



INDIRA GANDHI INSTITUTE OF TECHNOLOGY, SARANG
(An autonomous institute of Govt. of Odisha)
Sarang, Dhenkanal, Odisha– 759146

TENDER DOCUMENT

For

Mechanical Engineering Department



INDIRA GANDHI INSTITUTE OF TECHNOLOGY, SARANG

(An autonomous institute of Govt. of Odisha)

Sarang, Dhenkanal, Odisha– 759146

RECORD OF SALE OF TENDER DOCUMENTS

1. NAME OF THE WORK – Supply of Equipment for Mechanical Engineering Department
2. CALL NOTICE NO: - IGIT/TEQIP/189 Dated 13/10/2018
3. COST OF TENDER DOCUMENTS: Rs.1000.00 (One Thousand) only
4. DEMAND DRAFT NO & DATE:-
5. DATE OF ISSUE OF TENDER DOCUMENTS: - 15/10/2018
6. LAST DATE OF RECEIPT OF FILLED TENDER DOCUMENTS AS PER CALL NOTICE:-
26/11/2018
7. TOTAL NUMBER OF PAGES IN THE TENDER DOCUMENTS:-

Signature of Tenderer

Director



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IGIT/TEQIP/189

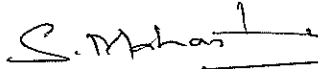
Dated 13/10/2018

TENDER CALL NOTICE

Sealed tenders are invited in conformity with DTCN prescribed format from registered parties/firms having DGSD rate contracts/DIC registration or EPM rate contract /registered original equipment manufacturer (OEM)/ Authorized Distributors/dealers having valid tax clearance certificate for supply of equipment and accessories for set up of above labs in turnkey basis. Tenderers are advised to fill up the prices in the prescribed format only. The tender shall be submitted in two parts (Part:A- Technical bid & Part:B- Financial bid).

Sl. No	Name of the work	Approximate Estimated cost in Lakhs (Rupees).	EMD @1% of the Bid amount in shape of DD in favor of Principal, Indira Gandhi Institute of Technology Sarang payable at SBI, IGIT Saranga (IFSC Code No. SBIN0010246) Or Bank Guarantee	Cost of Tender paper Nonrefundable in Rs. as applicable in shape of DD in favor of Principal, Indira Gandhi Institute of Technology Sarang payable at SBI, IGIT Saranga (IFSC Code No.SBIN0010246)	Performance Security (To be deposited by the vendor after selection) – Refundable after completion of the warranty period.
1	Supply of equipment for Mechanical Engineering Department (Annexure)	52.20	Rs. 0.522 Lakh Or 1% of the bid value Or Bank Guarantee	Rs. 1000.00	@ 5% of the bid value as on the purchase order in the form of DD Or Bank Guarantee

1. Date of sale of Tender Paper- 15.10.2018
2. Last date of Receipt of Tender Paper- On or before Dated: **26.11.2018 at 4.00 PM**
3. Date & Time of opening of Technical bid- **27.11.2018 at 11.00 AM**. The Tender will be opened in the presence of bidders/Authorized nominees. Date & Time of opening of Financial bid- **07.12.2018 at 11.00 AM**.
4. Tender in complete shape must be accompanied by attested copies of valid Registration certificate /PAN Card /GSTIN Certificate. Relationship certificate along with Original Money Receipt towards purchase of Tender paper & required EMD in the shape of D.D.
5. ***Tender is to be sent through registered post/ speed post only through Indian Postal service.***
6. The details of Tender can be obtained from the Institute website. Please visit our website www.igitsarang.ac.in.
7. The tender documents can also be down loaded from our website www.igitsarang.ac.in.
8. The authority reserves the right to accept or reject any or all the bids or parts without assigning any reason thereof.
9. The undersigned will not be held responsible for any postal delay.
10. Bids must be accompanied by Earnest Money in the shape of a Demand Draft (for an amount as mentioned in the Table) drawn in favour of "Principal, IGIT Sarang", and payable at IGIT Sarang **Or Bank Guarantee**. Each Tender shall be accompanied with separate EMD. This Earnest Money in the shape of Demand Draft **Or Bank Guarantee** must be enclosed inside the "Technical Bid". Bids without containing the required amount of Earnest Money/Tender cost in the shape of Demand Draft(s) inside the 'Technical Bid' will not be taken in to consideration.


