



राष्ट्रीय इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी संस्थान (रा.इ.सू.प्रौ.सं)- अगरतला केंद्र

**National Institute of Electronics and Information Technology
(NIELIT)- Agartala Centre**

Department of Electronics and Information Technology (DeitY), MCIT, Government of India
R.K. Nagar (Opposite to NEEPCO), Khayerpur, Agartala - 799008, www.agartala.nielit.gov.in

EXTENSION OF TENDER/RFP SUBMISSION DATE

The submission date of the following Tender/RFP has been extended:

Sl. No	Description of the Tender/RFP	Reference No	Earlier last Date of Submission	Last date of submission	Date of Opening of Technical Bid
1.	Supply & Installation of Software and Hardware Equipment for Information Security Education and Awareness Lab at NIELIT Agartala Centre	NIELIT/AGT/ISEA-2/130/2015 Dt 17 th March, 2016	28.03.2016 (2.00 PM)	07.04.2016 (2:00 PM)	07.04.2016 (3:30 PM)
2.	Supply & Installation of Software At NIELIT Agartala	NIELIT/AGT/Software/2009-10/01 Dt 14 th March, 2016	29.03.2016 (2.00 PM)	08.04.2016 (2:00 PM)	08.04.2016 (3:30 PM)
3.	Supply & Installation of Lab Equipment at NIELIT Agartala	NIELIT/AGT/Lab Eqpt/55/2011 Dt 15 th March 2016	30.03.2016 (2.00 PM)	11.04.2016 (2:00 PM)	11.04.2016 (3:30 PM)

Details of the tender/RFP notice or documents and terms & conditions are available at NIELIT's website:
www.agartala.nielit.gov.in.

Advt No - 06/2016

Sd/ – Director-in-Charge

NIELIT – Digital Literacy For All



राष्ट्रीय इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी संस्थान-अगरतला केंद्र

**NATIONAL INSTITUTE OF ELECTRONICS AND INFORMATION
TECHNOLOGY (NIELIT), AGARTALA CENTRE**

**Department of Electronics and Information Technology (DeitY), MCIT, Govt. of India
Opposite NEEPCO, R.K. Nagar, Khayerpur, Agartala – 799008**

Request for Proposals

RefNo: NIELIT/AGT/ADVT-7/126/2015

Dated 16th March 2016

NIELIT invites responses (“Tenders”) to the following Request for Proposals:

Sl	Description	Reference no	Last date of submission
1.	Supply & Installation of Software At NIELIT Agartala	NIELIT/AGT/Software/2009- 10/01 dt 14 th March, 2016	29.03.2016 (2.00 PM)
2.	Supply & Installation of Lab Equipment at NIELIT Agartala	NIELIT/AGT/Lab Eqpt/55/2011 Dt 15 th March 2016	30.03.2016 (2.00 PM)

Details of the RFPs will be available at the following NIELIT’s website:

www.agartala.nielit.gov.in/ www.nielit.gov.in

Advt No - 04/2016

Sd – Director-in-Charge

NIELIT – Digital Literacy For All

National Institute of Electronics and Information Technology

Request for Proposal (RFP)
For
**Supply & Installation of Lab
Equipment
At NIELIT Agartala**

**National Institute of Electronics and Information Technology
Department of Electronics and Information Technology
Ministry of Communications and Information Technology
Government of India**

**R.K. Nagar (Opposite to NEEPCO), Khayerpur, Agartala, West Tripura,
P.S. –Bodhjungnagar, PIN-799008**

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Fact Sheet

S. N	Particular	Details
1	Tender ID	NIELIT/AGT/Lab Eqpt/55/2011
2	Tender date	15.03.2016
3	Selection Method	Pre-Qualification with Least Cost based selection
4	Availability of RFP	RFP can be downloaded from NIELIT website http://agartala.nielit.gov.in or http://nielit.gov.in
5	Earnest Money Deposit (EMD)	Earnest Money Deposit of amount Rs. 2,20,000/- (Rs. Two Lacs twenty thousand only) . Demand Draft/FDR/Banker's Cheque in favour of NIELIT Agartala Centre and payable at Agartala from any of the Scheduled Bank.
6	Performance Bank Guarantee (PBG)	10% of the total cost of ownership in form of Bank Guarantee in favour of NIELIT Agartala Centre and payable at Agartala from any of the Scheduled Bank
7	Nodal Officer for correspondence and clarification	Shri Anurag Mathur, Director-in-Charge NIELIT Agartala R.K. Nagar, (Opposite NEEPCO), Khayerpur, Bodhjungnagar, Agartala 799008, Tripura (West), Tel: 0381-2391010, email: dir-agartala@nielit.gov.in
8	Last date of for Pre bid queries	22.3.2016 (2.00 PM)
9	Pre bid conference	A pre-Bid meeting will be held on 23.3.2016 at 02:00 PM at NIELIT Agartala Centre.
10	Issue of addendum /clarification (if any)	
11	Last date of bid submission	Proposals must be submitted no later than the following date and time: 30.3.2016 (2.00 PM)
12	Opening of Pre-qualification	30.3.2016 (2.30 PM)
13	Estimated Tender Value	Rs. 110 Lakhs
14	Opening of Technical bid	30.3.2016 (3.30 PM)
15	Opening of Financial bid	30.3.2016 (4.30 PM)

1. Background Information

1.1. Basic Information

- a) NIELIT invites responses (“Tenders”) to this Request for Proposals (“RFP”) from OMs Agencies/Authorized Partners (“Bidders”) for the provision of Hardware as described in this RFP, “Scope of Work”.
- b) Any contract that may result from this RFP Process will be issued for a term of Three year (“the Term”) which would include the supply, warranty and maintenance support. NIELIT may extend the maintenance & support service contract for further 3 years as per the terms & conditions mentioned in RFP.

1.2. About NIELIT

NIELIT is a 100% owned organization of the Department of Electronics and Information Technology (DeitY), Ministry of Communications & IT, Government of India, actively engaged in Capacity Building and Skill Development in the areas of IT; Electronics; Communication Technologies; Hardware; Cyber Law; Cyber Security; IPR; GIS; Cloud Computing; ESDM; e-Governance and related verticals.

NIELIT offers courses both in the Formal as well as the Non-Formal sectors of education and is also one of the National Examination body which accredit institutes / organizations for the conduct of courses in the Non Formal IT & Electronics Sectors.

NIELIT has been mandated to undertake various projects under Capacity Building in IECT with the objective of creating human resources at various levels including development of employment and self-employment linked quality and cost effective training programmes, besides conducting IT Literacy programmes for the masses, especially targeted towards the rural/ underdeveloped areas in the country. NIELIT is also the preferred agency for many State Governments for rolling out IT Literacy programmes for its employees and the masses.

The current manpower strength at NIELIT comprises of about 644 regular employees and 2140 project-based employees at more than 31 locations in the country. NIELIT has PAN India presence through a network of about 900+ Accredited Institutes engaged in training of Non Formal courses for skill development of youth, especially from rural India. NIELIT also has a network of about 6000+ Facilitation Centres providing training in Digital Literacy.

NIELIT’s own centres are located at Agartala, Aizawl, Ajmer, Aurangabad, Calicut, Chandigarh, Chennai, Delhi, Gangtok, Gorakhpur, Guwahati, Tezpur, Imphal, Itanagar, Kohima, Chuchuyimlang, Kolkata, Lucknow, Patna, Shimla, Shillong, Lunglei, Jorhat, Silchar, Churachandpur, Ranchi, Senapati, Srikakulam, Leh with its Headquarters at New Delhi.

2. Instructions to the Bidders

2.1. General

- a) While every effort has been made to provide comprehensive and accurate background information and requirements and specifications, Bidders must form their own conclusions about the requirement. Bidders and recipients of this RFP may wish to consult their own legal advisers in relation to this RFP.
- b) All information supplied by Bidders may be treated as contractually binding on the Bidders, on successful award of the assignment by the NIELIT on the basis of this RFP
- c) This RFP supersedes and replaces any previous public documentation & communications, and Bidders should place no reliance on such communications.

2.2. Compliant Tenders / Completeness of Response

- a) Bidders are advised to study all instructions, forms, terms, requirements and Bidders are advised to study all instructions, forms, requirements and other information in the RFP documents carefully. Submission of the bid / proposal shall be deemed to have been done after careful study and examination of the RFP document with full understanding of its implications.

- b) Failure to comply with the requirements of this paragraph may render the Proposal non-compliant and the Proposal may be rejected. Bidders must:
- i. Comply with all requirements as set out within this RFP.
 - ii. Submit the forms as specified in this RFP and respond to each element in the order as set out in this RFP.
 - iii. Include all supporting documentations specified in this RFP.

2.3. Pre-Bid Meeting & Clarifications

- a) NIELIT shall hold a pre-bid meeting with the prospective bidders on Date, time & venue as mentioned in Fact sheet of this document.
- b) The queries should necessarily be submitted in the following format:

S N	RFP Document Reference(s) (Section & Page Number(s))	Content of RFP requiring Clarification(s)	Points of Clarification
1			
2			
3			

- c) NIELIT shall not be responsible for ensuring that the bidder's queries have been received by them. Any requests for clarifications post the indicated date and time may not be entertained by the Nodal Agency.

