



**INDIRA GANDHI INSTITUTE OF TECHNOLOGY, SARANG**  
**(An Autonomous Institute of Govt. of Odisha)**  
**Sarang, Dhenkanal, Odisha-759146**

**TENDER DOCUMENT**

**FOR**

**PHYSICS DEPARTMENT**



**INDIRA GANDHI INSTITUTE OF TECHNOLOGY, SARANG**  
**(An Autonomous Institute of Govt. of Odisha)**  
**Sarang, Dhenkanal, Odisha-759146**

No. IGIT/166

Date: 10-02-2020

**TENDER CALL NOTICE**

Sealed Tenders (Two Bid Systems) are invited in prescribed format from registered Original Equipment Manufacturer (OEM) or the Authorized Dealer of an OEM for supply of equipment and accessories for set up of labs (Annexure-I). 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	Supply of Equipment for Physics Department (Annexure-I)
1	Last date and time of receipt of Tender Papers	<b>Date: 02/03/2020&amp;Time: 4.30P.M</b>
2	Date, Time, and Venue of opening of Technical Bid	<b>Date:04/03/2020&amp;Time: 3.30 P.M</b> Department of Physics, IGIT, Sarang
3	Date, Time, and Venue of opening of Financial Bid	<b>Date: 06/03/2020&amp;Time: 10.00 A.M</b> Department of Physics, IGIT, Sarang
4	EMD (Refundable)	<b>EMD Rs. 3000.00</b> (Refundable) EMD amount in shape of DD in favour of Principal, Indira Gandhi Institute of Technology Sarang, payable at SBI, IGIT Sarang
5	Tender Cost (Non-Refundable)	Cost of Tender paper (Non-refundable) is <b>Rs.1000</b> as applicable in shape of DD in favour of Principal, Indira Gandhi Institute of Technology Sarang, payable at SBI, IGIT Sarang, (IFSC Code No.SBIN0010246)

1. 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.

**2. Tender is to be sent only through registered post/ speed post/ under Indian postal service.**

3. The tender documents can be down loaded from our website [www.igitsarang.ac.in](http://www.igitsarang.ac.in).



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4. The authority reserves the right to accept or reject any or all the bids or parts without assigning any reason thereof.
5. The undersigned will not be held responsible for any postal delay.
6. 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. Each Tender shall be accompanied with separate EMD. This Earnest Money in the shape of Demand Draft 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.

## **2. Eligibility of Tenderer and General Instructions:**

### **2.1 Eligibility:**

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

- a) The Tenderer must be an Original Equipment manufacturer (OEM) / or the authorized Dealer of an OEM should provide all documents relating to their manufacturing/sales capabilities.
- b) Proof of establishment of Firms / manufacturing unit/ Dealership certificate from the OEM to be attached with Technical Bid.
- c) The tenderers should have minimum 03 no. of work orders during last three years in any of the Government organization. Photocopies of the work order and Installation report to be attached with Technical Bid.
- d) The bidder should enclose proof of turnover by way of Audited, Balance Sheet/Auditor’s certificate,
- e) The agency should have valid Registration Certificate of its own, Service Tax, Registration Certificate, GST registration No. and PAN. Photocopies of the documents to be attached with Technical Bid.
- f) The agency should have not been blacklisted (Annexure-II) by any Government or other organizations.

### **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.



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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. However, negotiation may be made before finalization.
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.
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.**



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**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. This part will also include the required Drawings, General Conditions, Special Conditions, Technical Specifications (Annexure-III), 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.

**Part - B**

It will cover only the **Financial Bid**. The price of each item shall be quoted as per the prescribed price schedule format (Annexure-IV) along with price break up of custom duty, Excise duty, packing, forwarding, and Handling charges, Insurance charges, freight up to destination including unloading, testing and training with total price per item at FOR destination at Sarang. 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 PHYSICS Department, IGIT Sarang, Parjang, Dhenkanal, Odisha-759146, Dates of Opening: (a) Technical bid: Date: 04 / 03 /2020, Time: 3.30 PM and (b) Financial bid: Date: 06/03/ 2020, Time: 10.00 A.M**” 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: 02 /03/ 2020** by Regd. Post/Speed Post only. No other modes of submission are 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 in a conspicuous position, upon which the total specifications along with the manufacturer’s name, address, etc. are to be mentioned.

**3.2 Packaging:**

All the equipments 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.



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**3.3 Inspection:**

1. 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.
2. 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.
3. 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.
4. 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.

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:

- I. Storage Temperature 0 to 70 degree Celsius
- II. Operating Temperature 0 to 50 degree Celsius
- III. 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 their own cost 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 complaint.