DIRECTOR
26/10/2018



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2. Eligibility of Tenderer and General Instructions:

2.1 Eligibility:

Those who fulfill the following criteria are eligible to participate in the tender.

- a. The Tenderer must be a reputed original equipment manufacturer and /or the authorized Dealer of a reputed manufacturer. Manufacturers should provide all documents relating to their manufacturing capabilities.
- b. The Tenderer should be an authorized dealer for IGIT Sarang of a reputed manufacturer for the item quoted. Necessary certificate to this effect from the manufacturer must be enclosed.
- c. All after sales support should be provided directly by the manufacturer only.
- d. The Tenderer must have the willingness for providing comprehensive maintenance support of the machine/equipments supplied by him.
- e. The Tenderer must provide evidence of successful execution of supply orders with installation and successful after sales support in at least 3 reputed organizations.
- f. The Tenderer must have cleared sales tax, Service tax and income tax payment up to date. Attested copies of sales tax clearance certificate or non-assessment certificate from the concerned sales tax authority valid up to date and attested copy of income tax clearance certificate or non-assessment certificate, as the case may be, from the competent authority, up-to-date and copy of PAN card must be enclosed along with the tender documents. The company registration no & GSTIN Certificate must be given along with the tender.
- g. The Tenderer should have prior experience of completion of turnkey project to execute this project.

2.2 General Instructions

1. Submission of more than one bid by a particular tenderer under different names is strictly prohibited. In case it is discovered later on that, this condition is violated, all the tenders submitted by such tenderer(s) would be rejected or the contract if assigned would be cancelled.
2. All offers should be in English and the price quoted for each item should be firm.
3. Warranty period, Delivery period and after sale service conditions, etc. are also to be clearly indicated.
4. The rates and conditions of the offer will remain valid for three months from the date of opening of the tender and no change or alteration of the rate will be acceptable on any account.
5. Submitted tender forms with overwriting or erased or illegible specifications and rates will be rejected.
6. Request from tenderer in respect of addition, alterations, modifications, corrections, etc, of either terms or conditions or rate after opening of the bid may not be considered.
7. Tenderers shall carefully examine the bid documents and fully inform themselves of all the conditions, which may in any way effect the work of the cost thereof.
8. Should a Tenderer find discrepancies or omissions from the specification or other documents and any doubt as to their meaning, he should at once notify the purchaser and obtain clarification in writing.



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9. This, however, does not entitle the Tenderer to ask for time beyond the due date fixed for the receipt of tenders.

10. The tenderer must also specify minimum up time and maximum time to repair/replace in the event of a failure and penalty thereof.

11. Verbal clarification and/or information given by the purchaser or its employees or representatives shall not be binding on the purchaser.

12. Submission of sealed bid will carry with the implication that the tenderer agrees to abide by the conditions laid down in the detailed particulars of the bid notice.

13. Conditional offers and offers qualified by vague and indefinite expression, as 'subject to immediate acceptance' 'subject to prior sale', etc will not be considered.

14. While tenders are under consideration, tenderers and their representatives or other interested parties are advised to refrain from contacting by any means, to the purchaser's personnel or representatives on matter relating to the tenders under study.

15. The purchaser if necessary, will obtain clarification on tenders by requesting such information from any or all the tenderers either in writing or through personal contact as may be necessary.