2.3.1. Responses to Pre-Bid Queries and Issue of Corrigendum

- a) The Nodal Officer notified by the NIELIT will endeavor to provide timely response to all queries. However, NIELIT makes no representation or warranty as to the completeness or accuracy of any response made in good faith, nor does NIELIT undertake to answer all the queries that have been posed by the bidders.
- b) At any time prior to the last date for receipt of bids, NIELIT may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the RFP Document by a corrigendum.
- c) The Corrigendum (if any) & clarifications to the queries from all bidders will be posted on the website of NIELIT < <http://nielit.gov.in> > or <http://agartala.nielit.gov.in>.
- d) Any such corrigendum shall be deemed to be incorporated into this RFP.
- e) In order to provide prospective Bidders reasonable time for taking the corrigendum into account, NIELIT may, at its discretion, extend the last date for the receipt of Proposals.

2.4. Right to Terminate the Process

- a) NIELIT may terminate the RFP process at any time and without assigning any reason. NIELIT makes no commitments, express or implied, that this process will result in a business transaction with anyone.
- b) This RFP does not constitute an offer by NIELIT. The bidder's participation in this process may result NIELIT selecting the bidder to engage towards execution of the contract.

2.5. Earnest Money Deposit (EMD)

- a) Bidders shall submit, along with their Bids, EMD of amount as mentioned in fact sheet, in the form of a Demand Draft or FDR or Banker's Cheque issued by any Scheduled bank in favor of **NIELIT Agartala Centre** payable at **Agartala**, and should be valid for 180 days from the due date of the tender / RFP.

- b) EMD of all unsuccessful bidders would be refunded by NIELIT within 15 days of the bidder being notified as being unsuccessful. The EMD, for the amount mentioned above, of successful bidder would be returned upon submission of Performance Guarantee.
- c) The EMD amount is interest free and will be refundable to the unsuccessful bidders without any accrued interest on it.
- d) The bid / proposal submitted without EMD, mentioned above, will be summarily rejected.
- e) The EMD may be forfeited:
 - If a bidder withdraws its bid during the period of bid validity.
 - In case of a successful bidder, if the bidder fails to sign the contract in accordance with this RFP.
- f) Firms registered with NSIC are exempted from submission of bid security subject to condition that they submit the proof for the same.**

2.6. Submission of Responses

- a) The bidders should submit their responses as per the format given in this RFP in the following manner:
 - i. Response to Pre-Qualification Criterion
 - ii. Technical Proposal
 - iii. Commercial Proposal
- b) Prices should not be indicated in the Pre-Qualification Proposal or Technical Proposal but should only be indicated in the Commercial Proposal.
- c) The bids submitted by telex/telegram/ fax/e-mail etc. shall not be considered. No correspondence will be entertained on this matter

Bids must be submitted in person/by post/courier on or before the stipulated time mentioned in the Fact Sheet. Department does not take any responsibility for the delay caused due to network traffic jam or any other reason. No bid will be accepted after the said date & time for submission of the bid.

2.7. Site Inspection

Bidders are advised to inspect the site and its surroundings where these equipment are to be installed and satisfy them before submitting their tenders. A bidder shall be deemed to have full knowledge of the work whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed.

2.8. Acceptance

Acceptance Test shall be conducted, before commissioning by NIELIT and it's representative. The tests to be carried out, test procedures, test schedules, test equipment and tools, and expected test results are to be provided by the vendor to meet all the specified parameters/ service requirements. The date on which Final Acceptance Certificate is issued shall be deemed to be the date of successful commissioning of the Equipment.

The Bidder shall provide such packing of the Equipment as is required to prevent their damage or deterioration during shipment. The Bidder shall promptly repair or replace any Equipment that is damaged in transit. The packing, marking, and documentation within and outside the packages shall also comply strictly with the requirements. The Bidder shall insert in each case a packing list, fully itemized to show case number, contents, gross and net weight, and cubic measurement.

If the Equipment fail to meet the standards of performance for Acceptance Testing and during warranty period due to faulty part/component, the replacement of faulty part/component has to be carried out by the Bidder free of cost. Freight, insurance and other allied expenditure like customs duties etc. for such part/component shall be the liability of the Bidder. Bidder will reimburse to NIELIT the cost incurred by NIELIT, if any, on replacement of such faulty part/component.

If it becomes necessary for the Bidder to replace or renew any defective portions of the Equipment under this clause, the provisions of this clause shall apply to the portions of the Equipment so replaced or renewed until

the expiration of six months from the date of such replacement or renewal or until the end of the warranty period whichever may be the later. If any defects be not remedied within 15 (Fifteen) days from the date of communication thereof or within such other specific period as may be allowed by the NIELIT in his discretion on application made to that effect by the Bidder, the NIELIT may proceed to carry out the work at Bidder's risk and expense, but without prejudice to any other rights which the NIELIT may have against the Bidder in respect of such defects.

2.9. Training to NIELIT/Department

Bidder shall provide training to the personnel nominated by the NIELIT to enable them to have sufficient knowledge and skill to effectively manage, maintain, use and operate Equipment and to change/modify program during installation, warranty and O&M period.

On-site training during the installation of the Equipment shall be arranged by the Bidder. Arrangement of all training materials such as manuals, drawings, brochures etc. shall be the responsibility of the Bidder.

2.10. Preparation and Submission of Proposal

2.10.1. Proposal Preparation Costs

The bidder shall be responsible for all costs incurred in connection with participation in the RFP process, including, but not limited to, costs incurred in conduct of informative and other diligence activities, participation in meetings/discussions/presentations, preparation of proposal, in providing any additional information required by NIELIT to facilitate the evaluation process, and in negotiating a definitive contract or all such activities related to the bid process.

NIELIT will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

2.10.2. Language

The Proposal should be filled by the bidders in English language only. If any supporting documents submitted are in any language other than English, translation of the same in English language is to be duly attested by the Bidders. For purposes of interpretation of the documents, the English translation shall govern.

2.11. Evaluation process

A Proposal evaluation committee shall be constituted by the NIELIT. The Proposal Evaluation Committee may ask for meetings with the Bidders to seek clarifications on their proposals.

The Proposal Evaluation Committee reserves the right to reject any or all proposals on the basis of any deviations.

Each of the responses shall be evaluated as per the criteria and requirements specified in this RFP.

2.11.1. Tender Opening

The Proposals submitted by bidders will be opened at Time, Date as mentioned in fact sheet by NIELIT officials or any other officer authorized by NIELIT, in the presence of such of those Bidders or their representatives who may be present at the time of opening.

The representatives of the bidders should be advised to carry the identity card or a letter of authority from the tendering firms to identify their bonafides for attending the opening of the proposal.

2.11.2. Tender Validity

The offer submitted by the Bidders should be valid for minimum period of 180 days from the date of submission of Tender.

3. Criteria for Evaluation

3.1. Pre-Qualification (PQ) / Eligibility Criteria

S. No.	Basic Requirement	Specific Requirements	Documents Required
1.	Sales Turnover in Lab Equipment Sales & Maintenance services	Average Annual Turnover during each of the last three financial years (FY 2012-13, 2013-14, 2014-15), should have a minimum of Rs. 2 Crore that is generated from Lab Equipment Hardware supply and their associated maintenance services, etc.	<ul style="list-style-type: none"> ▪ Extracts from Audited/Certified financial statements and Balance sheet for last three financial years as per financial year of participating company/firm OR; ▪ Certificate from Chartered Accountant and Authorized Signatory
2.	Bidder should be a Company/firm registered under the Indian companies act (or) a firm registered under the Limited Liability Partnership Act, 2008 (or) a firm registered under the Partnership Act, 1932 for last 5 years.		Certificate of Incorporation and Articles of Association of the Participant in case of Company / Limited Liability Partnership Agreement in case of LLP
3.	Certificates	<p>Apart from company / firm registration, Participant must have registered under the following:</p> <ul style="list-style-type: none"> ▪ Valid Service Tax Registration Certificate; ▪ Valid Value Added Tax (VAT) registration Certificate ▪ Income Tax Return with for last three FY (2012-13, 2013-14, 2014-15) 	Copy of all the mentioned certificates/ITR certified by authorized signatory
4.	Letter of authorization from OM	The bidder should be an OM or their authorized representative. In case of authorized representative, a letter of authorization clearly stating the component/equipment for which the authorized representative is representing on behalf of the original manufacturer (OM) must be furnished.	Letter of authorization; as per template provided

S. No.	Basic Requirement	Specific Requirements	Documents Required
5.	<p>Technical Capability</p> <p>Bidder should be an established agency</p>	<p>Bidder must have successfully undertaken at least the following numbers of similar* assignments.</p> <p><i>(*Similar refers to supply and installation of Lab Equipment and their associated maintenance & support services, etc.)</i></p> <p>Value of engagement(s) are specified herein:</p> <ul style="list-style-type: none"> ▪ One assignment of similar nature not less than the amount of Rs. 1.50 crores; OR ▪ Two assignments of similar nature not less than the amount of Rs. 1 crore each; OR ▪ Three assignments of similar nature not less than the amount equal to Rs. 70 Lakhs each; OR <p>Assignment/s must have been executed in the last 2 financial years (FY 2013-14, 2014-15)</p>	<p>Completion Certificates from the client</p>
6.	<p>The Bidder should have ISO 9001: 2000/2008 Certificate</p>		<p>Copy of Valid ISO 9001:2000/2008 certificate to be submitted certified by authorized signatory</p>
7.	<p>Local Service Centres</p>	<p>The bidder should have presence in Agartala/Guwahati/Kolkata with support Centres. The bidder should have technical manpower with experience to provide service for support under this contract.</p>	<p>A Self Certified letter by authorized signatory</p>
8.	<p>Participant should not be an entity which has been black-listed by Government</p>	<p>A self-certified letter by the authorized signatory of the bidder that the bidder has not been blacklisted by any Central / State Government (Central/State Government and Public Sector) or under a declaration of ineligibility for corrupt or fraudulent practices as on bid submission date, must be submitted on original letter head of the bidder with signature and stamp</p>	<p>Self-Certified letter by authorized signatory</p>

3.2. Technical Qualification Criteria

Bidders who meet the pre-qualifications/eligibility requirements would be considered as qualified to move to the next stage of Technical and Financial evaluations.

