

**Tender No.
MPPCB/Pur./05/2017-18**

TENDER DOCUMENT

**FOR SUPPLY OF
LABORATORY INSTRUMENTS
& FILTER PAPERS**



Year: 2017 - 18

**M. P. Pollution Control Board
E-5 Sector, Paryawaran Parisar,
Arera Colony, Bhopal – 462016**

**PBX : +91(0755) 2464428 / 2466191
FAX : +91(0755) 2463742
Web : www.mppcb.nic.in
E. mail : it_mppcb@rediffmail.com
: pur_mppcb15@rediffmail.com**



M. P. POLLUTION CONTROL BOARD

PARYAWARAN PARISAR, E-5, ARERA COLONY, BHOPAL – 16

Phone: [0755] 2466191/2464428 Fax: [0755] 2463742 E-mail: it_mppcb@rediffmail.com

TENDER NOTICE

Sealed tenders are invited from the reputed manufacturers [approved by BIS/ISO for quality & precision] and / or their authorized dealer / agent /representatives, specially authorized for this tender, for the supply of laboratory instruments and Filter Papers for water and air analysis as per following details:

Sl. No.	Description of Items	Qty	Earnest Money (EMD) (Rs.)
1.	Atomic Absorption Spectrophotometer	01	80000.00
2.	B.O.D. Incubator	02	4000.00
3.	C.O.D. Digestion Assembly	02	10000.00
4.	Electronic Balance	01	2000.00
5.	Fume Hood	03	9000.00
6.	Filter Papers for Air & Water Analysis	As req.	60000.00
7.	Ion Analyzer	01	5000.00
8.	Noise Level Meter with Data Logger	02	10000.00
9.	Water Analysis Kit	01	2000.00

The tender document including technical specifications of equipments shall be downloaded from the website on or before up to 1.00 PM on dated 08.01.2018 on payment of Rs. 1500.00 [Rupees One Thousand Five Hundred only] by demand draft in favor of Member Secretary, M. P. Pollution Control Board, Bhopal towards downloading the tender document from Website. 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. The earnest money of requisite amount shall be submitted in a separate sealed envelope mentioning the details thereof. No tender shall be considered without requisite tender fee and earnest money. The bidder shall submit sealed tenders on or before at 1.00 p.m on dated 08.01.2018 and shall be opened on the same date at 2.30 p.m. in the presence of bidders, who wish to participate. 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.nic.in and www.govtenders.nic.in.

[Dr. Reeta Kori]
Chief Scientific Officer



M. P. POLLUTION CONTROL BOARD

PARYAWARAN PARISAR, E-5, ARERA COLONY, BHOPAL – 16

Phone: [0755] 2466191 Fax: [0755] 2463742 E-mail: it_mppcb@rediffmail.com,
pur_mppcb15@rediffmail.com

To,

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Sub.: Sealed tenders for purchase of Laboratory Equipments & Filter Papers.

Dear Sir,

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

[A] SPECIAL CONDITIONS:

1. 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.
2. Prices should be quoted for complete set of equipment including the cost of installation, minor civil works, electrical fittings and cabling etc.
3. Accessories required [if any] for maintenance for a period of three years should be given separately.
4. Annual Maintenance charges for three years should be quoted separately in Annexure – 3.
5. The technical specifications of the offered equipment should be furnished in annexure –2. Schedule of requirement is annexed as annexure- 7(i) & 7(ii). The check list is shown as annexure 6.

