0.001
		Rnase Level (pg/ml) < 1
		Dnase Level (pg/ml) < 5
		TOC (μg/L) < 5
		SiO ₂ (mg/L) < 0.01
		Pure (Type-II) Water
		Production Flow Rate (L/hr) 3
		Ultrapure water Resistivity ((MΩ.cm at 25°C) 10-15
		Microorganism (cfu/ml) < 1
		Particulates >0.20 μm ³ (Particulates/ml) < 1
		Pyrogen Levels (EU/ml) < 0.001
		TOC (μg/L) < 30
3.0	Feed Water Requirements	
	Quality	Potable (Tap) Water
	Conductivity	< 2000 μS/cm @ 25°C
	pH	4 – 10
	Maximum LSI	< 0.3
	Calcium (as CaCO ₃)	< 300 ppm (when system water recovery more than 50%)
	Total Chlorine level	Should work favourably for Total Chlorine greater than 2 ppm.
	Fouling index	Should work favourably for fouling index greater than 12.
	Feed Water Pressure	2 bar minimum, 6 bar maximum (29 psi min, 86 psi max)
	Flow Rate Temperature	Within the 15°C to 35°C
	Booster Pump (Portable)	To maintain the required flow rate of the feed water.
4.0	Pre-treatment unit	A. Inbuilt pre-treatment unit should contain anti-scaling compound, activated carbon and 0.5 μ filters. High flux thin film composite polyimide RO membrane with 94-99% ionic rejection with conductivity measurements before and after the membrane to ensure the performance of RO.



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		<p>B. Recirculation loop with capillary tube and diaphragm valve.</p> <p>C. Automated RO recovery loop to reduce feed water consumption. Mixed bed ion exchange resin filled electro deionization module with auto regeneration by a weak electric current, eliminating the need for chemical regeneration or replacement of DI resin cartridges.</p>
5.0	Delivery Unit	System should have remote dispenser with rocker arm for dispensing pure & ultra pure water. The dispenser should have flexibility of dispensing water 2 -3 m away from machine. Flow rate of pure and ultra pure water through dispenser should be 2 L/min. Locked dispense for glassware filling. Auto volume dispense from 50 ml to 60 Litres.
6.0	Online TOC monitor with display	System should have online TOC monitor with measurement range of 1 – 999 ppb. Digital displaying monitor (should provide Resistivity, Temperature, TOC, level of water in reservoir, volume dispense and alarm etc.)
7.0	Consumables	Must Quote separately for consumables (cartridges, filters etc.) for Three Years for trouble free working.
8.0	Quality Control Support	Supplier should provide Certificate on Installation Qualification (IQ) & Operational Qualification (OQ) during the installation of the instrument.
9.0	Installation in India	The company must have five or more successful installation in India.
10.0	Warranty	Comprehensive 5 years warranty with spares from the date of installation of the instrument should be covered. Warranty will start from the date of complete installation.
11.0	Additional Requirement	
	Power Supply	230 ± 10V 50 Hz AC, Single Phase
	Operation Kit	Manufacturers Standard Operation Kit including all required items, tubing, fittings for start-up/regular operation of instrument.
	Operation /maintenance manual	Operation and Maintenance manual for each unit
	Service Manual	Service Manual with one set required tools for each system / unit
	Trouble shooting charts	Trouble shooting charts
	Tool Kit	Tool Box should hold all the required tools for change over the spare parts etc.
	Spare part catalogue	Spare part catalogue
	Dust Cover	One for each unit
12.0	Operation and Maintenance Training	Four days training to be provided on software training, operation, maintenance and troubleshooting aspects of instrument at installation site.



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Annexure – 2

(Tender No. MPPCB/Pur./01/2019-20)

(Laboratory Equipments)

TENDER SPECIFICATIONS VS OFFERED SPECIFICATIONS

Sl. No.	Tender Specifications	Offered Specifications	Documentary evidence/ leaflet enclosed

Signature of Bidder
Name
Business Address

Place: -----

Date : -----



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Annexure – 3

(Tender No. MPPCB/Pur./01/2019-20)
Part-A
(Laboratory Equipments)

**PRICE SCHEDULE FOR ANNUAL MAINTENANCE AND REPAIR
CHARGES AFTER WARRANTY PERIOD**

Sl. No.	Item Description	Qty.	Annual Maintenance & Repair charges for each unit including supply of spares [Price to be quoted either in Indian Rupees or in Foreign currency] Excluding guarantee period	Maintenance and Repair charges for 3 years, including supply of spares.