The Product offered should meet all the technical and functional specifications given in the section “Scope of Work”. Non-compliance to any of the technical and functional specification will attract rejection of the proposal.

3.3. Commercial Bid Evaluation

- a) The Financial Bids of technically qualified bidders will be opened on the prescribed date in the presence of bidder representatives.
- b) Any conditional bid would be summarily rejected.

4. Appointment of vendor

4.1. Right to reject Proposal

NIELIT reserves the right to accept or reject any proposal, and to annul the tendering process / Public procurement process and reject all proposals at any time prior to award of contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for NIELIT action.

4.2. Performance Guarantee

The NIELIT will require the selected bidder to provide an *irrevocably, unconditionally* Performance Bank Guarantee, within 15 days from the Notification of award, for a value equivalent to 10% of the total cost of ownership. The Performance Guarantee should be valid for a period of **38 months** from the date of award of contract. The Performance Guarantee shall be kept valid till completion of the supply order and Warranty period. The selected bidder shall be responsible for extending the validity date and claim period of the Performance Guarantee as and when it is due on account of non-completion of the supply order and Warranty period. In case the selected bidder fails to submit performance guarantee within the time stipulated, the NIELIT at its discretion may cancel the order placed on the selected bidder without giving any notice. NIELIT shall invoke the performance guarantee in case the selected Vendor fails to discharge their contractual obligations during the period or NIELIT incurs any loss due to Vendor's negligence in carrying out the supply order implementation as per the agreed terms & conditions.

4.3. Signing of Contract

Post submission of Performance Guarantee by the successful bidder, NIELIT shall enter into a contract, incorporating all clauses, pre-bid clarifications and the proposal of the bidder between NIELIT and the successful bidder.

5. Terms and Conditions: Applicable Post Award of Contract

5.1. Right to Terminate the Process

NIELIT reserves the right to cancel the contract placed on the selected bidder and recover expenditure incurred by NIELIT under the following circumstances:-

- a) The selected bidder commits a breach of any of the terms and conditions of the bid.
- b) The bidder goes into liquidation, voluntarily or otherwise.
- c) If the selected bidder fails to complete the assignment as per the time lines prescribed in the RFP and the extension if any allowed, it will be a breach of contract. The NIELIT reserves its right to cancel the order in the event of delay and forfeit the bid security as liquidated damages for the delay.
- d) If deductions of account of liquidated damages exceeds more than 10% of the total contract price.
- e) In case the selected bidder fails to deliver the quantity as stipulated in the delivery schedule, NIELIT reserves the right to procure the same or similar product from alternate sources at the risk, cost and responsibility of the selected bidder.

5.2. Liquidated Damages

- a) Notwithstanding NIELIT's right to cancel the order, liquidated damages for late delivery at 1% (One percent) of the undelivered portion of order value per week will be charged for every week's delay in the specified delivery schedule subject to a maximum of 10% of the value of the order value.
- b) Liquidated damages for late commissioning at 1% (One percent) of the order value per week will be charged for every week's delay in commissioning to a maximum of 10% of the value of the order value.
- c) Please note that the above LD for delay in delivery and delay in commissioning are independent of each other and shall be levied as the case may be.
- d) NIELIT reserves its right to recover these amounts by any mode such as adjusting from any payments to be made by NIELIT to the bidder. Liquidated damages will be calculated on per week basis.

5.3. Limitation of Liability

- a) The Bidder shall be liable to the NIELIT for damages that may have been suffered by NIELIT on account of time and cost overruns attributable to the Bidder.
- b) Neither party shall be liable to the other for any special, indirect, incidental, consequential (including loss of profit or revenue), exemplary or punitive damages whether in contract, tort or other theories of law, even if such party has been advised of the possibility of such damages.
- c) The total cumulative liability of either party arising from or relating to this contract shall not exceed the total amount paid to the Bidder by the client under that applicable statement of work that gives rise to such liability (as of the date the liability arose); provided however, that this limitation shall not apply to any liability for damages arising from (a) Willful misconduct or (b) Indemnification against third party claims for infringement.

5.4. Penalty

- a) The Bidder shall perform its obligations under the agreement entered into with the NIELIT, in a professional manner.
- b) The Bidder should perform all the activities as per timelines and parameters stipulated by NIELIT in this RFP, failing which NIELIT may at its discretion impose penalties on the Bidder as defined in the RFP. The penalties on the delivery of the Lab Equipment will be deducted from the payment to the vendor @ 1% of the project cost per week subject to a maximum of 10% or termination of the contract.
- c) If any act or failure by the bidder under the agreement results in failure or inoperability of Equipment and if the NIELIT has to take corrective actions to ensure functionality of its property, the NIELIT reserves the right to impose penalty, which may be equal to the cost it incurs or the loss it suffers for such failures.

5.5. Dispute Resolution Mechanism

In case any dispute between the Parties, does not settle by negotiation in the manner as mentioned above, the same may be resolved exclusively by arbitration and such dispute may be submitted by either party for arbitration within 20 days of the failure of negotiations. Arbitration shall be held in Delhi and conducted in accordance with the provisions of Arbitration and Conciliation Act, 1996 or any statutory modification or re-enactment thereof. Each Party to the dispute shall appoint one arbitrator each and the two arbitrators shall jointly appoint the third or the presiding arbitrator.

The Provisions of this RFP shall be governed and construed in accordance with the Laws of India and would come under the exclusive jurisdiction of the Courts in Agartala, (Tripura).

5.6. Force Majeure

Force Majeure is herein defined as any cause, which is beyond the control of the selected bidder or NIELIT as the case may be which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affect the performance of the contract, such as:

- Natural phenomenon, including but not limited to floods, droughts, earthquakes and epidemics.
- Acts of any government, including but not limited to war, declared or undeclared priorities, quarantines and embargos
- Terrorist attack, public unrest in work area provided either party shall within 10 days from occurrence of such a cause, notifies the other in writing of such causes.

The bidder or NIELIT shall not be liable for delay in performing his/her obligations resulting from any force majeure cause as referred to and/or defined above. Any delay beyond 30 days shall lead to termination of contract by parties and all obligations expressed quantitatively shall be calculated as on date of termination. Notwithstanding this, provisions relating to indemnity, confidentiality survive termination of the contract.

6. Technical Requirements

The successful Bidder shall procure the Lab Equipment as required from a reputed OM. The Bidder shall note that the specification provided is the minimum requirement and can supply better specification if required. The Bidder shall supply all components as per requirements of the RFP. The Bidder shall be responsible for supply of the Lab Equipment and installation at NIELIT Agartala centre.

All Lab Equipment proposed by the bidder shall be licensed to NIELIT and will be the property of NIELIT. The Bidder has to prepare and submit a delivery report including details of all components supplied. The delivery report will be validated by NIELIT.

The Lab Equipment provided by the Successful Bidder shall meet all the Service Level requirements as mentioned in the RFP. While the basic Bill of Material will not change, any change in the BOM specification will be done only to provide a higher specification.

Successful bidder will be expected to bring all the installation equipment and tools required for the installation of the Equipment. All the work shall be done in a conscientious manner as per the OM guidelines and best industry practices. The Equipment shall be subjected to inspection at various stages. Local regulation/codes shall be followed at all times. The Successful Bidder shall follow all Safety Regulations and Practices at the time of installation and implementation.

The Successful Bidder shall not cause any damage to buildings/installation site and property and will perform restoration to the original condition to the satisfaction of Board authorities, if any damage occurs.

NIELIT shall perform the acceptance test (AT) ensuring that all the Lab Equipment supplied are performing as per the specification. NIELIT would issue certification of completion after verifying availability of all the Lab Equipment.

The bidder should provide all relevant documentation including:

- Original Manuals, Data Sheets, Installation Documents and any other documents relevant to the hardware, software and peripherals supplied by the Bidder.
- Documentation should be provided by the selected Bidder on a regular basis as and when desired by NIELIT during the entire period of Contract.

7. Service Level Agreement

The purpose of this Service Level Agreement (hereinafter referred to as SLA) is to clearly define the levels of service which shall be provided by the Bidder to NIELIT for the duration of this contract.