16. The tenderer will not be permitted to change the substance of his offer after the tenders have been opened.

17. In the event of non compliance with this provision, the tender is liable to be disqualified.

18. The Tender shall submit the tender bid in two parts (Part –A & Part –B). In the case, where Part – A of a bid fails to comply properly (i.e. the technical specifications/Make of the bid is not matching with the required technical specifications of each item and other Technical bid criterion as mentioned in the tender paper), the bid will not be considered for further processing. Such bids will be accounted as disqualified. In that case Part-B of the bid will not be opened. Wherever required, the decision of the tender committee in this regard is considered as final.

2.3. Submission of Tenders;

Tenderers are advised to fill up the prices in the prescribed format only. The tender shall be submitted in two parts (Part –A & Part –B).

Part – A

It will cover the **Technical Bid** such as the Letter of Application, Commercial Terms and Conditions, **GST Regd. Certificate**, Income Tax Clearance Certificate / PAN, Documentary Proof of satisfying the required eligibility criteria specified in Tender Notice, Undertaking for registration in Odisha Sales Tax Department in case of order (for bidders not possessing OSTRC), Bank Draft towards cost of Tender Paper and EMD etc has to be submitted by the concerned vendor with the tender paper. This part will also include the required Drawings, General Conditions, Special Conditions, Technical Specifications, Guaranteed Technical Particulars and Deviations, if any. Any document the firm is willing to furnish other than the Financial Bid shall be submitted with this Technical bid.



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Part - B

It will cover only the **Financial bid**. No other documents except the Financial bid should be enclosed in this part-B.

Each envelope (one for Part-A, the Technical bid and the second for Part-B, the Financial bid) shall be duly sealed separately. The envelope containing documents for Part-A shall be super-scribed with “**Technical bid**,” and the envelope containing documents for Part-B shall be super-scribed with “**Financial bid**”. Both these sealed envelopes should be enclosed in a bigger envelope super-scribed with “**Bids for Supply of Equipment for Mechanical Engineering Department, IGIT Sarang, Parjang, Dhenkanal, Odisha-759146**, Dates of Opening: (a) Technical bid: **27.11.2018** at 11 AM and (b) Financial bid: **07.12.2018** at 11 AM” and sealed properly. This sealed bigger envelope duly super-scribed as mentioned above should reach “**The Principal, Indira Gandhi Institute of Technology, Sarang, Parjang, Dhenkanal, Odisha-759146**” on or before the Tender Closing date: **26.11.2018** at 4 PM by Regd. Post/Speed Post only. No other mode of submission is accepted.

3. Requirements by Tenderer before Supply:

3.1 Rating Plate, Name Plate and Labels:

Each of the equipment supplied by the bidder must have permanently attached rating plate of non-corrosive material in a conspicuous position, upon which the total specifications along with the manufacturer’s name, address, etc. are to be engraved.

3.2 Packaging:

All the equipment are to be suitably protected, covered in water -proof packing and thermo cool / crated to prevent damage or deterioration during transit and storage till the time of installation or supply. The supplier shall be responsible for any loss or damage caused during transportation, handling or storage till their successful installation.

3.3 Inspection:

- a. All materials / equipment shall be inspected and tested for completeness, proper assembly, operation, cleanliness and state of physical condition and performance as per quoted specification.
- b. The test shall be conducted, reported and certifications to be provided by the tenderer. The tenderer shall provide all test and measuring equipment/tools required for inspection / testing. The cost of all such tests shall be borne by the tenderer.
- c. IGIT Sarang reserves the right to reject any equipment if it does not comply with the specifications during site testing, installation and commissioning stage. In case of rejection, the tenderer has to pay the expenses towards the return of the same equipment/ material.
- d. Inspection & testing would be conducted, jointly, at various stages as applicable during unpacking, installation and commissioning of respective equipment/ components at the manufacturing site.

3.4 Environmental Condition:

All the documents submitted must be in the papers showing the signature of the bidder and primed office name of the bidder on official seal.