6. The equipment offered should necessarily contain a guarantee for its trouble free performance for a period of three year from the date of installation.
7. 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.
8. The tenderer should furnish details of supplies made by him to important institutions, along with performance certificate, during last one 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 Laboratory.
9. 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.
10. Earnest money be furnished by a demand draft in favor of Member Secretary, M. P. Pollution Control Board, Bhopal in envelop "A". Offers without earnest money shall not be considered and the relevant envelops [B & C] will not be opened and their offer shall be treated as rejected.
11. Bidders using downloaded tender forms must submit tender fee by demand draft along with Earnest Money in Envelop "A" drawn of Member Secretary, M. P. Pollution Control Board, Bhopal. The tender will not be accepted from the firm to whom the document is not issued by the Board and the bid downloaded from net without tender fee will not be accepted.
12. The bidder shall have to submit the copy of GST registration number and Income Tax registration [PAN] along with envelop "B" otherwise the offer shall be liable for rejection.
13. An undertaking shall be submitted by the tenderer that they are not black listed in any Govt. organization / institutions along with envelop "B".
14. 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.

15. 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.

16. **PROCEDURE FOR SUBMISSION OF TENDERS :**

Each bidders shall submit his offer in three sealed envelopes A, B and C. Envelop "A" shall contain earnest money and tender cost, if the tender document is downloaded from the web site. The Envelop "B" should contain 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. In case the manufacturer of any equipment authorizes more than one firm for submitting offer, then such offers shall be treated as rejected. Envelop "C" shall contain financial offer.

[a] Envelop – "A" : Envelop "A" should contain demand draft for the requisite amount of earnest money in favor of Member Secretary, M. P. Pollution Control Board, Bhopal. If the tender document is downloaded from web site, then separate demand draft for tender cost shall be submitted with envelop "A". The name of instrument and the amount of the demand draft should be inscribed on the top of envelop. Envelop "A" shall be opened on 08.01.2018 at 2.30 pm in the presence of the bidders or their authorized representatives. Insufficient amount furnished as earnest money and tender cost shall make the offer liable for rejection.

[b] Envelop – "B": Bidders, who have furnished the desired amount of earnest money and tender cost shall be liable for opening of the Envelop "B" of their offer and shall be opened on 08.01.2018 at 2.30 pm. The Envelop "B" should contain detailed compliance of technical specifications in annexure -2, make & model of the equipment, functioning procedure of the equipment and other literature relevant to the equipment and company profile. If the offer is submitted by authorized representative, he should submit authorization letter in envelop "B" from the manufacturer for submitting offer for this tender, otherwise tender offer of the firm shall not be considered and liable for rejection. The tenderer should furnish users' list and details of supplies made by him to important institutions along with performance certificate. The bidder shall have to submit the copy of GST registration number and income tax no. [PAN] along with the envelop "B", otherwise the offer shall be liable for rejection. An undertaking shall be submitted by the tenderer, regarding whether they are not black listed in any Govt. organization / institutions, along with envelop "B". The

details of service station in Madhya Pradesh and India should be furnished with other details.

1. **[c] Envelop – "C"** : The envelop "C" shall contain financial offer in annexure 4 or 5 [whichever is applicable] of the tender document. 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 suitability of equipment with respect to application, performance, after sale service and service centers in Madhya Pradesh or in India etc., the financial offer shall be opened. The date of opening of financial bids (Env."C") will be informed later. Notwithstanding anything stated above the competent authority of the Board 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 Board.

[B] OTHER CONDITIONS:

1. The Board reserves its rights to reject any or all the tenders without assigning any reason there for.
2. Tender found incomplete shall be rejected forthwith.
3. 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.
4. 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.
5. 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.
6. 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.
7. The tenders shall be valid for a period of 360 days from the date of opening of envelop "A".
8. The prices should include all taxes like GS tax, excise duty or any other tax.

9. The approved firm / manufacturer shall have to submit 5% security deposit of the ordered value in the form of Bank Guarantee for a period of 12 months, other wise 5% amount shall be deducted from the bill.
10. 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.
11. 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.
12. 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.
13. All the clearance including the obtaining NMI [Not manufactured in India] certificate, custom clearance and custom duty will be the responsibility of the tenderer. This office will open the letter of credit [L/C] as may be required and will only sign the documents wherever required.
14. 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.
15. 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 irresponsive to the bid document in every respect will be at the bidder's risk and may result in the rejection of it's bid.
16. The terms of payment shall be as under:
 - [A] **Indigenous Items:** 75% of the cost of material would be paid after receipt of the material by consignee and balance 25% payment shall be released only after 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 75% of the cost will be released on shipment of the material and balance 25% payment shall be released only after satisfactory installation & demonstration of the equipments / receipt of material at site.
17. Conditional offers will not be accepted and liable for rejection.