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- 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.
- 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.



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**4.3 Documentation:**

- a. Detailed technical manuals, handbooks, drawings, Warranty card and Factory Quality Assurance checklist, test results and 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.

**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 **One-year** 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 After Sales Service:**

- a. During the warranty period 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 mail of which shall be given by the tenderer.





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**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 favour 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 and Bank charges if any will be deducted.
- c. In no case, the EMD Money in cash or other forms will be accepted at the time of opening of the bid.
- 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, basic science 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



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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.

**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, rate contract preference, number & copy of rate contract have to be submitted along with tender.

**6. Technical Specifications:**

Following are the minimum specifications of the equipment/ Machineries.

1. The minimum specifications are indicative and not exhaustive.
2. The models with higher specifications may be quoted.
3. The quoted materials should be of latest trend and technology & software if any should be compatible to all versions of windows.
4. Each equipment should be complete in itself without needing any extra requirements except the requirement of general test and measuring instruments.

**Note: One can submit the tender for all the items as per item description or individual item.**

**7. Jurisdiction of the Court**

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.



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**DETAIL SPECIFICATIONS OF EQUIPMENTS**

SL. No	ITEM NAME AND SPECIFICATION	QUANTITY
1	<p><b>Apparatus for measuring voltage and frequency using CRO.</b></p> <ul style="list-style-type: none"> <li>➤ 20MHz Dual Trace Dual Channel 1mv Sensitivity</li> <li>➤ CRT Type: 6-inch rectangular with internal graticule 8x10div (1div=1cm).</li> <li>➤ Bandwidth :X1 - DC (AC 10Hz) ~20MHz (-3dB)</li> <li>➤ Mode:Ch1,Ch2,Dual(Alt/Chop)Add,Ch2 INV</li> </ul>	01
2	<p><b>Apparatus for magnetic susceptibility of Solids using Gouy's Method.</b></p> <ul style="list-style-type: none"> <li>➤ Scientific Balance Capacity: 200 gms</li> <li>➤ Sensitivity:1/10mg. by Vernier,</li> <li>➤ Beam : Hard Bronze/ Brass, Arrestment Circular,</li> <li>➤ falling away type, Air Damping Very quick and positive, beam coming to rest in 2-3 sec,</li> <li>➤ Electromagnet : Magnetic Field 20KG at 6mm air gap Energising Coils Two of approx. 13W</li> <li>➤ Power: 0-90Vdc, 3A, for coils in series, 0-45Vdc, 6A, for coils in parallel</li> <li>➤ Constant Current Power Supply,</li> <li>➤ Field Intensity 11KG at 10mm air-gap with flat pole pieces</li> <li>➤ Energising Coils Two, each having a resistance of about 12W,</li> <li>➤ Power Requirement 0-90Vdc, 3A, if coils are connected in series 0-45V dc, 6A, if coils are connected in parallel</li> </ul>	01
3	<p><b>Apparatus of Planck's constant using LEDs of 4 different colors.</b></p> <ul style="list-style-type: none"> <li>➤ Selector Switch : V-I and T-I experiment</li> </ul> <p>Selector Switch at V-I position :-</p> <ul style="list-style-type: none"> <li>➤ Voltmeter &amp; current Display: 3½ digit, 7segment,</li> <li>➤ Voltage Range : 0.000-2.000V, Current Range : 0-2000mA</li> </ul> <p>Selector Switch at T-I position :-</p> <ul style="list-style-type: none"> <li>➤ Current Display : 3½ digit, 7segment LED</li> <li>➤ Current Range : 0-20mA</li> <li>➤ Temperature Display : 3½ digit, 7segment LED</li> <li>➤ Temperature Range : Room temperature to 60.0°C</li> <li>➤ Oven , Oven Connector : 5 Pin, DIN type</li> <li>➤ LED Connector : 3 Pin, DIN type</li> </ul> <p>Oven with Temperature Sensor</p> <ul style="list-style-type: none"> <li>➤ Heating Element : 20 ohm, Oven Connector : 5 Pin, DIN</li> <li>➤ Ambient Temp. : 60° C, Temp. Sensor : Pt100</li> <li>➤ Output Pin : Heater pin 4 &amp; 5., Temperature pin 1 &amp; 2 Oven Connector : 5 Pin, DIN</li> <li>➤ Ambient Temperature : 353K, Temperature Sensor : Pt100</li> </ul> <p>Output Pin : Heater pin 4 &amp; 5. Temperature pin 1 &amp; 2</p>	01