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All the equipment supplied shall be rugged and should operate without any deviation in quality, or degradation of equipment performance. All the specification/parameters shall be guaranteed over the following environmental conditions:

- a. Storage Temperature 0 to 70 degree Celsius
- b. Operating Temperature 0 to 50 degree Celsius
- c. Humidity 95% RH (non-condensing)

All the equipments are intended to operate under 220 V (Single Phase)/ 440V(Three Phase), 50 Hz power supply.

4. Requirements by Tenderer after Supply:

4.1 Supply:

- a. The material would be delivered by the supplier at Indira Gandhi Institute of Technology, Sarang, Dhenkanal, Odisha – 759146.
- b. The items should be supplied directly from the manufacturing terminal having passed all tests successfully with Certifications as required.
- c. The equipment should conform to the latest relevant National/International standards and shall be completed in all respect.
- d. Any component, fitting etc. which may not have been specifically mentioned in the specifications but which are usual and necessary for the equipment, shall be supplied by the tenderer at no extra cost.
- e. In case, articles are found damaged in transit or found short at the time of delivery the full cost of the same will be deducted from the bill of the supplier in case the supplier does not replace the stock within two weeks from the date of the complain.
- f. The articles ordered must be supplied in one lot within 4 (four) weeks of placing of the order.
- g. In case of delay in delivery or successful installation, a penalty @ 1% (one per cent) of the bid value per week shall be levied.
- h. IGIT Sarang reserves the right to procure the materials from alternative sources at the risk and cost of the successful tenderer giving 15 days notice.
- i. Any increase in tax and duties after expiry of delivery period will be to the seller's account.
- j. In case the items supplied by the supplier are found not up to the specification shall be rejected.
- k. The supplier will be intimated to take back the stocks at his own cost within three days from the date of rejection and to replace the same within 15 days, failing which the EMD will be invoked in addition to taking legal actions.
- l. Imported consignment, if any, should be destined to IGIT Sarang, Dhenkanal, Odisha, India through Bhubaneswar Air Port.
- m. The suppliers shall be responsible for releasing the consignments from the carriers/transporters.
- n. The equipment/machineries shall be delivered and installed at site at the cost of the tenderer.



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- o. All taxes, levies, surcharges including the customs clearance and handling freight and insurance should be paid and handled by the tenderer.

4.2 Installation and Commissioning:

Installation and Commissioning shall include the following:

- a) Installation and Testing of the Equipment, Machineries etc. should be supplied by the tenderer.
- b) It will be the responsibility of the tenderer to provide all necessary spares and consumables, which may be required during installation and commissioning, at no extra cost to IGIT Sarang
- c) The tenderer is to bring their own testing and measuring instruments required for installation, testing, commissioning, which can be taken back after completion.
- d) Installation must complete within a week after delivery on site.
- e) The tenderer should provide all necessary raw materials for running of the machine during commissioning and provide training to our laboratory personnel free of cost.

4.3 Documentation:

- a. Detailed technical manuals, handbooks, drawings, Warranty card and Factory Quality Assurance checklist, test result sand any other certifications mentioned in the Technical specifications shall be supplied along with the consignment.
- b. Supplied manuals/handbooks must cover detailed technical specifications and installation, operation, maintenance and System Safety procedures.
- c. For Experimental setups details of theory, procedure and methods of taking measurements etc. should be provided in the form of hand books for each experiment.
- d. The receipts for taxes paid, if any, for the supplied materials should also be submitted.

4.4 Trial Operation and Performance Guarantee Test:

- a. After successful completion of Installation and Commissioning of the equipment, a 7-day continuous trial operation putting those on optimum use shall be conducted by the tenderer at site, during which the performance of the equipment shall be demonstrated for trouble-free continuous operation, meeting the specified standards.
- b. During trial operation, tenderer shall do all necessary adjustments required to ensure the performance as per the acceptable level.
- c. In case, guaranteed performance is not established, the tenderer shall be given opportunity to rectify/replace the equipment/components, and restart the 7 days continuous trial operation, at the risk and cost of the tenderer.