18. In case of human error regarding labeling of envelop, the committee constituted for the opening of envelop shall take appropriate decision.
19. In case of any dispute the decision of Chairman, M. P. Pollution Control Board shall be final & binding.
20. 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.

**[Dr. Reeta Kori]
Chief Scientific Officer**



M. P. POLLUTION CONTROL BOARD

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.

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 data of which the order to commence supply of materials shall throughout the stipulated period of the contract be proceeded with allude 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 one percent 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 one 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.
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 from Board on any account.
9. The supplier shall supply at it 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.

[Dr. Reeta Kori]
Chief Scientific Officer

TECHNICAL SPECIFICATIONS

Atomic Absorption Spectrophotometer [GTA /FLAME / VGA]

S. No.	Specification	Requirement
1.0	INSTRUMENT COMPOSITION	Atomic Absorption Spectrophotometer with Graphite Tube Automizer(GTA), Flame Automizer (FA) and Vapour Generation Assembly(VGA), Unit for Flame (Air Acetylene and nitrous oxide- acetylene), Chiller / Water circulating unit, Auto samplers for GTA and flame.
2.0	TECHNICAL SPECIFICATION	
	Atomic Absorption Spectrophotometer	Computer Controlled with built-in flame emission mode
	Wave length range	190 – 800 nm wave length
	Sensitivity	Sensitivity at least 0.35 abs for 5µg/ml aqueous copper standard solution with air – acetylene flame.
2.1	Optics	Double Beam dual blazed / holographic Mono chromator
	Focal length	At least 250 mm focal length
	Resolution	1800 lines / mm
	Width	Automatic bandwidth of 0.2 to 2.0 nm
2.2	Flame Atomizer	All titanium or equivalent burner with impact bead / Flow spoiler, premix Design
	Movement	Automatic movement into the sample compartment
	Affect from Acids /Organic solvent	Unaffected from attacks by acid solution or organic solvents (e.g. Methyl isobutyl Ketone i.e. MIBK
	Flame Alignment in liquid beam	Fully automatic, optimized with motorized burner mount for vertical and horizontal burner adjustment
	Nebulizer	High precision able to provide manually adjustable uptake rates material of the nebulizer and related Venturi should be inert to acid solutions and organic solvents such as MIBK
2.3	Flame Control	Computer controlled ignition
2.4	Gas Control	Computer controlled with oxidant and fuel gases monitoring to monitor constant fuel / oxidant ration ignition.
2.5	Safety Function	Interlocking system to prevent ignition
2.6	Essential Interlock Monitor	Burner type as well as its presence in position, air selector, flame sensor, liquid trap level, gas supply pressure and air supply anywhere in the network of gas tubings in the system
2.7	Automatic Lamp Selection Function	Computer controlled Hollow Cathode Lamp selection and alignment
	Lamp Holder	At least 8 lamp holder with built in power supplies for hollow cathode lamps and electrode – less discharge