Note: In case of any discrepancy between unit price and total price, the unit price shall prevail.

Signature of the Bidder -----
Name -----
Business Address -----

Place -----
Date -----



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Annexure – 4

(Tender No. MPPCB/Pur./01/2019-20)

Part-A

(Laboratory Equipments)

PRICE SCHEDULE FOR GOODS IMPORTED

1	2	3	4	5	6	7
Sl. No.	Description	Country of origin	Quantity	Unit Price CIF New Delhi	Total CIF price per item	Unit price pf Inland delivery to final destination and unit price of other incidental services.

Note: In case of discrepancy between unit and total price, the unit price shall prevail.

Signature of the Bidder.....

Name

Business Address

.....

Place:

Date:



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Annexure – 5

(Tender No. MPPCB/Pur./01/2019-20)

Part-A

(Laboratory Equipments)

PRICE SCHEDULE FOR GOODS INDIGENOUS

Sl. No.	Name of equipment with make & model	Unit Price in Rupees	GST or any other Tax/duty	Unit price including all taxes up to final destination

Note: In case of discrepancy between unit and total price, the unit price shall prevail.

Signature of the Bidder

Name

Business Address

.....

Place:

Date:



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Annexure – 6

TENDER ACCEPTANCE FORM (To be submitted on Letter Head) (E-Tender Notice No. MPPCB/Pur./9/2019-2020)

Having carefully gone through the whole Tender Document, we, M/s.-----, the Bidder, agree to all terms and conditions mentioned in them and hereby, make the following offer to supply the Instruments/Equipments as per the Schedule requirements, delivery schedule and in conformity with all other conditions in the Tender Documents and amendments. We will arrange for demonstration of models of the Equipment/Instrument being offered, within India as per the convenience of the Purchaser.

Bidder

1. Name of the Bidder-----
2. Address-----
3. Email-----
4. Phone-----
5. Income Tax Permanent Account Number (PAN)-----
6. Name and Complete Address of the Bidder's Bankers-----
(a)-----
(b)-----
7. Name and Designation of the Person Digitally signing and submitting the tender-----

8. Is the person digitally signing and submitting the tender authorized by the Bidder? (Yes/No)
(Please enclose scanned copy of the Board's resolution authorizing the person to submit the bids without which the tender will be rejected)
9. Whether business dealings with the Bidder currently stand suspended/banned by any Ministry/Department of Government of India or any State Govt. (Yes/No)

Qualification

10. Is the Bidder an OEM of the goods being offered? Yes/No
11. Is the Bidder an authorized agency/representative duly nominated by the OEM? Yes/No
(If yes, please enclose required documents as mentioned in qualification criteria)
12. Turnover of the Bidder during the past three years (Rs. In Crores)

2016-2017-----
 2017-2018-----
 2018-2019-----
 Average-----

(Please enclose certified published annual reports. If the accounts are mentioned in some other currency; please give the figures in that currency as well as conversion at the exchange rate on the date of filling up this form. If the accounts are managed calendar year wise, please provide figures for 2015, 2016 and 2017.)

13. How many Equipment/Instrument, being offered, has the Bidder supplied during the past three years in India or abroad? ----- *(Please enclose documentary proof-Purchase orders and minimum three performance reports)*

Offer

14. Make & Model Number of the Equipment/Instrument offered-----

Technical documents to be enclosed



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15. Technical Literature/Brochure of the Item quoted and Clause-wise response/compliance to requirement specified in Annexure-2 of the Tender Document. You may furnish additional information/clarification, documents, etc. in support of your offer.
16. Do you have your own set up in India to provide the maintenance during and after warranty period?
17. If yes, please provide details (in 100 words) including experienced manpower & resources details and enclose relevant documents