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SL. No	ITEM NAME AND SPECIFICATION	QUANTITY
4	<p><b>Apparatus for magnetic field using search coil with Rail Bench.</b></p> <p><b>POWER SUPPLY-</b> Voltage : 0-16V DC continuously variable &amp; stabilized Current : 5 A , display : 3½ digit LED, Ripple : Less than 25mV            Overload : protection, continuously variable, 10% to full rating            Working voltage : 230V AC, 50 Hz single phase</p> <p><b>GAUSS METER WITH AXIAL PROBE-</b> Digital Range : 200 Gauss &amp; 2 k Gauss            Resolution : 0.1Gauss at 0 - 200 Gauss, Offset : By Potentiometer to set ZERO            Axial Hall Probe :InAs, Display : 3½ Digit LED</p> <p><b>BASE FOR HELMHOLTZ COIL &amp; COIL SETS:</b> Coil: Dia=150mm, N=390, Current: 1A(max.), Connection : 4mm safety socket, Material : Copper</p> <p><b>BASE FOR HELMHOLTZ COIL - U</b> channel dimension : 350x210x25mm            Scale : 0-22cm, least count=1mm, Material : Aluminum</p> <p><b>U RAIL WITH RIDER-U</b> rail dimension : 725x60x15mm, Scale : 0-50cm,LC=1mm, Rider : 60x60mm (LxW), Material : Aluminium</p> <p><b>SUPPORT BASE &amp; SUPPORT ROD, DEFLECTION COMPASS WITH BASE-</b>            Compass box: 100mm dia., Rider : 150x60mm (LxW), Material : Aluminium</p>	01
5	<p><b>Apparatus for Specific rotation of sugar solution.</b></p> <p><b>Polarimeter Tube:</b></p> <ul style="list-style-type: none"> <li>➤ Length :200mm with central bulb, metallic cap &amp;cover glasses packed in a velvet case</li> </ul> <p><b>Sodium Light Source:</b></p> <ul style="list-style-type: none"> <li>➤ Starting Voltage : 470 Volts, Input Voltage : 220V,50Hz, Lamp House ; 300x85mm(LxW),</li> </ul> <p><b>Laurent's Half Shade-</b> Circular scale :0°-360°, Least count :1°, Vernier Reading :6 min</p>	01
6	<p><b>Apparatus for band gap in a semiconductor using pn junction diode.</b></p> <ul style="list-style-type: none"> <li>➤ Selector Switch : V-I and V-T experiment, Bias &amp; Junction</li> <li>➤ Voltmeter &amp; Current Display : 3½ digit, 7segment LED</li> <li>➤ Voltage Range : 0.000-1.999V &amp; Current Range : 0-20mA</li> <li>➤ Display : 3½ digit, 7segment LED</li> <li>➤ Selector Switch at V-T position/Junction :-</li> <li>➤ Voltage Range : 0.000-1.999V</li> <li>➤ Temperature Display : 3½ digit, 7segment LED</li> <li>➤ Temperature Range : 273K to 353K</li> <li>➤ Oven : Heater pin 4 &amp; 5. Temperature pin 1 &amp; 2</li> <li>➤ Oven Connector : 5 Pin, DIN type</li> <li>➤ Diode &amp;Transistor : 4mm safety socket</li> <li>➤ Input Voltage : 220V, 50Hz AC</li> <li>➤ TEMPERATURE SENSOR-</li> <li>➤ Heating Element : 35 ohm</li> <li>➤ Oven Connector : 5 Pin, DIN type</li> <li>➤ Ambient Temperature : 353K</li> <li>➤ Temperature Sensor : Pt100</li> </ul> <p>Output Pin : Heater pin 4 &amp; 5. Temperature pin 1 &amp; 2</p>	01