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4.5 On-Site Warranty:

- a) The entire materials may be used continuously. The reliability and safety of the total installed system and trouble-free operation are, therefore, of prime importance. The supplied devices/equipment and components shall be covered under **two-years or more** comprehensive on-site warranty from the date of issue of successful completion of Performance Guarantee Report.
- b) During the period of warranty, it shall be the responsibility of the tenderer to provide all essential spares and consumables, which may be required for maintenance and trouble-free operation of the devices / components at the tenderer's cost.
- c) Software, if any, has to be tested with at least one-year warranty for trouble free operation.

4.6 Comprehensive Maintenance Contract:

- a. The tenderer shall be under the obligation of entering into a Comprehensive Maintenance Contract (CMC) with IGIT, Sarang for a minimum period of two years, renewable if felt necessary, on mutually acceptable rates, terms and conditions. CMC shall start after the completion of Warranty.
- b. The scope of CMC shall cover maintenance and supply/replacement of materials and components, for smooth and reliable operation of the systems without trouble.
- c. Accordingly, the tenderer has to offer rates for the CMC structure per equipment along with the price for the Systems and other associated Equipment supplied.

4.7 After Sales Service:

- a. During the warranty period and subsequently, after signing of Agreement for CMC the tenderer shall attend to the problems reported by the users of IGIT Sarang on a priority basis.
- b. For any problem reported the tenderer shall attend and rectify the problem within 7 (seven) days or provide a standby system of the similar configuration.
- c. The report on any problem will be informed through phone or fax number of which shall be given by the tenderer.
- d. The branch office of the concerned manufacturing firm will be fully responsible to provide maintenance service, in case of any negligence, in providing the service by the tenderer.
- e. On failure to comply with those instructions, the Bank Guarantee provided for the warranty period shall be invoked.

5. Financial Terms:

5.1 EMD (Refundable)

- a. The tenderer has to submit a Demand Draft / Banker's Cheque / Pay order as detailed mentioned above in favour of DD in favor of Principal, Indira Gandhi Institute of Technology Sarang payable at SBI, IGIT Sarang (IFSC Code SBIN0010246) towards EMD.
- b. There will be no interest paid to the tenderer towards EMD money.
- c. In no case, the EMD Money in cash or other forms will be accepted at the time of opening of the bid.



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- d. No request for adjustment of claims, if any, will be accepted.
- e. The EMD of unsuccessful tenderers will be refunded as soon as possible after the tenders are finalized. The EMD must be claimed by the tenderer personally or by authorized letter addressed to the Principal and Secretary IGIT, Sarang, within one year.

5.2 PRICES:

- a. Price quoted should be FOR IGIT Sarang only.
- b. Price should be quoted for unit item; however, the actual system requirements may be much more.
- c. Purchase order will be placed as a single lot for each type of item or for all the items together, as the case may be.
- d. In case of items of import, the tenderer should take full responsibility for customs clearance, handling, tax payment, etc. and specify the charge for the same in the Financial bid.

5.3 Sales Tax Concession:

Central Sales Tax/ GST Concession (if any) is to be availed on production of the required certificates applicable to Educational Institution.

5.4 Discount:

- a. Our Institute is a pioneer Institution in the field of Teaching and Research in Engineering and allied disciplines and do not run with profit motive.
- b. As such we are availing price discount for purchase of equipment/instruments/chemicals.
- c. The rate of discount or any other Institutional benefit arising out of Govt. Policy etc./ company's own policy on each item may also be indicated in the Financial bid specifically.

5.5 Payments:

In case of imported items, payment will be made by opening LC in the name of the manufacturer subject to the condition that a Bank Guaranty for an equal amount will be submitted by the selected Tenderer to IGIT Sarang for the period of completion of installation and commissioning. In case of purchase in Indian Rupees, payment of 100 % (percent) of the ordered value will be made after successful installation and commissioning of the equipment subject to submission of satisfactory performance report by our Professor-in-Charge.