		lamps or equivalent
	Operating Parameter setting	Automatic Setting
2.8	Read Out /Display	Display facility for absorbance as well as concentration, Display of errors or error codes, absorbance range at least up to 2.0 Abs.
	Scale Expansion	Scale expansion at least up to 100x
	Integration time	Integration time should cover at least 0.2 to 50 seconds range
	Measurement	Measurements of mean, RSD and CV, Background only mode, Integration of peak height and peak areas.
2.9	Accessories / Spares with Flame AA System	
2.9.1	Vapor Generation Assembly	Should be continuous flow based hydride / mercury vapor generator with option of using with or without a programmable auto sampler
	Precision	Precision of better than or at least 1% at ppb levels of mercury, arsenic etc.
	Absorption Cell	The absorption cell's material should have no effect of the high heat of the flame and the cell for the analysis of mercury should be of a closed absorption design
	Flame Arrester	Flame arrester should be provided in the tube which connects the assembly to the absorption cell
	Cell Design holder	The design of the cell holder should give a firm and easily adjustable (for alignment) mounting on the burner head.
	System accessories	Complete with necessary reagent bottles, connectors etc.
2.9.2	Hollow Cathode lamps	16 hollow cathode lamps. One lamp each for the elements: Arsenic, Antimony, Boron, Calcium, Chromium, Cobalt, Copper, Iron, Nickel, Lead, Manganese, Mercury, Selenium, Tin, Vanadium and Zinc. Equivalent coded lamps will also be acceptable.
2.9.3	Air Compressor with Air Filter or equivalent Air Service Unit	Complete with pressure regulator quite in operation, necessary tubing and connectors and should meet the air supply requirements of AAS operation.
	Oil Free Pump	Oil- free pump and moisture trap
	Corrosion Resistant	Resistant to acidic vapour and the drain valve (if any) should be made of stainless steel of equivalent corrosion resistant material
2.9.4	Gas Regulators	
	Nitrous – oxide gas regulator	Nitrous Oxide Gas regulator (two stage) with heater, with necessary tubings and connectors. Necessary transformer should be provided to transform this supply to the requirements of the heater. The heater should work on 230±10volts 50 Hz AC power supply.
	Acetylene Gas regulator	Acetylene gas regulator (two stage) with necessary tubing and connectors.

	Nitrogen Gas regulator	Nitrogen regulator (two stage) with necessary tunings and connectors.
2.9.5	Gas Cylinders	High pressure Stainless Steel cylinder fitted with high purity 99.99% analytical gases (as mentioned ahead) having gas capacity 7 m3 (water capacity 47 ltrs). Cylinder should be ISI marked confirming to IS 7285 flat bottom fitted with valve as per IS: 3224 complete with neck ring and cap painted as specified under Gas Cylinder Rules 1981. Gas Cylinder should be supplied with hydraulic test certificate and explosive certificate from Chief Controller of Explosives, Nagpur.
2.10	Graphite Furnace System	
	Graphite Tube Atomizer	Should be computer controlled fully enclosed graphite tube system consisting of stabilized temperature / total pyrolytic graphite plate form.
	Gas Supplies	Provision of two gas supplies (programme selectable) with independent control over the gas supply through the furnace.
	Heating Rate	Heating rate of at least 2000°C per second
	Cooling Time	Cooling time 20 seconds
	Temperature Range	Temperature range ambient to 2600°C or more in 1°C increments
	Feed back system	Feed back system for furnace temperature control, interlocks for water, gas, temperature, furnace door, graphite tube damage and mains power.
	Temp. Programming	At least eight steps temperature programming facility with flexibility of programme selection, ramp time, gases, gas flow and read trigger for each temperature step.
	Control	Computer controlled with appropriate provision for print out of the furnace and sample parameters
	Display	Calibration data / graphs, temperature profiles, signal graphics and the instrument status.
	Memory	Memory should be able to store at least ten non volatile programmes
	Chiller / Cooling Water Re-circulation Unit	Refrigerating water circulation unit of appropriate capacity. No discharge of water from this water circulation unit.
3.0	DATA WORK STATION	
3.1	Application Software	Programme facility with multitasking software Should provide complete control of instrument with instrument status display and its various accessories. Provide accurate and reproducible time averaged, integration, non – averaged integration, multi level calibration. Software should handle instrument linear absorbance reading, concentration, or emission intensity,