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SL. No	ITEM NAME AND SPECIFICATION	QUANTITY
7	<b>Astable, Bistable &amp; Monostable multivibrator apparatus.</b> <ul style="list-style-type: none"> <li>➤ DC Supply : 5V, IC : NE555,</li> <li>➤ Led Indicator : 2nos</li> <li>➤ Resistor : 100K<math>\Omega</math>-2nos,10K<math>\Omega</math>-2nos,1K<math>\Omega</math></li> <li>➤ Capacitor : 1<math>\mu</math>F,0.1<math>\mu</math>F-2nos,0.01<math>\mu</math>F-2nos,10<math>\mu</math>F</li> <li>➤ Variable Resistor : 5K<math>\Omega</math></li> </ul>	01
8	<b>Apparatus of Wien bridge oscillator for a frequency using an op-amp.</b> <ul style="list-style-type: none"> <li>➤ DC Supply: +5V</li> <li>➤ BJT:CL100S</li> <li>➤ Resistor : 4.7K<math>\Omega</math>,100K<math>\Omega</math>,6.8K<math>\Omega</math>,3.3K<math>\Omega</math>,680<math>\Omega</math>,10K<math>\Omega</math></li> <li>➤ Capacitor:0.01<math>\mu</math>F,0.047<math>\mu</math>F,0.2<math>\mu</math>F</li> <li>➤ Front panel built with high class insulated sheet</li> <li>➤ Circuit &amp; Symbol diagram printed on front panel</li> <li>➤ Mains Power :230V/50Hz</li> </ul>	01
9	<b>Apparatus of phase shift oscillator using Bipolar Junction Transistor.</b> <ul style="list-style-type: none"> <li>➤ DC Supply:+5V</li> <li>➤ BJT:CL100S</li> <li>➤ Resistor:4.7K<math>\Omega</math>-3nos,47K<math>\Omega</math>,10K<math>\Omega</math>,2.2K<math>\Omega</math>,680<math>\Omega</math></li> <li>➤ Capacitor:0.1<math>\mu</math>F-3nos,1<math>\mu</math>F,22<math>\mu</math>F</li> <li>➤ Interconnection:2mm patch cord</li> <li>➤ Front panel built with high class insulated sheet</li> <li>➤ Circuit &amp; Symbol diagram printed on front panel</li> <li>➤ Mains Power :230V/50Hz</li> </ul>	01
10	<b>Apparatus of a precision Differential amplifier of given I/O specification using Op-amp.</b> <ul style="list-style-type: none"> <li>➤ DC Supply :+12V &amp; -12V Fixed</li> <li>➤ DC Supply : 0-1V Variable -2nos</li> <li>➤ Voltmeter : 0-1V (Moving Coil)-2nos</li> <li>➤ Voltmeter : 0-10V (Moving Coil)</li> <li>➤ Resistor : 1K<math>\Omega</math>-2nos,10K<math>\Omega</math>-2nos</li> <li>➤ OpAmp-IC741</li> <li>➤ Interconnection:2mm patch cord</li> <li>➤ Front panel built with high class insulated sheet</li> <li>➤ Circuit &amp; Symbol diagram printed on front panel</li> </ul>	01



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SL. No	ITEM NAME AND SPECIFICATION	QUANTITY
11	<b>Apparatus using op-amp as an Integrator &amp; Differentiator.</b> <ul style="list-style-type: none"> <li>➤ DC Supply: +12V &amp; -12V Fixed</li> <li>➤ AC Signal: 10KHz</li> <li>➤ AC Voltage: 1V</li> <li>➤ OPAMP-IC741</li> <li>➤ Resistor : 1K<math>\Omega</math>, 10K<math>\Omega</math>-2nos, 100K<math>\Omega</math>-2nos, 1M<math>\Omega</math>, 10M<math>\Omega</math></li> <li>➤ Capacitor: 0.01<math>\mu</math>F-2nos, 100pF</li> <li>➤ Interconnection: 2mm patch cord</li> <li>➤ Front panel built with high class insulated sheet</li> <li>➤ Circuit &amp; Symbol diagram printed on front panel</li> <li>➤ Mains Power : 230V/50Hz</li> </ul>	01
12	<b>Apparatus for e/m by Thompson method</b> <ul style="list-style-type: none"> <li>➤ Cathode Ray Tube, Power supply for Cathode ray tube</li> <li>➤ Stand For CRT, Compass</li> <li>➤ Compass Stand, Bar Magnet</li> </ul>	01
13	<b>Apparatus for verifying Richardson's <math>T^{3/2}</math> law.</b> <ul style="list-style-type: none"> <li>➤ DC Supply : 0-250V, Vacuum diode</li> <li>➤ DC Voltmeter : 0-6 &amp; 0-150V (Moving Coil)</li> <li>➤ DC Ammeter: 0-600mA &amp; 0-30mA (Moving coil)</li> <li>Vacuum Diode : EZ80, Variable Pot: 2nos</li> </ul>	01
14	<b>Apparatus of Junction Diode Rectifier &amp; Filter Characteristics (With AC Milli Voltmeter)</b> <ul style="list-style-type: none"> <li>➤ Mains transformer, secondary center tap 10V-0-10V at 100 mA.</li> <li>➤ Digital DC Ammeter 3½ Digit range 0-200 mA</li> <li>➤ Digital DC Voltmeter, 3½ Digit range 0-20V/200V.</li> <li>➤ Four Silicon Junction Diodes, Filter choke.</li> <li>➤ Adequate no. of other electronic components.</li> <li>➤ Mains ON/OFF switch, Fuse and Jewel light.</li> <li>➤ The unit is operative on 230VAC <math>\pm</math>10% at 50Hz.</li> <li>➤ Adequate no. of patch cords stackable from rear both ends 4mm spring loaded plug length 50cm.</li> <li>➤ Good quality, reliable terminal/sockets are provided at appropriate places on panel for Connections/observation of waveforms.</li> <li>➤ Strongly supported by detailed Operating Instructions, giving details of Object, Theory, Design procedures, Report Suggestions and Book References.</li> <li>➤ Weight : 3100 Kg. (Approx.), Dimension : W 340 x H125 x D 210</li> </ul>	01