7.1. Implementation Service Levels

Measurement	Target	Severity	Penalty
Installation and commissioning of Lab Equipment	Within 4 weeks from receipt of purchase order	Critical	Penalty of 0.05% of quoted amount per day for first one week, 0.5% per day for second week onwards subject to a maximum of 10% penalty computed on total value of Contract (inclusive of taxes). The penalty will be calculated on the total value of the contract irrespective of whether a certain portion of equipment has been installed and commissioned. Penalty will not be calculated with effect from the day upon full installation and commissioning.

7.2. Manpower Related Service Levels

The support personnel should be available over phone. On critical situations or when directed by NIELIT, the support personnel must be available on site within 24 hours of request from NIELIT at the office/locations. Non-availability of the support personnel as stated above will be treated equivalent to single occasion of non-conformity.

Measurement	Target	Penalty
Number of occasion of non-conformity	Upto 5 in a year	No penalty
	More than 5 occasion of non-conformity in a year	0.2% of the Performance Bank Guarantee for every occasion of non-conformity exceeding 5
	More than 25 occasion of non-conformity in a year	0.5% of the Performance Bank Guarantee) for every occasion of non-conformity exceeding 25 (in addition to the penalty for exceeding 5 occasion of non-conformity as mentioned above)

8. Details on Scope of Work

The scope of work for this RFP will include the following activities:

- Supply and installation of Lab Equipment at NIELIT Agartala.
- Maintenance of the supplied Lab Equipment for 3 years.

Equipment to be supplied shall be latest models manufactured with 100% new OM parts. All products to be supplied should be part of current production as on the date of award of the tender. For purpose of this contract “current production” shall mean that the equipment model has been manufactured and introduced in the Indian market as new equipment. **Refurbished** equipment are not acceptable in any case.

IMPORTANT NOTE: The Bidders may substitute alternative standards, alternative brand names in its bid, provided that it demonstrates equal or better to the specifications of bidding document. Do not mention Best Quality/Good Quality/Superior Quality, etc. Instead give make and brand of items quoted.

The bid for same equipment cannot be submitted both by the OM and by its Authorized Representative. Whether an OM or its authorized representative bids for the tender may have to furnish a letter categorically stating that the said firm/agency is bidding exclusively for the said component and no authority has been given to any other agency/firm. An OM shall not be allowed to be part of more than one bidder for a particular

Lab Equipment. An OM, however, shall be allowed to authorize more than one Bidder for different Lab Equipment.

All equipment ordered as stated in the RFP must be shipped fully configured with the required memory, components, and selected or specified operating Equipment.

Table 8.1: Electronics & Communication Laboratory Items:

Sl No	Item name & its description/Specification		Quantity
Capital Items			
1	Kirchhoff's Law Trainer kit	To Verify the Kirchhoff's Current law and Voltage law	2
2	Maximum Power Transfer Theorem Trainer kit	Verification of maximum Power Transfer Theorem	2
3	Thevenin Theorem Trainer kit	To Verify the Thevenin's Theorem and to find equivalent Voltage Sources Ckt.	2
4	Norton's Theorem Trainer kit	To Verify the Norton's Theorem and to find equivalent Current Sources Ckt.	2
5	Coulomb Law Trainer Kit	Coulomb law Demonstrator and measuring charge	2
6	Magnetic Materials	To Obtain the B-H curve of magnetic materials	2
7	Three phase voltage Trainer kit	To Observe the Waveform of three phase voltage on CRO	2
8	Universal IC Programmer	For IC flash	2
9	P-N Diode Ch. Trainer Kit	To Study the V-I Characteristics, The Trainer Complete with Voltmeter, mA/uA Meter& Variable	1
10	B.J.T Ch.Trainer kit	To Study the V-I Characteristics of CB,CE,&CC conf.The Trainer Complete with Voltmeter,mA/uA Meter& Variable D,C Power Supply	1
11	Rectifier Trainer kit	To Study & design of Half & full wave Rectifiers & effect of Filters,The Trainer Complete with, Step Down Transformer ,Diodes, capacitors, Load resistors etc	1
12	JFET Trainer kit	channel FET, The Trainer Complete with D.c Power supply ,Voltmeter & mA meter	1
13	SCR Trainer Kit	To Study the V-I Characteristics of a SCR .This Trainer Complete with DC power supply diode, pots, Load resistor ,DC Voltmeter & U/m ammeter	1
14	Clipping & clamping circuit Trainer Kit	To design the +ve /-ve Clipping & Clamping Ckts & study waveforms The trainer complete with diode, Capacitor, Resistor & DC power supply.	1
15	R-L-C Circuit Trainer kit	To Design of a series & parallel Rc,RL &RLC CktsTo Design of a series & parallel Rc,RL &RLC Ckts&study the Transient responses, Resonances a Character of RLC Ckts.The Trainer Complete the AC sources, Set of Resistor, Capacitor & Inductor etc.	1
16	Network Theorems Trainer kit	To study the DC network Theorems (KVL,KCL,Super position, Thevenine ,Norton).This Trainer Complete with DC power Supply, Set of Resistor Voltmeter	1

17	RC Couple Amplifier Trainer Kit	To Study the gain & Band width of RC Couple amplifier. The Trainer Complete with Transistorized amplifiers, Coupling Capacitor ,Power supply, Pots etc.	1
18	OP-Amp (741) parameter Trainer kit	To Study OP-Amp parameter DC off set Voltage & Current, null Slew rate CMRR etc.	1
19	OP-Amp (741) Application Trainer kit	To Study inv.& noninv.amplifiers,adder,subs,intrgrator,diff.etc.The Trainer Complete with DC+/-12V power supply ,set of resistors, Capacitors Pots etc.	1
20	555 Trainer Kit	To design & study multivibrators & simple timers,pulse generator. The Trainer Complete with IC 555,5V dc sources, LED s,POTs Capacitor etc.	1
21	Zener Diode Trainer kit	To Study the V-I characteristics of Zener diode& Zener Diode as voltage regulator.	1
22	Phase shift oscillator	Basic design and operations	1
23	Digital IC Trainer Kit:	Trainer kit model	6
24	TMS 320C6713 (32-Bit Floating Point Processor) Based DSP Trainer Kit	Trainer kit model	2
25	Xilinx Virtex-5 FPGA based DSP Development Board	Trainer kit model	2
26	Xilinx Zynq-7000 SoC Video and Imaging Kit	Trainer kit model	1
27	Digital Multimeter Make: Rish, Model: 15s	4 ½ Digit Display	10
28	optocoupler kit	Trainer kit model	1
29	Signal Generator and Frequency Modulation Kit	Trainer kit model	2
30	Amplitude modulation Kit	Trainer kit model	2
31	Amplitude Demodulation Kit	Trainer kit model	2
32	FDM Transmitter / Receiver kit	Trainer kit model	2
33	Noise Power Spectral Density Measurement kit	Trainer kit model	2
34	Frequency Demodulation and Phase Modulation Kit	Trainer kit model	2
35	Filter/Noise and Audio Amplifier Kit	Trainer kit model	2

36	Noise Power Spectral Density Measurement kit	Trainer kit model	2
37	Transmission line Trainer Kit	Trainer kit model	4
38	Transient analysis of RLC	Trainer kit model	2
39	Transient analysis of RC/RL circuits	Trainer kit model	2
40	T and pie Network Trainer	Trainer kit model	2
41	Pulse Amplitude Modulation Time Division Multiplexing (PAM-TDM) Kit	Trainer kit model	2
42	Pulse code Modulation Kit	Trainer kit model	2
43	Pulse Code Demodulation Kit	Trainer kit model	2
44	ASK/PSK/FSK Modulation & Demodulation Kit (set)	Trainer kit model	2
45	Delta and Adaptive Delta Modulation & Demodulation Kit	Trainer kit model	2
46	Pulse Amplitude/Pulse Width/Pulse Position Modulation / Demodulation Kit	Trainer kit model	2
47	QPSK Modulation/Demodulation Kit	Trainer kit model	2
48	DPSK modulation/Demodulation Kit	Trainer kit model	2
49	Telephone Trainer Kit	Trainer kit model	3
50	EPABX Trainer KIT	Trainer kit model	2
51	Mobile Hand Set Trainer Kit	Trainer kit model	2
52	TMS 320C6713 (32-Bit Floating Point Processor) Based DSP Trainer Kit	Trainer kit model	5
53	TMS 320C6416 (32-Bit Fixed Point Processor)	Trainer kit model	2

	Based DSP Trainer Kit		
54	Microphone trainer kit	Trainer kit model	2
55	BLACK AND WHITE T.V trainer kit	Trainer kit model	1
56	Separate sections of Black and White T.V.	Trainer kit model	2
57	Color pattern generator	Trainer kit model	2
58	Color T.V trainer kit	Trainer kit model	2
59	Separate sections of Color T.V trainer	Trainer kit model	2
60	DVD Player trainer	Trainer kit model	1
61	MODEL-PID,PID CONTROL TRAINER	Trainer kit model	1
62	OPEN LOOP/CLOSE LOOP MOTOR SPEED CONTROL TRAINER kit	Trainer kit model	1
63	STEPPER MOTOR CONTROL TRAINER kit	Trainer kit model	1
64	Klystron Mount	Freq. Range (GHz):8.2-12.4	5
		Flange:UG-39/U	
		Waveguide:RG-52/U	
65	Klystron tube	2k-25 (X-band)	5
66	Isolator	Freq. Range(GHz):8.6-10.0	5
		Max VSWR (dB):1.2	
		Min. Insertion loss(dB):0.4	
		Min.Isolation(dB):20	
67	Frequency Meter (DR)	Freq. Range(GHz):8.2-12.4	5
		Calibration Accuracy:+2	
		Calibration Increment(MHz):10	
		VSWR Max.:1.02	
68	Variable Attenuator	Freq. range:8.2-12.4	5
		VSWR :1.1	
		Av. Power:2W	
		Waveguide:RG-52/U	
		Flange :UG-39/U	
69	Slotted Section	Freq. range(GHz):8.2-12.4	5