		integration time, built-in statistics, calibration equation control, slope of analytical curve using operator selective calibration standard
		Built-in interface for computer connection and use of optional accessories.
		Comprehensive quality control protocols facility including blank, multiple quality control standards, QA/QC audit trail and calibration failure.
3.2	Computer System	
	Make	Reputed brand such as HP/Compaq/IBM/ Dell etc.
	Processor	Intel core 2 duo processor 3.00 GHz or above
	RAM	4 GB (upgradable up to 16 GB)
	HDD	500 GB ultra DMA or higher HDD (7200 RMP)
	Monitor	21" TFT – LCD Flat Colour
	CD ROM	52X CD- ROM
	DVD-CDRW	32X DVD-ROM and CDRW – combo Drive Max speed 48x24x48
	Ports	2 serial, 1 parallel and 2 USB front 6 rear USB2 PS/2 Port, 1 VGA integrated Port 1line in/out port
	Key Board	104 keys IBM Compatible
	Mouse	Optical mouse with pad
	Ethernet	32 bit auto selectable 10/100 MBPS
	Graphics	Internet ready with integrated graphics
	Sound	Integrated sound card and inbuilt stereo speakers
	Printer	HP Laserjet Printer 1200 x 1200 dpi 12 PPM black or equivalent
3.3	Operation Software	Preloaded Windows XP Professional operating system with Licensed CD or better
		MS Office 2000 Standard with media, manual and Licensed CD or better
		Preloaded Antivirus with latest version along with Licensed CD
4.0	ADDITIONAL ITEMS	Following items to be supplied
	Operation Kit	Manufacturers Standard Operation Kit including all required items, tubings, fittings for start up / regular operation of instrument such as Gas Purification System, UPS (15KVA, 60 min. back up) and Fume Hood etc.
	Operation / maintenance Manual	Operation / maintenance Manual for each unit
	Analytical manual	Analytical manual including applications for flame, VGA and graphite system
	Service Manual	Service manual with one set of required tools for each system / unit
	Trouble Shooting Charts	Trouble Shooting Charts
	Spare parts Catalogue	Spare parts Catalogue

	Application Notes	Application Notes for trace metal analysis in environmental, biological, geological, metallurgical and industrial samples
	Dust Cover	One for each unit
	Consumables	For three years operation for each of the following units: Flame AAS (basic unit, burner system) Vapour generation assembly Graphite Furnace Atomizer Auto sampler
5.0	Operation and Maintenance Training	Two weeks training to be provided to two scientist on software training, operation, maintenance and trouble shooting aspects of instrument at its application laboratory in India.
6.0	General Conditions of Supply	<p>The instrument and all its units should operate on 230 ±10 volts 50Hz power supply</p> <p>All the operation and maintenance manuals, circuit diagrams, application notes and application software to be supplied should be in English Language.</p> <p>The supplier / manufacturer should have Indian Agent to provide after sales service.</p> <p>The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier.</p> <p>The Bidder should be a manufacturer / authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied ten numbers of such equipment similar to the type specified in the past five years, which shall be in successful operation for at least 2 years as on the date of bid opening.</p> <p>The bidder should furnish the information on past supplies and their satisfactory performance.</p> <p>Bidders shall invariably furnish documentary evidence (client's certificate – at least two) in support of the satisfactory operation of the equipment as specified above.</p> <p>Notwithstanding anything stated above the purchaser reserves the right to assess the capability of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser.</p> <p>Comprehensive warranty with spares for three years from the date of installation of the instrument should be covered.</p>

BOD 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

COD Digestion Assembly

Features	Requirement
Glassware	15 Reaction Vessels & Air Condensers
Vessel Size	Dia 39 mm (approx), Volume 500 ml
Temperature	Upto 250 °C ±1%
Capacity	15 samples at a time
Sample Size	20 ml
Range	0 to 500 ppm without dilution
Display	Graphic LCD module with large fonts
Timer	Programmable up to 99 Hrs. 50 Min
Dimension (Approx.)	350 mm X 350 mm X 210 mm
Power	230 V 50 Hz
Accessories	Glassware Handling Kit
Warranty	Three years including replacement of equipment / part found manufacturing fault / malfunctioning. Periodically re calibration (before expiry of the previous) from accredited authorities is mandatory under this warranty.