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SL. No	ITEM NAME AND SPECIFICATION	QUANTITY
15	<p><b>Apparatus of Geiger Counting System (Microcontroller based).</b>            20 x 2 LCD dot-matrix display for counts, elapsed time and HV, Single Board Design Approach, Counts capacity 999999, preset time 9999 s, Variable HV (0-1500V), 1mA, Built –in parallel port for direct data printing, Built –in serial port for data downloading into PC, Store and Recall facility for data counts.</p> <p><b>Specifications:</b>  <b>G.M. Input (From G. M. Counter) :</b>(a) Polarity : Negative (b) Amplitude : 250 mV (min) <b>Resolving Time:</b>6 micro sec approx. <b>EHT Output:</b> Variable EHT using ten turn put up to a maximum of 1500 volts at 1mA. Line and load regulation better than 0.05%. Ripple less than 10mV (rms). <b>Display:</b> 20x2 LCD dot-matrix display has been provided to indicate data counts, Elapsed Time and EHT. <b>Modes of operation:</b> Preset count&amp; Preset time modes. <b>Counts Capacity:</b> 999999 counts.  <b>Command Buttons:</b> START, STOP, PROG, STORE, INC &amp; DEC command buttons have been provided on the front panel keypad. <b>Programmability:</b> Includes selection of Preset Time, Storing / Recalling of data, Starting and stopping of acquisition, label assignment for data counts BG(Background), ST (Standard) &amp; SP (sample) etc, <b>Printer Port:</b> Built-in centronics sport facilities connection to a printer for direct data printing selectively. <b>USB Serial Port:</b> Built-in USB serial port facilitates data down loading into PC. <b>Preset time:</b>(0-9999) sec. <b>Data Storage:</b> Up to 1000 Reading. <b>Paralysis Time:</b> A choice of three paralysis times 250, 350 and 550 micro sec plus OFF position selected through PROG key. <b>Socket:</b> MHV connector for connecting to G.M. Detector. <b>Power:</b> Unit is powered through a 12v Adaptor at Dc Power socket. <b>Mechanical Dimensions:</b> 236 mm(W)X133mm(H)X246mm(D).</p> <p><b>Other Accessories with Specifications( included):</b>            A) <b>End Window G.M. Detector:</b> <b>Application:</b> Suitable for Beta sample, Counting. <b>Operating Voltage: Range:</b> (450 - 650V), <b>Tube Dimensions:</b> Max. Overall length 2.125 inches. <b>Max. Diameter:</b> 0.59 inches. <b>Gas filled :</b>Ne + Hal  <b>End Window:</b> mica 2.0 mg/cm sq. density <b>Gamma Sensitivity:</b> 18 cps / mR/hr.            B) <b>GM Detector Stand:</b> This stand is an essential accessory for connecting end window G.M. tube to any of the G.M. counting systems.            C) <b>Aluminum Absorber Set:</b> consists of absorber discs in different thicknesses ranging from 20 to 300 mg/cm.sq.            D) <b>Radioactive Source Kit</b> (One Gamma Source i.e.Cs-137 &amp; One Beta Source i.e.Tl-204)            E) <b>Beta Source.</b></p>	01
16	<p><b>Apparatus for studying Brewster's law.</b></p> <ul style="list-style-type: none"> <li>➤ Incandescent bulb with house on stand.</li> <li>➤ Polaroid mounted on a graduated circular scale 360° which can the mounted on telescope by the help of three screws.</li> <li>➤ PRISM: Optically worked with two faces polished, equilateral size 38mm x 38mm.</li> <li>➤ SPECTROMETER STANDARD:6" dia circle reading 30 seconds with telescope and collimator, diffraction grating stand. prism table provided with three leveling screws and is engraved with concentric rings &amp; lines.</li> <li>➤ READING LENS: 40/50 mm diameter with handle.</li> <li>➤ SPIRIT LEVEL : 60/80 mm length, Weight : 10.4 Kg. (Approx.)</li> <li>➤ Strongly supported by detailed Operating Instructions, giving details of Object, Theory, Design procedures, Report Suggestions and Book References.</li> </ul>	01