5.6 Penalty:

If the delivery, installation and commissioning is not carried out in time as specified in other part of the tender document, the Tenderer/manufacturer will be charged @1 % (one percent) per week of the total value of the concerned system / equipment.



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5.7 Rate Contract with DGS&D or any other Government Organization:

In case the Tenderer has entered into a Rate Contract with DGS & D or any other Government Organization such as EPM, ratecontract preference, number & copy of rate contract have to be submitted along with tender.

6. Technical Specifications:

- a. Following are the minimum specifications of the equipment/ Machineries.
- b. The minimum specifications are indicative and not exhaustive.
- c. The models with higher specifications may be quoted.
- d. The quoted materials should be of latest trend and technology & software if any should be compatible to all versions of windows.
- e. Each equipment should be complete in itself without needing any extra requirements except the requirement of general testand measuring instruments.
- f. **One can submit the tender for all the groups as per item description or individual group.**

7. IGIT, the tenderer and the manufacturer shall make all efforts to resolve amicably by direct informal negotiations on any disagreement or dispute arising then under or in connection with this contract. All disputes arising out of the contract should be referred to courts under the Jurisdiction of the Talcher Court only. The authority reserves the right to reject/ accept tender without assigning any reason thereof.

Annexure

Sl.No	Name of the instruments	no of units	Specifications
1	CNC WIRE EDM MACHINE	1 Set	Machine description and applications: This Wire-cut EDM machine is intended for the use of complex profile cutting and thin wall cutting with high aspect ratios on various materials High strength steels, Tool steels, Aluminum alloys, Titanium alloys, Copper alloys, Nickel alloys, Super alloys, Carbides etc. This machine shall have 4 axes linear interpolation configured with geometry X, Y, U & V. The machine shall be equipped with state-of-the-art CNC control system, drives and generator. Axis X,Y Travel in mm : X(250-400), Y(250-400) work-piece height in mm : 150-300 Taper angle: $\pm 5-10^\circ$ over 100 mm Max Work-piece weight : (200-350)Kg Wire diameter in mm : (0.15-0.30) Machining method : Flushing Input Power supply: 3 phase, AC 415 V*, 50 Hz cutting speed: 70 -150mm²/ min or better Surface finish: 0.8 μ Ra -1.2 μ Ra Minimum input command:0.001mm or better Minimum Resolution for X, Y, u, v:0.001mm or better wire threading: Preferred Display type : LCD type monitor Control system : CNC based control system(standard)



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			Programming: Incremental type programming Operating system : Window based/DOS Based Data Input and output system: Should be of USB port, keyboard and able to interface with PC. PC: PreloadedPC (i5 processor minimum) with required softwares. Accessories- manual, Training kit and support															
2	Computerized VCR Diesel Engine Test Setup	1Set	Single Cylinder, Four Stroke Diesel, Water Cooled, Diesel/Bio-diesel capability with EGR and open ECU, with electric start with battery and charger. Power 3.5 to 5 Kw at 1500 Rpm, CR range 12 to 18 or better. Dynamometer: Eddy Current. Air Box : M S Fabricated with Orifice meter and Manometer Fuel Tank: Capacity 5 Ltrs or more. Calorimeter: Pipe in Pipe. EGR: Water cooled, SS. Piezo Sensor: Range 5000 PSI. Crank Angle Sensor: Resolution 1 Deg, Speed 5500 RPM with TDC Pulse. Data Acquisition Device, Temperature sensor, Load Indicator(Digital), Load sensor, Fuel flow transmitter, Rotameter. Computersised diesel injection pressure measurement with injection variation 0-25 ⁰ (+5 ⁰) bTDC. Software: Adequate software for calculating engine performance etc. Computer: I5 Processor, 4gb ram, color printer. Performance optimization: Tests at different CR and EGR , Plotting of Torque and Power Curves, Determination of Specific Fuel Consumption, Volumetric Efficiency, Air– Fuel Ratio, Mechanical Efficiency, Frictional Power. Heat Balance Sheet , Performance Test under different Load , P-θ and PV Diagram , Combustion analysis. Analysis software should include study of engine performance with graphs of : Brake power , Indicated thermal efficiency , Indicated power, Mechanical efficiency , Frictional power , Volumetric efficiency , BMEP, IMEP , Specific Fuel Consumption , Brake thermal efficiency , A/F ratio , Mass Fraction Burned Graph , Heat balance , Mean Gas Temperature Graph , Cylinder Pressure(P-θ), PV and Log PV Graph , Rate of Pressure Rise , Cumulative/Net Heat Release , Valve timing diagram study.															
3	Auto Exhaust Gas Analyzer	1 set	Auto Exhaust Gas Analyzer for Diesel Engine: <table><tr><td>Parameters</td><td>Range</td><td>Resolution</td></tr><tr><td>CO</td><td>0-10 %vol. or more</td><td>0.01% vol</td></tr><tr><td>CO₂</td><td>0-20% vol</td><td>0.1% vol</td></tr><tr><td>HC</td><td>0-2000ppm</td><td>1ppm/10 ppm</td></tr><tr><td>O₂</td><td>0-22% vol</td><td>0.01% vol</td></tr></table>	Parameters	Range	Resolution	CO	0-10 %vol. or more	0.01% vol	CO ₂	0-20% vol	0.1% vol	HC	0-2000ppm	1ppm/10 ppm	O ₂	0-22% vol	0.01% vol
Parameters	Range	Resolution																
CO	0-10 %vol. or more	0.01% vol																
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O ₂	0-22% vol	0.01% vol																