		Residual VSWR:1.01	
		Slope(dB):+ 0.2	
		Waveguide:RG-52/U	
		Flange:UG-39/U	
70	Tunable Probe	Freq. Range:8.2-12.4	5
		Detector:IN-23	
		Outputconnector:BNC(F)	
		Type:Tunable	
71	Detector Mount	Freq. Range:8.2-12.4	5
		Crystal:IN21	
		OutputconnectorFemale:BNC	
72	Movable Short	Freq. Range:8.2-12.4	5
		Reflection co-efficientT:0.98	
		Waveguide:RG-52/U	
		FLANGE:UG-39/U	
73	Matched termination	Freq. Range: 8.2-12.4	5
		VSWR: 1.02	
		Flange: UG-39/U, Waveguide: RG-52/U	
74	S. S. Tuner	Freq. Range (GHz):8.2-12.4	5
		Flange:UG39/U	
		Waveguide:RG-52/U	
		Max. VSWR:20:1.02	
75	Waveguide stand	Universal waveguide stand	20
76	VSWR Meter	Sensitivity:0.2 μ V at a 200 ohms input for full scale deflection	5
		Noise Level: At least 5 dB below full scale at rated sensitivity and maximum band width input terminated in 100 ohms and 500 ohms for crystal low and high respectively.	
		Calibration: Square law, meter indicates SWR, dB.	
		Range: 70 dB, input attenuator provides 60 dB in 10 dB steps, accuracy + 0.2 dB per 10 dB steps Maximum commutative error + 0.5 dB.	
		Scale Selector: Normal Expand and – 5dB.	
		Meter Scale: SWR1-4,SWR 3-10 , expand SWR 1.1.3, dB 0-10, expand dB0.2.	
		Gain Control: Adjust the reference level, variable range 0-10 dB approx.	
		Input: “Bolo” bias provided for 4.3 mA low current bolo meters.	
		Recorder output: Socket provided for recording having 1 V for full scale deflection, internal resistance of 1000 ohms or less.	
		A/C Output: BNC connector for amplified output.	
		Input Connector: BNC (F).	
		Frequency: 1000Hz + 10%.	
		Power: 230 volts A.C + 50 Hz, mains supply	
77		Beam Supply:	5
		Voltage Range: 195-400 V continuously variable	

	Solid State Klystron Power supply	Current: 45mA Max.	
		Regulation: Better than 0.5% for + variation in Mains Supply Voltage	
		Ripple: Less tan 5 mV rms	
78	Cooling Fan with stand	100 mm. square fan with stand	5
79	BNC Cable	Coaxial cable RG-52 both end BNC connector	10
80	Gunn Oscillator	Freq.Range (GHz):8.2-12.4	5
		Pushing fac.(MHz/V):8	
		Bias V. Max:10V	
		Nominal Power output:10	
		Temp.Coeff.(MHz):+ 0.2	
		Output Connector:BNC(F)	
		Freq. Adjustment:By Micrometer	
		W. guide:RG-52/U	
		Flange :UG-39/U	
81	PIN Modulator	Freq. Range(GHz):8.2-12.4	5
		Bias Volt.:0.10 VOLTS	
		Output connector:TNC (F)	
		Waveguide:RG-52/U	
		Flange:UG-39/U	
82	Gunn Power Supply	Voltage Range:0 to 12 volts variable	5
		Current:1 Amp. Max	
		Regulation:0.2+ 10% variation in the Mains Supply voltage	
		Ripple:1 m V rms	
		Modulation Freq.:1 KHz + 20% (900-1100 Hz)	
		Output Connector :BNC (F) for Gunn Oscillator and YNC (F) for Pin Modulator	
83	TNC Cable	Coaxial cable with both end TNC connector	5
84	Mechanical Turn Table	Wooden table size fixed with accessories	5
85	Standard Gain Horn	Freq.range: 8.4-12.4	5
		Flange: UG-39/U, waveguide RG-25/U	
86	E-plane Bend	Freq. range: 8.2-12.4GHz, VSWR MAX: 1.05, Waveguide: RG-52/U, Flange: UG-39/U	10
87	Pick up horn	Freq.range: 8.4-12.4	2
		Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.2	
88	Slotted Antenna - Broad Wall	Freq.range: 8.4-12.4	2
		Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.2	
89	Slotted Antenna - Narrow Wall	Freq.range: 8.4-12.4	2
		Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.2	
90	Dielectric Antenna	Freq.range: 8.4-12.4	2
		Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.2	
	E-Sectoral Horn	Freq. Range(GHz):8.2-12.4	2

91		Flange:UG-39/U	
		Waveguide:RG-52/U	
		Type:E-Sectoral	
		Gain:15	
		Max.VSWR:1.2	
92	H-Sectoral Horn	Freq. Range(GHz):8.2-12.4	2
		Flange:UG-39/U	
		Waveguide:RG-52/U	
		Type:H-Sectoral	
		Gain:15	
93	Parabolic Disc (with feed) 8" dia	Freq.range: 8.4-12.4	2
		Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.3	
94	Pyramidal Horn		2
		Freq. Range(GHz):8.2-12.4	
		Flange:UG-39/U	
		Waveguide:RG-52/U	
		Type:Pyramidal	
		Gain:16	
95	Precision Short	Freq.Range:8.2-12.4	2
		Reflection Co-efficient:0.98	
		Wave guide:RG-52/U	
		Flange:UG-39/U	
96	Solid Dielectric Cell	Freq. Range(GHz):8.2-12.4	2
		Max. length of cell(mm):110	
		Plunger Movement (mm):25	
97	Liquid Dielectric Cell	Freq. Range(GHz):8.2-12.4	2
		Max. length of cell(mm):200	
		Plunger Movement (mm):65	
98	Phase Shifter	Freq. Range:8.2-12.4	2
		VSWR Max:1.3	
		Calibration Accuracy:+2.50	
		Waveguide:RG-52/U	
		Flange:UG-39/U	
99	Fixed Attenuator : 3 dB	Band : X,	2
		Freq. range: 8.2-12.4,	
		VSWR Max.: 1.08,	
		Av. Power: 2W,	
		Accuracy: +0.5dB,	
		Waveguide: RG-52/U,	
Flange: UG-39/U			
100	Fixed Attenuator : 6 dB	Band : X,	2
		Freq. range: 8.2-12.4,	
		VSWR Max.: 1.08,	

		Av. Power: 2W, Accuracy: +0.5dB, Waveguide: RG-52/U, Flange: UG-39/U	
101	Fixed Attenuator : 10 dB	Band : X, Freq. range: 8.2-12.4, VSWR Max.: 1.08, Av. Power: 2W, Accuracy: +0.5dB, Waveguide: RG-52/U, Flange: UG-39/U	2
102	Magic Tee	Freq.range: 8.4-12.4 Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.25	2
103	Directional Coupler : 3 dB	Freq. Range (GHz): 8.2-12.4 Coupling(DB): 3+0.6 Directivity(MIN.):35 VSWR(MAIN):1.12 VSWR (AUSILLIRRY LINE):1.2	2
104	Directional Coupler : 10 dB	Freq. Range (GHz): 8.2-12.4 Coupling(DB): 10+0.6 Directivity(MIN.):35 VSWR(MAIN):1.12 VSWR (AUSILLIRRY LINE):1.2	2
105	CD-coupler-20db	Freq.Range(GHz): 8.4-12.4, Couplig DB-20, Min. Directivity-25 Coupling accuracy + 1DB	2
106	T Circulator	Freq. Range(GHz): 8.6-9.6 Max VSWR (dB): 1.2 Min. Insertion loss(dB):0.4 Min.Isolation(dB):20	2
107	Y.Circulator	Freq. Range(GHz): 8.6-9.6 Max VSWR (dB): 1.2 Min. Insertion loss(dB):0.4 Min.Isolation(dB):20	2
108	E- Plane Tee	Freq. Range:8.2-12.4 Flange:UG-39/U Waveguide:RG-52/U	2
109	H- Plane Tee	Freq. Range:8.2-12.4 Flange:UG-39/U Waveguide:RG-52/U	2
110	VLSI Trainer kit	FPGA,LCD module, segment displays, stepper motor interface,	1
111	CPLD Trainer kit	CPLD using Xilinx standard, LCD module, segment displays,	1