18. If answer to question at 16 is No, do you have any agreement with any other manufacturer or reputed agency to act as Manitenance contractor to provide maintenance during warranty and post warranty period? (Yes/No)
19. If answer to question No. 18 is yes, please provide details (in 100 words) and enclose a copy of the agreement, including previous experience and manpower details of the proposed agency in maintance of similar type of equipment/Instruments.
20. Does the OEM/Its Authorized representative agree to provide Spares and Consumables for 10 years of trouble free operation and maintenance? (Yes/No)
21. Does the OEM/Its Authorized representative agree to provide After Sales Service /Post Contractual support i.e. repair, maintenance, supply of spares parts etc and will take up the post warranty AMC when asked to do so? (Yes/No)
22. Have you submitted the EMD as prescribed in Tender Document ? (Yes/No)
23. Have you enclosed the following documents? (Yes/No)
 - (a) Scanned copy of the proof for submitting EMD online on the Portal? (Yes/NO)
 - (b) Tender Acepance Form as specified in the Tender? (Yes/No)
 - (c) Documents and relevant details to establish that the goods offered conform to the requirement of the tender documents and Technical Literature/Brochure etc. (Yes/No)
 - (d) Power of Attorney of Firm/resolution of Board of Directors of company for person or persons authorized to sign the Tender; (Yes/No)
 - (e) Authorization letter by the OEM (Manufacturer) or self declaration letter by OEM (if OEM is bidding); (yes/No)
 - (f) GST Registration Certificate and latest GST deposit receipt (in case of Indian Bidder) (Yes/No)
 - (g) An Undertaking to the effect that the Price Bid does not contain any condition/options whatsoever of the price demanded for sale. (Yes/No)
 - (h) Certificate for Non-blacklisting of firm and non-registration of criminal case? (Yes/No)
 - (i) Certified published annual reports showing the turnover and financial results. (Yes/No)
 - (j) Purchase orders and Performance Reports for the offered equipment/Instruments from Government Ministries/Departments/PSUs/Scientific Institutes of National Repute. (Yes/No)
 - (k) Warranty Certificate for three years of Comprehensive Warranty. (Yes/No)
 - (l) List of spares and Consumables required for 10 years trouble free operation and maintenance along with a certificate that Spares & Consumables will be provided for at least 10 years. (Yes/No)
 - (m) Duly signed and stamped Integrity pact (Yes/No)
 - (n) Any other documents that you consider necessary to strengthen your bid. (Yes/No/None required)

Signature of the Bidder.....
Name
Business Address

Place:
Date:



M. P. Pollution Control Board

E – 5, Paryawaran Parisar, Arera Colony, Bhopal

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Annexure-7

BANK GURANTEE FORM FOR PERFORMANCE SECURITY

The Member Secretary,
M. P. Pollution Control Board,
E-5, Sector, Paryawaran Parisar, Arera Colony,
Bhopal – 462016 (M.P.)

WHEREAS (Name and Address of the Supplier) (herein called “the Supplier”) has undertaken, in pursuance of contract no. dated..... To supply (Description of Goods and services) (herein called “ the contract”).

AND WHEREAS it has been stipulated by you in the said contract that the Supplier shall furnish you with a bank gurantee by a scheduled commercial bank recognized by you for the sum specified therein as security for compliance with its obligations in accordance with and due performance of the contract.

AND WHEREAS we have agreed to give the Supplier such a bank gurantee;

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the Supplier, up to a total of..... (amount of the gurantee in words and figures), and we hereby irrevocably and absolutely undertake to pay you immediately, upon your first written demand declaring the Supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of gurantee) as aforesaid, without your needing to prove or to show grounds or reasons or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Supplier before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed thereunder or of any of the contract documents which may be made between you and the Supplier shall in any way release us from any liability under this gurantee and we hereby waive notice of any such change, addition or modification.

The Bank Gurantee shall be interpreted in accordance with the laws of India.

The Guarantor Bank represents that this Bank Gurantee in any manner by reason of merger, amalgamation, restructuring or any other change in the constitution of the Guarantor Bank or the Supplier.

The Bank further undertakes not to revoke this Gurantee during its currency except with the previous express consent of the Purchaser in writing.

The Bank declares that it has power to issue this Gurantee and discharge the obligations contemplated herein, the undersigned is duly authorized and has full power to execute this Gurantee for an on behalf of the Bank.

This gurantee shall be valid up to and including theday of 20.....

.....

(Signature with date of the authorized officer of the Bank)

Name and Designation of the Officer

Seal, Name & Address of the Bank and Address of the Branch



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Annexure-8

Tender no. MPPCB/Pur./09/2019-20 (LABORATORY EQUIPMENT/INSTRUMENTS)

INTEGRITY PACT

General:

This Pre-Bid Pre Contract Agreement (hereinafter called the Integrity Pact) is made on day of the month of.....2020, between, MPPCB, An autonomous body acting through Shri R. S. Kori (Member Secretary, MPPCB, Bhopal) 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 Goods/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 MPPCB work under the aegis of Ministry of Environment, Government of Madhya Pradesh, performing its functions as per 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 flowing transparent procedures:

Commitments of the BUYER

1.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the correct, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favor 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 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.