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SL. No	ITEM NAME AND SPECIFICATION	QUAN TITY
17	<b>Apparatus of Fabry-Perot interferometer.</b> <ul style="list-style-type: none"> <li>➤ Fabry Perot Etalon</li> <li>➤ Spectrometer standard:6" dia circle reading 30 seconds.</li> <li>➤ Sodium light source: 35Watt complete set.</li> <li>➤ Optical slit: Optically true, precision ground stainless steel jaws.</li> <li>➤ Reading lens: 40/50 mm Diameter with handle.</li> <li>➤ Spirit level: 60/80 mm. length.</li> </ul>	01
18	<b>Apparatus of Hartley oscillator with digital Frequency Counter-DFC-20M.</b> <b>The board consists of the following built-in parts:</b> <ul style="list-style-type: none"> <li>➤ -9V DC at 50mA, IC regulated Power Supply internally connected.</li> <li>➤ PNP transistor.</li> <li>➤ Variable gang condenser.</li> <li>➤ Adequate no. of other electronic components.</li> <li>➤ Mains ON/OFF switch, Fuse and Jewel light.</li> <li>➤ The unit is operative on 230VAC <math>\pm 10\%</math> at 50Hz.</li> <li>➤ Adequate no. of patch cords 4mm length 50 cm.</li> <li>➤ Good Quality, reliable terminal/sockets are provided at appropriate places on panel for connections / observation of waveforms.</li> <li>➤ Weight : 2.00 Kg. (Approx.)</li> <li>➤ Dimension: W 340 x H 125 x D 210.</li> </ul>	01
19	<b>Apparatus of determining parameters of transistor with VTVM-VTV-10.</b> <b>The board consists of the following built in parts:</b> <ul style="list-style-type: none"> <li>➤ 0-2V5 D.C. at 100 mA, continuously variable Power Supply.</li> <li>➤ 0-9V D.C. at 100mA, continuously variable Power Supply.</li> <li>➤ Digital Current meter DC 3½ Digit Having range 0-20mA</li> <li>➤ 1 KHz Sine Wave source with variable output level 0 - 1V.</li> <li>➤ PNP Germanium transistor</li> <li>➤ Adequate no. of other Electronic Components.</li> <li>➤ Mains ON/OFF switch, Fuse and Jewel light.</li> <li>➤ The unit is operative on 230V <math>\pm 10\%</math> at 50Hz AC.</li> <li>➤ Adequate no. of patch cords stackable from rear both ends 4mm spring loaded plug length 50cm.</li> <li>➤ Good Quality, reliable terminal/sockets</li> <li>➤ Weight : 3.400 Kg. (Approx.)</li> <li>➤ Dimension : W 340 x H125 x D 210</li> </ul>	01
20	<b>Apparatus of ESR Spectrometer.</b> <ul style="list-style-type: none"> <li>➤ FET based marginal R.F. Oscillator.</li> <li>➤ Digital display of frequency.</li> <li>➤ Excellent peaks display.</li> <li>➤ Digital display of Helmholtz Coil Current.</li> <li>➤ Phase Shifter.</li> <li>➤ 50Hz Sweep Unit.</li> <li>➤ Compatible with general purpose CRO in X-Y mode.</li> </ul>	01