Electronic Balance

• Capacity	:	220 g [\pm 10 g acceptable]
• Tare Range	:	Full scale display
• Sensitivity	:	0.0001 g [0.1mg]
• Std. Deviation	:	0.1 mg
• Linearity	:	\pm 0.2 mg
• Pan diameter / size	:	Minimum 80 mm
• Temp. Coefficient of sensitivity	:	\pm 2 ppm/Deg. C
• Ambient Temperature	:	5 ~ 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.

Specification of 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 AI 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 style="margin-left: 40px; border: none;"> <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</td> </tr> <tr> <td>Hose</td> <td></td> </tr> <tr> <td>Nitrogen</td> <td>PU-4</td> </tr> <tr> <td>Potable Water</td> <td>Nylon braided PVC</td> </tr> <tr> <td>Hose</td> <td></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.)</p> <p>5.0 A piano type switch for light – reputed make</p> <p>10A single pole MCB for power – reputed make</p> <p>Push Button with LED for Fan - reputed make</p> <p>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.

FILTER PAPERS FOR AIR & WATER ANALYSIS

- (a) **Filter Paper (Quantitative)** Equivalent to Whatman Grade No. 41 & 42, Ash Less with specifications -Pore Size - 2.5 μm , Ash content - 0.007% & Thickness- 0.20 mm and weight - 100 g/m² or less with the finest particles retention of all cellulose filter typical analytical precipitates include Barium Sulphate, Metastanic Acid and finely precipitated calcium carbonate ash less circles, 125 mm diameter. [Box containing minimum 100 no. circle form paper]
- (b) **Filter Paper (Quantitative)** Equivalent to Whatman Grade No. 40, Ash Less with specifications- Pore Size - 2.5 μm , Ash content - 0.007% & Thickness- 0.20 mm and weight - 100 g/m² with the finest particles retention of all cellulose filter typical analytical precipitates include Barium Sulphate, Metastanic Acid and finely precipitated calcium carbonate ash less circles, 125 mm diameter. [Box containing minimum 100 no. circle form paper]
- (c) **Glass Micro - Fiber Extraction Thimbles** Equivalent to Whatman Grade HP-GF with specifications - High purity, internal diameter X External length [19mm X 90mm] The Thimble should be free of binders or additives and can be used at temperature up to 500° C. [Box containing minimum 25 Thimbles] [to be used for stack monitoring]
- (d) **Cellulose Extraction Thimbles** Equivalent to Whatman Grade with specification - Internal diameter X External length [28mm X 100mm] [Box containing minimum 25 Thimbles] [to be used for stack monitoring].
- (e) **Glass Micro- Fiber Filters sheets** Equivalent to Whatman Grade GF/A with specifications- to be used in Ambient Air monitoring for measuring PM₁₀, high purity borosilicate glass filter, thickness -maximum 0.43mm, Particle retention - 99.95 % (min.), Flow rate - 1.52 \pm 0.18 M³/min., weight - 80 g/m² maximum and should sustain for temperature of 500°C. Size - 203mm X 254 mm [Box containing minimum 100 sheets]
- (f) **Glass Micro- Fiber Filters sheets** Equivalent to Whatman Grade GF/A and EPM 2000 with specifications- to be used in Ambient Air monitoring for measuring PM₁₀, high purity borosilicate glass filter, binder free, thickness - maximum 0.43mm, Particle retention - 99.95 % (min.), Flow rate - 1.52 \pm 0.18 M³/min., weight - 85 g/m² maximum and should sustain for

temperature of 500°C. Size - 203mm X 254 mm [Box containing minimum 100 sheets]

- (g) **PM 2.5 monitoring filters** Equivalent to Whatman Grade with specifications - Made up of high purity thin PTFE membrane required for ambient air monitoring. Size - 46.2mm circular box containing minimum 50 circles in box. Filter Pore size - maximum 2.0 µm, thickness - 40 µm, Particle retention - 99.7%.