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- 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 of such a breach.
- 1.4 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 an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

Commitments of BIDDERS

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:

- 1.1 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.
- 1.2 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 disfavor to any person in relation to the contract with the Government.
- 1.3 BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
- 1.4 BIDDERS shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
- 1.5 The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacturer/integrator/authorized government sponsored export entity of the defense stores and has not engaged any individual or firm or company whether Indian 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 to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.
- 1.6 The BIDDER, either while presenting the bid or during pre-contract negotiation 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



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intermediaries in connection with the contract and the details of services agreed for such payments.

- 1.7 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.
- 1.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 1.9 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 data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 1.10 The BIDDER commits to refrain from giving any compliant directly or through any other manner without supporting it with full and verifiable facts.
- 1.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 1.12 If the BIDDER or any employee of the BIDDER or any person action on behalf of the BIDDER, either directly or indirectly, as 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.
- 1.13 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.

2. **Previous Transgression**

2.1 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 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.

2.2 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.

3. **Sanctions for Violations**

3.1 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 of pre-contract negotiation 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



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- either fully or partially, as decided by the BUYER and the BUYER shall not be required to assign any reason therefore.
- (iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
 - (iv) To recover all sums already paid by the BUYER, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.
 - (v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the BUYER, along with interest.
 - (vi) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money (s) due to the BIDDER.
 - (vii) To debar the BIDDER from participating in future bidding processes of the Government of India for a minimum period of five years, which may be further extended at the discretion of the BUYER.
 - (viii) To recover all sums paid in violation of this Pact by BIDDER (s) to any middleman or agent or broker with a view to securing the contract.
 - (ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.
 - (x) Forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

3.2 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.

3.3 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.

4. Fall Clause

4.1 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



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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.

5. **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.
6. **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.
7. **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.
8. **Validity:** 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. 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.
9. The parties hereby sign the Integrity Pact aton.....

BUYER

Name of the Officer.
Designation
MPPCB, Bhopal

BIDDER

CHIEF EXECUTIVE OFFICER
Name of Firm/Agency

Witness

1.....
2.....

Witness

1.....
2.....



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Annexure-9

**Tender no. MPPCB/Pur./09/2019-20
(LABORATORY EQUIPMENT/INSTRUMENTS)**

MANUFACTURER’S AUTHORIZATION FORM

To,

**The Member Secretary,
M. P. Pollution Control Board,
E-5, Paryawaran Parisar, Arera Colony,
Bhopal – 462 016 (Madhya Pradesh)**

Dear Sir,

Ref.: Your Tender Document No. MPPCB/ Pur./09/2019-2020.

We....., who are proven and reputable manufacturers of (Name and description of the goods offered in the tender) having factories at hereby authorize M/s..... (Name and Address of the agent) to submit a tender, process the same further and enter into a contract with you against your requirement as contained in the above referred tender documents for the above goods manufactured by us. M/s (Name and Address of the agent) is having Years agreement/ association with us since.....

We further confirm that no Supplier or firm or individual other than M/s (Name and Address of the agent) is authorized to submit a tender, process the same further and enter into a contract with you against your requirement as contained in the above referred Tender Documents for the above goods manufactured by us.

We also hereby extent our full comprehensive warranty, as applicable as per the conditions, for the Scientific Instruments/Equipments offered for supply by the above firm against this Tender Document.

Yours Faithfully,

.....
(Signature with dtae, name and designation)
For and on behalf of M/s.....

(Name & address of the Manufacturer)

Note: This letter of authorization should be on the letter head of the manufacturing firm and should be signed by a person competent and having power of attorney to legally bind the manufacturer.



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Annexure-10

**Tender no. MPPCB/Pur./09/2019-20
(LABORATORY EQUIPMENT/INSTRUMENTS)**

CERTIFICATE OF SUPPLY, INSTALLATION & COMMISSIONING

F. No.-----

Dated-----

1. Reference of Purchase Order-----
2. Is is certified that
 - (a) M/s Have completed the supply, installation and Commissioning of the Equipment/Instrument, Model....., Serial No..... on dated..... at designated site.....(Name of the site)
 - (b) The process of handling/taking over of the aforesaid system, accessories and services specified in the Contract to the satisfaction of the Purchaser, has been completed on dated
 - © The aforementioned Equipment/Instruments worked satisfactorily during the trial period of 15 days starting w.e.f(date) to (date)

For Contractor

Witness:
Signature
Name
Designation
Address
Date

For Purchaser

Witness:
Signature
Name
Designation
Address
Date



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