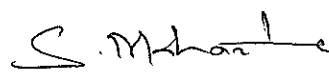


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			NOx 0-5000ppm 1ppm Lambda 0.5 – 9.99 0.001 Measurement of engine speed- resolution 1 rpm Oil temperature –resolution 1⁰c . RPM Sensor. Oil Temp Sensor. Computerization Software with usb cable, accessories and filters to use it in diesel engines. Printer(Optional). Optional Accessories for Measurement of : Sox or any other gases. The gas analyzer must be used for petrol and diesel engines both. Required accessories should be supplied to use the equipment for both petrol and diesel engines. Approval: ARAI, as per latest guidelines.
4	Opacity Smoke Meter	1 set	Opacity smoke meter: 1. Measurement range: Opacity : 0 ~ 100% , Resolution- 0.1%. 2. Absorption : 0 ~ 99.99m⁻¹, Resolution-0.01 m⁻¹. 3. Engine Speed resolution- 1 rpm. 4. Oil Temp Measurement 0-150⁰c, Resolution 1⁰c. 5.Required Software with other necessary accessories. 6.Approval: ARAI, as per latest guidelines
5	3D Printer	1 set	Printer type: FDM. Voltage 100-240V. Input Format: CAD Formats (STL (.stl), CATIA (.CATPart, .CATProduct), SolidWorks (.sldprt, .sldasm). Number of nozzles:1 or more Build up area (approx):(300-500) (200-500) (150-500) mm. Higher size is preferable, cost of each size be specified separately. Printable materials: PLA, ABS, PVA, composites, plastic, etc.Digital Display: User Accessible Display. Resolution- 50 Mircons to 400 Microns or better Camera(optional)- On-board camera for for remotely monitoring. Operation mode: Automatic. Single colour Page format. Connectivity: USB, Ethernet and Wifi. Detailed catalogue ,specification and make be clearly given.


26/10/2018
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FORMAT FOR TECHNICAL BID

Sl.No	Name of the Equipments/ Items	Make	Specification/Description, Including Warranty/ Guarantee Periods

Sign of Bidder

FORMAT FOR FINANCIAL BID

Sl.No	Name of the Equipments/ Items and its Specification	Make	No. of Units	Cost Per Unit in Indian Rupees Only	Total Cost for Individual Items(Including All Taxes, Freight Charges, Installation Charges, Manual, Training/Demo)

Sign of Bidder