- (h) **Glass Micro Fiber Filter** Equivalent to Whatman Grade 934-AH with specifications-Pore Size - maximum 1.5 µm, Thickness- minimum 0.33 mm and weight - maximum 64 g/m² with the finest particles retention, Circle size-47 mm diameter. [Box containing 100 no. circle form paper] suitable for suspended solids in all types of water and effluent and filtration of particles in water, algae and bacterial culture.

- (i) **Glass Micro Fibre Filter** Equivalent to Whatman grade GF/A with specifications - Pore size- maximum 1.6 µm, Thickness - 0.26 m, Dry tensile 430 gm, suitable for PM 2.5 sampling in ambient air quality monitoring. Circle size - 37mm diameter. (Box containing minimum 100 no. paper circles)

Noise Level Meter with Data Logger

Specifications	Requirement
Measurement Range	should cover 20 – 140 dBA
Frequency weighting	Switchable to A, Linear, Octave and 1/3 rd Octave
Accuracy	Min. IEC 804 (BS 6698) Grade I or ANSI Type I
Resolution	0.1 dB over full range
Display	Digital [Leq, SPL, L _{max} and L _{min}]
Time Weighting	Switchable to different time intervals i.e 1/8 Sec., 1 Sec., 10 Sec. etc. or slow, fast, max.
Power supply	Rechargeable Battery system
Computer Interface	Data Logging system with RS 232 interface
Calibration	Automatic Calibration
Temperature	0°C 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	± 0.3 dB at 25°C
Adaptors	25mm, 12.5mm, 6.25mm

Microphone:

Type	Premacharge air –condenser unit
Polarization Voltage	Not required
Response Type	Free Field 'O' degree incidence
Response Accuracy	min. IEC 651 type I
Operating Temperature	0 to 55°C
Range	20 – 140 dB(A)

Data Logger:

Communications with data logger should be possible using a standard RS 232 cable 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.

Built-in Information:

- Leq in bytes
- Built in memory in bytes
- Whether data logger in built in the unit or is a separate system
- Details of software, in built/ spread sheet
- System compatibility for measurement of other parameters like meteorology: please mention details.

Whether octave provided or not.

- if yes; its range

Whether the software has facility for :

- Retrieval of short (1sec.) leq elements
- Post processing to produce Leq and Ln measurements over any period automatic event detection etc.

Portable FTIR gas analyzer for ambient air

Measuring principle :	FTIR (Fourier transform infrared) based.
Gases to be measured:	Water vapour (H ₂ O), CO ₂ , CO, NO, NO ₂ , N ₂ O, SO ₂ , NH ₃ , CH ₄ , HCl, HCHO, HCN, HF and different VOC's.
Additional gases :	Shall be possible with no hardware addition
Analyser Certification :	MCERTS or TUV
System :	Shall comprise of portable FTIR gas analyser, portable Sampling System, portable sample probe, heated gas lines, Laptop PC with Necessary software, power connection etc.,
Response time T ₉₀ :	<120 seconds or better
Power Supply :	230 VAC; 50 Hz.
Spectrometer resolution:	8/cm or better
Spectrometer Scan frequency:	10 scans/second or better
Spectrometer Detector :	Peltier cooled MCT
Software :	Software necessary for gas analysis to be provided (to install in laptop or PC)

Applications: Emission monitoring / flue gas measurement in accordance with USEPA test methods 320 and 321 or as per European standards Stack testing: RATA /QAL2 tests for gases like HCL, NH₃, NO_x, SO₂ Etc., Process monitoring Monitoring emissions from biogas plants including HCHO Industrial chimneys testing as per standard technical guide lines Gas emissions in animal husbandry PFC emissions in Aluminium and semiconductor plants.