112	FPGA XC2S50 Development Board trainer kit	Sub-board for CPLD, FPGA, VGA interface, Verilog HDL, VSDL	1
113	ARM Processor trainer kit	ARM based 32 bit, GPIO expansion header, DAC/ADC header	1
114	Xilinx SPARTAN XC3S50 trainer kit	FPGA Xilinx Spartan 3 XC3S400, Flash ROM	1
115	Virtex 5Kit PCIe 280 FPGA trainer kit	FPGA on board, Virtex 5 with 330000 logic cell	1
116	Basic Fibre Optic Trainer Kit		2
117	Fibre Optic Communication Trainer Kit		2
118	Biometric fingerprint analyser with Door Access Control	Fingerprint for all fingers, contact based.	10
119	TCP IP Trainer	To understand P2P, client-server network, network topology, IPX/SPX, NetBEUI, TCP/IP, DLC, NETBIOS, Hub, repeater, router, logins bridge, switch, gateway, IRQ, I/O port address, protocols such as SMTP/HTTP/FTP, UDP socket with necessary hardware and software	10
120	TCP/IP protocol suite kit	Hardware & software including hub, switch, bridge, router, gateway	1
121	Cathode Ray Oscilloscope (CRO): 30 MHZ Dual Trace		20
122	LCD Color Digital Storage oscilloscope: 100 MHz, 4 Channel		5
123	Function Generator / Counter: Frequency : 2 MHz		10
124	Regulated DC Power Supply: 0-30v dc volt		10
Consumable Items			
1.	Side Cutting Pliers Taparia	Length:205 mm	7
2.	Ball pen Hammer Taparia	110gm	5
3.	4-pin crystal	1 MHz	25
		12 MHz	25
4.	Two-pin crystal	3.58 MHz	25

		1 MHz	25
		11.059 MHz	25
		12 MHz	25
		24 MHz	25
		36 MHz	25
5.	Switch	8 Line DIP Switch	25
		10 Line DIP Switch	25
		4 Line DIP Switch	25
6.	USB male connector	PCB mount type	25
7.	USB female connector	PCB mount type	25
8.	Seven segment display	Common Anode	100
9.	Alpha Numeric Display	Common Anode	100
10.	LED	RED 5 mm	100
		RED 10 mm	100
		GREEN 10 mm	100
		BLUE 5 mm	100
		GREEN 5 mm	100
		White 5 mm	100
		RED 3 mm	100
		BLUE 3 mm	100
		GREEN 3 mm	100
		BI-COLOR 3 mm	100
11.	Female berg strip	40 x 1	50
12.	Male berg strip	40 x 1	50
13.	Copper broad	1 sq ft	25
14.	Battery Snapper	9v	25
		8 pin	100
		14 pin	100
15.	IC bases	16 pin	100
		18 pin	100
		20 pin	100
		24 pin	100
		40 pin (DIP)	100
16.	Pulse Transformer	1:01	25
17.	Motor Driver	L293D	10
		L298	10
18.	PWM IC	UC 494	20
	PWM IC	UC 3524A	20
19.	Glue Gun		5
20.	Glue Stick		20
21.	Nose Pliers		5
22.	Screw Driver Set		5

23.	Soldering Wire		2
24.	Soldering Stand	Small Size	20
		Big size	20
25.	Soldering tip	25 Watt	30
		35 Watt	30
		50 Watt	30
26.	Potentiometer (Bread Broad Mount type-	0-100	50
		0-500	50
		0-1K	50
		0-5K	50
		0-10K	50
		0-50K	50
		0-100K	50
		0-470K	50
		0-1M	50
27.	Diode	1N 4007	200
		1N 4148	200
		IN 4007	200
		IN 5819	200
		IN 5821	200
		IN 4148	100
		BL 127	100
		MUR 1560	100
		IN 4729	100
		IN 4730	100
		IN 4732	100
		IN 4733	100
		IN 4734	100
28.	Zener	IN 4735	100
		IN 4736	100
		IN 4738	100
		IN 4740	100
		IN 4742	100
		IN 4744	100
		IN 4746	100
		IN 5359	100
29.	Transistor	BC 107B	100
		BC 109B	100
		BC 547	100
		BC 548	100
		BC 556	100
		BC 557	100
		TIP 121	100
		TIP 122	100
		BC 639	100
BC 108	100		

		BFY 90	100
		2N 2907	100
		2N 2906	100
		2N 2222	100
		SL 100	100
30.	Optocoupler	MCT 2E	100
		HP 3101	100
31.	Transistor Array	LM 3046	30
		2N 2646	50
32.	N Channel UJT	2N 918	50
		TIP 31	50
33.	JFET	2N 5461	50
34.	DIAC	DB3	50
		BT 138	50
35.	TRIAC	BT 136	50
		BT 151	50
36.	SCR	TYN 616	100
		TYN 604	100
37.	MOSFET	IRFZ44	100
		IRF840	50
		IRF540	50
		IRF740	50
38.	CAPACITOR (CERAMIC)	22 pf/50V	100
		220PF/50v	100
		33pf/50V	100
		330 pf/50V	100
		47 pf/50V	100
		470 pf/50V	100
		50 pf/50V	100
		10 pf/50V	100
		100 nf/50V	100
		3200 pf	100
		10000 pf	100
39.	CAPACITOR DISC TYPE	101	100
		102	100
		103	100
		104	100
		0.001µf	100
		0.1µf	100
		0.047 µf	100
		0.0022 µf	100
		0.022 µf	100
40.	CAPACITOR (ELECTROLYTI C)	0.1µf (16V)	100
		0.1µf (35V)	100
		0.1µf (63V)	100
		0.22µf (16V)	100

		0.22µf (35V)	100
		0.22µf (63V)	100
		0.47µf (16V)	100
		0.47µf (35V)	100
		0.47µf (63V)	100
		0.33µf (16V)	100
		0.33µf (35V)	100
		0.33µf (63V)	100
		2.2µf (16V)	100
		2.2µf (35V)	100
		2.2µf (63V)	100
		0.47µf (16V)	100
41.	CAPACITOR (ELECTROLYTI C)	10µf (16V)	100
		10µf (35V)	100
		10µf (50V)	100
		10µf (63V)	100
		22µf (16V)	100
		22µf (25V)	100
		22µf (35V)	100
		22µf (63V)	100
		220µf (16V)	100
		220µf (63V)	100
		4700µf (16V)	100
		4700µf (25V)	100
		100µf (16V)	100
		100µf (25V)	100
		100µf (35V)	100
		100µf (63V)	100
		1000µf (160V)	100
		1000µf (160V)	50
		10000µf (160V)	500
42.	Voltage Regulator	7912	100
		7905	100
		7815	100
		7812	100
		7812	100
		7805	100
43.	8Kx8 CMOS EPROM	2764	25
44.	8KX8 Static RAM	6264	20
45.	GENERAL PURPOSE OPAMP	741C (Plastic)	100
		741C (Metal)	100
		741A (Plastic)	100
		741A (Metal)	100
46.	Single Stand flexible wire	27SWG	5
		26SWG	5

		19SWG	2	
47.	Digital Gate	74HC00	100	
		74HC02	100	
		74HC04	100	
		74HC05	100	
		74HC08	100	
		74HC10	100	
48.	FLIP FLOP and GATE	74HC107	100	
		74HC132	100	
		74HC138	100	
		74HC139	100	
		74HC148	100	
		74HC151	100	
		74HC192	100	
		74HC20	100	
		74HC221	100	
		74HC251	100	
		74HC27	100	
		74HC30	100	
		74HC367	100	
		74HC373	100	
49.	LATCH/Counter/ Register	74H374	100	
		74H393	100	
		74H42	100	
		74H47	100	
		74H75	100	
		74H76	100	
		74H83	100	
		74H85	100	
		74H86	100	
		74H90	100	
		74H92	100	
		74H93	100	
		74H95	100	
		74H199	100	
			89652	100
			ADC0804	100
			ADC0808	100
50.	Microcontroller	AT Mega8	100	
51.	8 bit DAC	DAC 0800	100	
52.	Universal 24 pin PLDs	GAL 20V8	100	
53.	1.5 Amp Voltage regulator	LM 317	100	
54.	Quad OP Amp	LM 348	100	
		LM 324	100	

		LM 339	100
		LM 741	100
55.	Dual Frequency Compensation OP Amp	LM 358	100
56.	General Purpose PLL	LM 565	100
57.	Dual RS 232 Driver	MAX 232	100
58.	3:8 Analog MUX/DEMUX	MC 14051B	100
59.	Timer	NE 555	100
60.	RELAYS-RW-SH-106D	GOOD-SKY-6V-12A	100
		GOOD-SKY-9V-12A	100
		GOOD-SKY-12V-12A	100
61.	Mini jumper	2 pin	50
		3 pin	50
62.	ZIF-SOCKET	20 pin	50
		28 pin	50
		40 pin	50
63.	Rectifier bridge	25 Amp/1000	5
		IN746	100
		IN751	100
		IN 4007	100
64.	Resistor	MFR RES 1/4W VALUE Ğ 1E,	(500 each)
		10E, 100E, 1K, 10K, 22K, 27K,	
		33K, 39K, 47K,56K, 68K, 82K,	
		100K, 150K, 220K, 270K, 330K,	
		390K, 470K, 560K, 1M, 2.2M,	
		10M, 22M , 4.7k, 3.7k	
65.	Resistor	CFR RES 1/4W VALUE Ğ 1E,	(500 each)
		10E, 100E, 1K, 10K, 22K, 27K,	
		33K, 39K, 47K,56K, 68K, 82K,	
		100K, 150K, 220K, 270K, 330K,	
		390K, 470K, 560K, 1M,4.7k,	
		3.7k, 2.2M, 10M, 22M	
66.	Ceramic Capacitor	CER CAP 0.1NF	100
		CER CAP 0.01UF	100
		CER CAP 0.1UF	100
		CER CAP 0.27UF	100
		CER CAP 0.33UF	100
67.	Electrolytic Capacitor	ELE CAP 0.1UF	100
		ELE CAP 1UF	100
		ELE CAP 10UF	100
		ELE CAP 22UF	100
		ELE CAP 33UF	100
		ELE CAP 47UF	100