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21	<p><b>Apparatus for Rydberg Constant.</b></p> <ul style="list-style-type: none"> <li>➤ SPECTROMETER STANDARD: 6" dia circle reading 30 seconds with telescope and collimator, diffraction grating stand. Prism table provided with three leveling screws and is engraved with concentric rings &amp; lines.</li> <li>➤ DIFFRACTION GRATING: Hilger&amp; Watts Type, 15000 line per inch/6000 lines per cm.</li> <li>➤ HYDROGEN SPECTRUM TUBE: High intensity, with stand having back reflecting surface.</li> <li>➤ TRANSFORMER: High voltage, for Hydrogen spectrum tube.</li> <li>➤ Reading Lens: 50 mm diameter with handle.</li> <li>➤ Spirit Level : 60/80mm length</li> <li>➤ Weight : 13.4 Kg. (Approx.)</li> <li>➤ Dimension: W 145 x H 140 x D 200.</li> </ul>	01
22	<p><b>Apparatus for e/m measurement by Braun tube.</b></p> <p>Cathode Ray Tube, High Voltage Power supply for C.R.T. and D. C. Volts for deflection of Electron Beam, Voltmeter to Read Voltage, Three Wooden stands, Magnetometer, Bar Magnets and Centimeter Scales, Power Requirement: 230V <math>\pm</math> 10% at 50 Hz A.C. Mains, Strongly supported by detailed Operating Instructions. 09 Weight : 9 Kg. (Approx.), Dimension : W290xH160xD230, Tube is mounted on a wooden stand which has a groove cut at its bottom to fit into another stand with platform for placing two bar magnets. The third wooden stand provides a platform for Magnetometer for measuring the magnetic field along with the axis of the Cathode Ray Tube.</p> <p><b>CATHODE RAY TUBE CHARACTERISTICS:</b></p> <p>Cathode:Unipotential oxide, Heater Voltage: 6.3 Volts AC or DC.  Heater Current :0.6 <math>\pm</math> 0.06 Amp, Focusing Method:Electrostatic, Deflection Method: Electrostatic, Phosphor Fluorescence : Green, Persistence : Medium</p>	01
23	<p><b>Apparatus for e/m measurement by Magnetron Valve.</b></p> <ul style="list-style-type: none"> <li>➤ One board consisting of following built-in parts: A valve with 8-pin base fixed on panel &amp; wired internally, 6V3 AC at 1 Amp. for filament, Regulated Power Supply 0-10V for plate voltage, Constant current source 0-2Amp for solenoid with coarse &amp; fine adjustment, Digital Voltmeter, 3½ digits having range 20V DC for plate voltage. Digital Ammeter, 3½ digits having range 2 Amp. DC for solenoid, Digital Milliammeter, 3½ digits having range 2mA DC for plate current.</li> <li>➤ Solenoid: For Magnetic Field, Mains ON/OFF switch and fuse.</li> <li>➤ Adequate no.of patch cords stackable 4mm spring loaded plug length ½ metre.</li> <li>➤ Good Quality, reliable terminal/sockets are provided at appropriate places on panel for connections / observation of waveforms.</li> <li>➤ Weight: 7 Kg. (Approx.), Dimension: W 290 x H 160 x D 230.</li> </ul>	01



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SL. No	ITEM NAME AND SPECIFICATION	QUANTITY
24	<p><b>Apparatus for PE Hysteresis loop of Ferroelectric Crystal.</b>  <math>\pm 12V</math> D.C. at 100mA, IC Regulated Power Supply, 10, 22, 35, 50, 65, 75, 90, 105 &amp; 120V A.C. Power Supply at 1.5Amp. 3½ digits digital panel meter to read magnetic field in Gauss, A solenoid with former fitted on the platform for producing magnetic field, A pick up coil wound on former and fixed on acrylic fixture for picking up magnetic field for hysteresis loop, Two helical potentiometers to vary continuous Area Ratio and Demagnetisation, Two band switches to select different Flux Density (B) and Magnet Field, Two amphenol connectors, one for solenoid to give voltage and another for giving input from Pick-up-coil, Three potentiometers, one each to vary continuous phase, H. Balance and D.C. Balance, Three 4mm terminals for Hysteresis Loop measurements, Three samples, one each of commercial Nickle, Soft Iron and Hard steel.</p>	01
25	<p><b>Apparatus for characteristics of FET Amplifier.</b></p> <ul style="list-style-type: none"> <li>➤ 0 to 20V DC at 50mA, continuously variable Power Supply.</li> <li>➤ 0 to 12V DC at 50mA, continuously variable Power Supply.</li> <li>➤ Two Digital Voltmeter DC 3½ Digit Having range of 0- 20V.</li> <li>➤ Digital Current meter DC 3½ Digit Having range of 0-20mA.</li> <li>➤ Field Effect Transistor.</li> <li>➤ Adequate no. of other electronic components.</li> <li>➤ Mains ON/OFF switch, Fuse and Jewel light.</li> <li>➤ The unit is operative on 230VAC <math>\pm 10\%</math> at 50Hz.</li> <li>➤ Good Quality, reliable terminal/sockets are provided at appropriate places on panel for connections /observation of waveforms.</li> </ul>	01
26	<p><b>Apparatus for Amplitude Modulation &amp; Demodulation with AF Generator.</b></p> <ul style="list-style-type: none"> <li>➤ +9V D.C.at 100mA, IC Regulated Power Supply internally connected.</li> <li>➤ Carrier generator circuit, which generates carrier wave.</li> <li>➤ 1Hz to 1KHz Sine Wave oscillator, Modulating circuit based on two transistors, Demodulating circuit, Adequate no. of other electronic components, Mains ON/OFF switch, fuse and Jewel light.</li> <li>➤ The unit is operative on 230VAC <math>\pm 10\%</math> at 50Hz.</li> <li>➤ Adequate no. of patch cords stackable from rear both ends 2mm spring loaded plug length 50cm.</li> <li>➤ Good Quality, reliable terminal/sockets are provided at appropriate places on panel for connections &amp; observation of waveforms.</li> </ul>	01