Ion Analyzer with Fluoride, Nitrate, Cyanide and Ammonia Electrodes

S.No.	Specification	Requirement
1.0	Description	Should be Microprocessor controlled with RS 232-C output facility. The front panel should be splash proof, corrosion resistant and impact resistant.
2.0	Mode	pH, Concentration, Temperature, MV
3.0	pH range	0.00 to 14
	Resolution	0.001
	Accuracy	± 0.005
	Slope	80 to 120 %
	Calibration	Auto three to five points calibration (automatic buffer recognition)
	Temperature Compensation	Automatic throughout the range
4.0	Concentration Range	0.001 to 19900 ppb / ppm
	Resolution	At least one significant digit
	Accuracy	± 0.5%
5.0	Temperature Range	-10° to 130°C
	Resolution	± 0.1°C
6.0	Millivolt Range	± 1500
	Resolution	0.1mV
	Accuracy	± 2.0 mV or ± 0.05%
7.0	Timer	Date and Time can be called up and recorded any time
8.0	Display	Graphic LCD display, LCD dot matrix 128 / 64 dps panel with backlight and feather touch keys.
9.0	Ready	Indication of stable value reached.
10.0	Blank	Optional entry of blank or back ground solution, correction
11.0	Power	9 volts line adaptor or compatible adaptor for (230 ± 10) volts / 50 Hz AC
12.0	Requirement	In case of power failure, secure storage of all calibration and programme data.
13.0	Input	At least 1 or more BNC / DEIN input. 1 pin tip F-type, banana type, RS -232C, Printer connection facility
14.0	Drift	< 50 micro volts / °C
15.0	Electrode	Complete electrodes sets for reference Ammonia, Fluoride. Nitrate, Cyanide, Chloride, Calcium & pH along with instruction / application sheet standard accessories including electrolytes, standard solutions (ppm) etc.
16.0	Others	The instrument should be complete with connecting cable, adaptor for 230 ± 10 volts AC 50 Hz power supply, dust cover, electrode stand (adjustable), operation and maintenance manual along with the accessories with spares and consumables for three years of trouble free operation.

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	± 1999 mV
	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	$\pm 1\%$ 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	$\pm 2\%$ 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	$\pm 1\%$ 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	$\pm 2\%$ of F.S

	Sensor	Photo Diode
	Source	Tungsten lamp
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

Annexure – 2

(Tender No. MPPCB/Pur./05/2017-18)
(Laboratory Equipments & Filter Papers)

TENDER SPECIFICATIONS VS OFFERED SPECIFICATIONS

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

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

Place: -----
Date : -----

(Tender No. MPPCB/Pur./04/2017-18)
 (Laboratory Equipments & Filter Papers)

**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 -----

(Tender No. MPPCB/Pur./05/2017-18)
 (Laboratory Equipments & Filter Papers)

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:

(Tender No. MPPCB/Pur./05/2017-18)
(Laboratory Equipments & Filter Papers)

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:

CHECK LIST
[Tender No. MPPCB/Pur./05/2017-18]
(Laboratory Equipments& Filter Papers)

ENVELOP "A"	Earnest Money of requisite amount and tender cost in case of tender document is downloaded from web site.
ENVELOP "B"	<ul style="list-style-type: none"> • Technical compliance details in Annexure "2" • Company Profile. • Leaf let / brochure of the applied item. • Copy of GST registration number. • Copy of PAN No. • Undertaking regarding not being blacklisted. • User's List & Performance reports etc. • Manufacturer's authorization certificate, in case the offer is not submitted by Manufacturer. • Commercial Terms & conditions • Information regarding Bank Name, Account Name, Account Number, Account Type,, Branch IFSC Code for safer & easier payment transaction through RTGS/NEFT.
ENVELOP "C"	<ul style="list-style-type: none"> • Price schedule for AMC in annexure "3" • Price schedule for Imported items in annexure "4" • Price schedule for Indigenous items in annexure "5" • Copies of at least two supply orders of the similar nature indicating detailed price schedule in order to examine reasonability of the quoted rates in te present bid.