		ELE CAP 100UF	100
		ELE CAP 200 UF	100
		ELE CAP 470UF	100
		ELE CAP 1000UF	100
68.	Transistor	2N2219 (NPN & PNP)	100
		SK100 (NPN & PNP)	100
		TIP29 (NPN & PNP)	100
		TIP30 (NPN & PNP)	100
69.	Analog Electronics IC	LM747	30
		LM324	30
		LM336	10
		LM339	10
		LM334	10
		7805	10
		7905	10
		7812	10
		7912	10
		723	10
		555	20
		556	10
		TL494	10
		CA3080	10
		CA3130	10
		CA3140E	10
		CA3160E	10
		CA3240E	10
		ICL7611D	10
		ICL7641E	10
		ICL7642E	10
		ICL7650S	10
		ICL7652C	10
		LF347	10
		LF351	10
		LF353	10
		LF355N	10
		LM10CLN	10
		LM301	10
		LM301AN	10
		LM308N	10
		LM358	10
		LM833N	10
		LM1458N	10
		LM3900N	10
		NE531N	10
		NE5532	10
		NE5534	10

		NE5539	10
		OP27	10
		RC4558	10
		TLO61	10
		TLO62	10
		TLO64	10
		TLO71	10
		TLO72	10
70.	Hook up Wire 90 mtr roll approx	74LS00	10
		74LS01	10
		74LS02	10
		74LS03	10
		74LS06	10
		74LS07	10
		74LS08	10
		74LS11	10
		74LS14	10
		74LS20	10
		74LS27	10
		74LS30	10
71.	Digital IC	74LS47	10
		74LS48	10
		74LS51	10
		74LS73	10
		74LS74	
		74LS75	10
		74LS76	10
		74LS83	
		74LS85	10
		74LS86	10
		74LS90	
		74LS92	10
		74LS93	10
		7400	
		7401	10
		7402	10
		7404	
		7405	10
		7406	10
		7407	
		7411	10
		7403	10
		7410	
		7413	10
72.	BREAD BOARD WB102	BREAD BOARD WB102	40

Table 8.2: Physics Laboratory Items:

Sl No	Item Name & Description / Specification	Quantity
Capital Items		
1	Determination of MH and M/H of a bar magnet.	4
	(i) Box type vibration magnetometer	
	(ii) Deflection magnetometer	
	(iii) bar magnets (two), stop watch- 1 analog stop watch, 1 electronic timer	
2	Precision Balances: Readability (0.1 mg to 1 g), Capacity (410g to 64g), Minimum weight (0.012 to 180g)	1
3	To determine the angle of prism and also angle of minimum deviation for parallel rays using Spectrometer and hence to find refractive index of the material of the prism supplied. (i) Spectrometer, (ii) Prism, (iii) Sodium vapour lamp/Mercury vapour lamp, Reading lens.	2
4	Resistivity and band gap measurement. (i) 4 probe set up (spring loaded probes), (ii) Sample- Ge/Si (chip/slice), (iii) oven-200oC (glowing LED indicator when oven power supply is ON), (iv) Multirange digital voltmeter- Range *1(0-200.0 mV) & *10(0-2.000)V, Resolution-100 V at *1range, Accuracy- 0.1% of reading 1digit, Display-7 segment LED with auto polarity and decimal indication, Overload indicator-sign of 1 on the left and blinking of other digits. (v) Constant current generator- Open circuit voltage- 18V, Current range- 0-20mA, Resolution- 10 A, Accuracy- 0.25% of reading 1 digit, Load regulation: 0.03% for 0 to full load, Line regulation- 0.05% for 10% changes.	2
5	Programmable curie temperature measurement system.	1
	(i) Tube Size – 40 mm x 200 mm	
	(ii) Maximum temperature – 700°C	
	(iii) Controller- Digital temperature PID Controller	
	(iv) Heating elements – Kanthal heating elements	
	(v) Thermocouple – ‘K’ type	
	(vi) Sample holder – Stainless Steel Cup and Rod	
	(vii) Muffle Size – 40 mm x 200 mm	
	(viii) Power – 220 volt single phase	
(ix) Load – 500 watt (Approx.)		

Table 8.3: Chemistry Laboratory Items:

SI No	Item Name & Description / Specification	Quantity
Capital Items		
1	Analytical Balance Single pan with ± 0.1 mg accuracy	1
2	Quartz Double/Single Water Distillation unit 1.5 liter per hour	1
3	Double Beam UV Spectrophotometer with Peltier Temperature Control System from 0-1000C Sources - Pre-aligned Deuterium Tungsten Halogen lamps with automatic source change; Wavelength range : 190 - 1100 nm, Wavelength Accuracy : ± 0.1 nm at D2 peak 656.1 nm ; Cell Type : Cell (quartz) – with stopper/lid – volume – 3.5 ml. – pack of 2; Software : user friendly software to work in Scanning, Wavelength Program, Time-drive, Rate, Quant, Scanning Quant modes; Peltier Single Sample + Single Reference Accessory, Peltier single cell holders for the sample and reference positions. Also a reference position cover, power supply and power cables to be included, Diffuse Reflection & Scattered Transmittanc Accessory for analyzing insoluble Solid Materials	1
4	Shaking Machine: Which can hold upto 10-12 bottles	1

Table 8.4 : Engineering Workshop Laboratory Items:

SI No	Item name & its description/Specification	Quantity
Capital Items		
1	Arc welding set <ul style="list-style-type: none"> - 200A air cooled,C58 - Single phase/two phase combined, - Electrode capacity 2.5 mm to 3.15 mm - Holder (1 No.) - Welding rod (Box of 12 packets) - Electric cable (10 m) - Gloves (1 Pair) 	1
2	ESAB make Welding machine <ul style="list-style-type: none"> - 150 A with 3 m main cable return cable with earth clamp and welding cable with holder - Suitable for scratch TIG - Open circuit voltage: 60-75 VDC (max) - Weld current ranges: 4-150 A - Output at 60% duty cycle: 110 A - Enclosure class IP23C - Application class: Standard compliance: IEC60974-1, EN50199 	1
3	Pedestal Grinding Machine, <ul style="list-style-type: none"> - Double ended bench grinder with grinding wheel at the both ends fitted with ball bearing complete with rotary switch, wheel guard and tool rests 	5
	- Wheel size: 180 x 20 mm	5
	- Wheel centre distance: 445 mm	5
4	Bench Grinding Machine, <ul style="list-style-type: none"> - Double ended bench grinder with grinding wheel at the both ends fitted with ball bearing 	2
	complete with rotary switch, wheel guard and tool rests	5

		- Wheel size: 100 x 20 x 12.7 mm	5
		- Motor: 0.25 HP, 3000 rpm	5
5	Hydraulic Hacksaw Machine,	- Electric motor, starter, hydraulic pump unit, mechanical coolant pump with fittings, 'V'	1
		Belts, right angle vice & gauge stop.	5
		- Round bar cap: 170 mm	5
		- Blade size: 350 mm	5
		- Motor: 1 HP	2
6	Hand Drilling Machine	Bench vice No. 4	2
		Hand vice	5
		Pipe vice No. 3	5
		Pin vice	5
		G clamp 6"	5
		Ball peen hammer, 800 g	5
		Straight peen hammer, 1 kg	5
		Cross peen hammer 800 g	5
Consumable Items			
1	Gas Welding	- Oxygen regulator (1 No.)	1
		- Acetylene regulator (1 No.)	1
		- LPG regulator (1 No.)	1
		- Gas cutter (1 No.)	1
		- Gas welding torch-(small) (1 No.)	1
		- Gas welding torch-(big) (1 No.)	1
		- Hose pipe (ISI) (5 m)	1
		- Oxygen with cylinder (1 No.)	1
		- Acetylene with cylinder (1 No.)	1
		Hand shield	10
		Welding goggles	10
		Chipping hammer	10
		Pliers 7"	10
		Measuring tape, 3 m	10
		Steel rule 12"	10
		Hand gloves	10
		Ball peen hammer, 800 g	10
		Cross peen hammer, 800 g	10
2	OPTIONAL ACCESSORIES	Drill chuck 0-1/2" with arbour	5
		Drill sleeve	2
		Drill vice – 100 mm	2
		Elec. Coolant pump with tank & fittings	2
3	Cutting Tools	Flat chisel	5
		Round nose chisel	5
		Solid frame hacksaw	5
		Adjustable frame hacksaw	5
		10" flat Files	5
		10" square Files	5
		10" triangular Files	5