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SL. No	ITEM NAME AND SPECIFICATION	QUAN TITY
27	<b>Apparatus of different Logic Gates.</b> ➤ To Study the OR, AND & NAND logic gates and to verify the truth tables. ➤ To make various logic functions (OR, NOR, NOT, AND & EX-OR Gates) by using NAND gates and verify their truth tables.	01
28	<b>Apparatus of Bar Pendulum.</b> Rectangular Stainless Steel bar with mark at every 5cms, stand for hanging the metallic bar.	05
29	<b>Apparatus of Young's Moduls: Searle's Pattern.</b> Brass body Chromium plated. With weight Set.	05
30	<b>Apparatus of Rigidity Modulus.</b> Dynamical Method, With steel rod 16" long & 1" diameter & wall bracket.	05
31	<b>Apparatus of Torsion pendulum.</b> Vertical Pattern. 100cms long with 3 scale & weight set.	04
32	<b>Apparatus of Katter's Pendulum.</b> S.S. with 2 sets of large & small weights, two knife-edges & wall bracket.	04
33	<b>Apparatus of Stokes Law set up.</b>	02
34	<b>Apparatus of Bipolar Junction Transistor Characteristic kit.</b>	02
35	<b>Apparatus of PN junction Kit.</b> ➤ 0-10V D.C. at 50mA, continuously variable with Coarse & Fine Pots, regulated Power Supply. ➤ Digital D.C. Voltmeter, 3½ Digit ranges 0-2V/20V. ➤ Digital D.C. Ammeter 3½ Digit ranges 0-20uA/20mA. ➤ Ge and Si Semiconductor Diodes. ➤ Adequate no. Of other electronic components, Mains ON/OFF switch and Fuse. ➤ The unit is operative on 230VAC ±10% at 50Hz. ➤ Adequate no. of patch cords stackable 4mm spring loaded plug length 50cm. ➤ Good Quality, reliable terminal/sockets are provided at appropriate places on panel for connections /observation of waveforms. ➤ Weight: 1.300 Kg. (Approx.), Dimension: W 340 x H 125 x D 210.	02
36	<b>Apparatus of Slide Calipers.</b> Stainless Steel superior quality.5" size, Vernier reading 0.01cms. With wheel drive.	25
37	<b>Apparatus of Screw Gauge: Moore &amp; Wright type.</b> Circular Bar body, S. S. Screw & pivot, ratchet stop.20x1/100mm.	25
38	<b>Apparatus of Speherometer:</b> Brass Body, Stainless Steel screw & legs.1/100mm.	25
39	<b>Apparatus of Cathode Ray Oscilloscope.</b>	02



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**ANNEXURE-I**  
**TECHNICAL BID (DETAILS OF THE FIRM)**

1	Tender No. and Date		
2	Name and Address of the Firm		
3	Telephone No. /Email.ID		
4	Name of the Proprietor/ Managing Partner/ Director		
5	Regn. No of the Firm (Partnership / Company/ Prop. Etc)		
6	Permanent Account No (PAN)		
7	Service Tax Regn. No		
8	Whether the firm has submitted the certificate of “Authorized Distributer of an OEM”		Yes/ No (Strike out which is not applicable)
9	IT Clearance of last three years		
10	Whether the firm has been Blacklisted by any Govt. or other Organizations		Yes/ No (Strike out which is not applicable)
11	Whether the terms and conditions of the tender duly accepted		Yes/ No (Strike out which is not applicable)
12	Details of Tender Cost:		Amount Rs. 1000/- DD No:                      Date: Bank:
13	Details of EMD:		Amount Rs. 3000/- DD No:                      Date: Bank:
14	List of References		1. Name Tel/Mob. No  2. Name Tel/Mob. No
15	GST Registration No.		

**Signature and Seal of the Bidder**



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**ANNEXURE-II**

**UNDERTAKING**

**This is certified that my firm/agency/company has never been blacklisted by any of the Government or other Organization and no criminal case pending against the said firm/agency/company.**

**Place:**

**Name of the Tenderer:**

**Name of the Signatory:**

**Signature:**

**Seal:**

**Date:**



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**ANNEXURE-III**

**Technical Details of the Equipment's to be supplied by the Bidder**

<b>Bid Serial No. of the Item</b>	<b>Equipment's Name</b>	<b>Tender Specification</b>	<b>Bidders specifications with Make and Model No. (Enclose manufacturers catalogue/ brochure for each item</b>	<b>Deviation if any with college specification</b>	<b>Remark</b>

**Signature and Seal of the Bidder**