		Scraper 8"	5
		Tap and die set ¼ to ½,	5
		Drill bits 1/8" to 1/2", 10 pc set,	5
		Hacksaw blade	5
		Tin cutter	5
4	Marking/Measuring Tools	Steel rule, 12"	5
		Try square, 12"	5
		Scriber 7"	5
		Combination set	5
		Calipers, 10"	5
		Divider 10"	5
		V block 4"	2
5	SHEET METAL SHOP	14" Shearing Machine with 7" blade heavy duty-steel body	2
		Mallet hammer 200 g	1
		Flat nose pliers 15 computer	2
		Try square – 12"	2
		Tri square – 24"	5
		Folding try – square 8"	5
		Round nose pliers – 20 computer	5
		Sheet thickness gauge	2
		Combination plier 8 inch	2
		7 feet bending machine 18 gauge capacity heavy duty steel body	5
		Hand drill electric machine, 220 volts, heavy duty certified company	1
		Drill bit set of 13 pieces 1/6 x ¼ high speed steel	1
		Pipe vice ½" to 1.5"	2 set
		Snip (Straight)	1
		Snip (Round)	5
		Divider 6"	5
		Pipe bending machine ½"to 1" (manual type)	5
		Soldering iron 250 g steel body wood handle	1
		Spring divided Compass 8"	1
		Anvil 100 kg (Single Horn)	5
6	SMITHY SHOP & FOUNDRY SHOP	Hearth Electric blower-size-12" with all accessories (Hood, Chimney, Body, Nozzle, Cooling tank, 3-Phase Electric Motor etc.)	3
		Hearth (Hand Forge)	2
		Blower size - 12" with all accessories	2
		Anvil 100 kg (Single Horn)	5
		Leg Vice, Table size – 15" x 24", Jaw size – 8" x 30"	3
		Round tongs, length – 18"	1
		Square tongs, length – 18"	5
		Flat tongs, length – 18"	5
		Pick-up tongs, length – 18"	5
		Side tongs, length – 18"	5

		Ring tongs, length – 18”	5
		Flatter, 2”x 2”x 3”	5
		Top fuller, ¼” to 1”	5
		Bottom fuller, ¼”to 1”	5
		Hammer with handle ball peen 500 g	5
		Hammer with handle ball peen 750 g	5
		Hammer with handle ball peen 1kg	5
		Double faced sledge hammer 3.5 kg (7 lbs)	5
		Hot chisel, cutting edge angle-30 ⁰ , length – 6” & 8”	5
		Cold chisel, cutting edge angle-60 ⁰ , length – 6” & 8”	5 nos. each
		Swage block, 12” x 12” x 6”	5 nos. each
		Poker 30”	1
		Round punch, ¼” to 1”, length-6”	5
		Square punch, ¼” to 1”, length-6”	5
		Top swage, ¼” to 1”, length-3”	5
		Bottom swage, ¼” to 1”, length-3”	5
		Moulding tool box,	5
		(Consisting of shavel, riddle, hand rammer, vent hole, slick, lifter, simple swab, bellow, towels – 3 types, draw spike etc.)	5
		Riddle, fitted in brass circular frame mesh 2.36 mm, 3 mm, 4 mm, 4.25 mm in one set	1 box
		Crucibles 10 kg, capacity best quality for moulding non-ferrous metal	2 box
			1 set
7	CARPENTRY SHOP	Machine Tools	
		Wood turning lathe along with compatible Motor of Crompton Creaves	2
		Surface planer machine	2
		Circular saw machine	2
		Jig saw machine	2
		Wooden grinding machine	2
		Disc sander	2

Table 8.5: Computer Science Laboratory Items:

SI No	Item Name & Description / Specification	Quantity
Capital Items		
1	DSLR camera: Canon EDOS 70D	1
2	Camera lens kit and accessories compatible with Canon EOS 70D	1
3	Hand held video camera: with 4K video capture	1
4	Studio Speaker set with Dolby/DTS certification, silk dome tweeters, amplifier compatible, 120dB signal noise ratio, 16 Hz - 22 kHz	1
5	Wireless Noise cancellation headphones	50

6	Microphone: plug n play type	5
7	Sound mixer and amplifier: yamaha	1
8	USB HDD 1TB: USB 3.0, slim type	10
9	USB Portable web cam	2
10	External/USB CDV Writer: with external power option	5
11	Bar Code reader	5
12	QR Code reader/scanner	5

8.1. No Advance Payment

No advance payment will be made to any supplier.

8.2. Installation of Lab Equipment

The items should be installed and demonstrated by the supplier at the site of the consignee immediately after receipt of the item and the same will be put under operation to the satisfaction of NIELIT who will test the performance of the items. No separate charges for installation / demonstration will be paid to the party beyond the quoted prices.

8.3. Warranty period, maintenance & technical support

The warranty period of all capital item shall commence after receipt of the items in good working condition and from the date of its satisfactory installation and acceptance test by the consignee.

The warranty period and validity of Performance Guarantee shall be extended for the period of delay in satisfactory installation and delay in warranty services.

All the Capital items / Lab Equipment shall be covered under **Three** years onsite comprehensive warranty with Maintenance & Technical support services.

8.4. Deliverables & Timelines

The Bidder should deliver the Lab Equipment within four weeks from the date of issuance of purchase Order.

9. Payment Terms and Procedure

9.1. Payment Schedules

The payment amount will be equal to the amount specified in financial bid of the bidder. Payments will be released only on satisfactory acceptance of the deliverables for each Lab equipment (as mentioned in this RFP) as per the following schedule:

- 1) **75%** of the Contract amount shall become payable by the NIELIT after the complete delivery of all items as per the RPF.
- 2) **15%** of the contract Amount shall become payable by the NIELIT upon completion of setup configuration and test acceptance.
- 3) **10%** of the Contract Amount shall become payable by NIELIT after the submission of Successful completion Certificate from the user.

Form 1: Compliance Sheet for Pre-qualification Proposal

S. No.	Basic Requirement	Documents Required	Provided	Reference & Page Number
1	Earnest Money Deposit	Demand Draft / FDR	Yes / No	
2	Particulars of the Bidders	As per Form 2	Yes / No	
3	ISO 9001:2000/2008 certificate	Copy of Valid ISO 9001:2000/2008 certificate		
4	Sales Turnover in Supply & Installation of Lab Equipment	Extracts from the audited Balance sheet and Profit & Loss; OR Certificate from the statutory auditor	Yes / No	
5	Letter of proposal	Letter of proposal; as per template provided (Form 4)	Yes / No	
6	Technical Capability	Completion Certificates from the client	Yes / No	
7	Local Service Centers	A Self Certified letter by an authorized signatory	Yes / No	
8	Quality Certifications	<i>[As relevant]</i>	Yes / No	
9	Legal Entity	Copy of Certificate of Incorporation; and Copy of Service Tax Registration Certificate	Yes / No	-
10	Letter of authorization from OM	Letter of authorization from OM	Yes / No	
11	Blacklisting	A self-certified letter	Yes / No	

Form 2: Particulars of the Bidders

S. N.	Information Sought	Details to be Furnished
A	Name and address of the bidding Company/Firm	
B	Incorporation status of the firm (public limited / private limited, etc.)	
C	Year of Establishment	
D	Date of registration	
E	ROC Reference No.	
F	Details of company registration	
G	Details of registration with appropriate authorities for service tax	
H	Name, Address, email, Phone nos. and Mobile Number of Contact Person	

Form 3: Compliance Sheet for Technical Proposal

S.No	Requirement	Proposed Equipment	Version & Year of Release & EOL expected	O&M Support (Warranty/Support as required as per RFP)	OM	Features mandated in RFP [to be filled by Nodal Agency]

Form 4: Letter of Proposal**BID FORM**

Date.....

Bid No.....

To

The Director-in-Charge,
National Institute of Electronics and Information Technology,
R.K. Nagar (Opposite to NEEPCO), Khayerpur, Agartala,
West Tripura, P.S. –Bodhjunnagar, PIN-799008

Sir,

Having examined the Bid Documents, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply in conformity with the said Bid documents in accordance with the schedule of prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to deliver the goods within the delivery period as specified in the Bid document of as mentioned in Annexure-I. We will also submit the Performance Guarantee for an amount equal to 10% of the contract value.

We agreed to all Terms and conditions of this Bid for a period of 180 days after the date fixed for Commercial Bid opening and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this Bid, together with your written acceptance thereof and your notification of award, shall constitute a binding contract between us.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely “Prevention of Corruption Act 1988”, if we find in Bid pooling or against law against fraud and corruption my / our firm may be black listed.

Further we certify that our organization is not blacklisted by any Govt. Department.

Dated _____

(Signature)

SEAL

Form 5: Financial Proposal

Category 1: Electronics & Communication Laboratory Items:

Sl. No	Item name & its description/Specification		Quantity	Unit Rate	Amount	Tax (in %)	Total Amount with Tax	AMC Charges for Capital Items only after completion of Warranty Period of 3 years
Capital Items								
1.	Kirchhoff's Law Trainer kit	To Verify the Kirchhoff's Current law and Voltage law	2					
2.	Maximum Power Transfer Theorem Trainer kit	Verification of maximum Power Transfer Theorem	2					
3.	Thevenin Theorem Trainer kit	To Verify the Thevenin's Theorem and to find equivalent Voltage Sources Ckt.	2					
4.	Norton's Theorem Trainer kit	To Verify the Norton's Theorem and to find equivalent Current Sources Ckt.	2					
5.	Coulomb Law Trainer Kit	Coulumb law Demonstrator and measuring charge	2					
6.	Magnetic Materials	To Obtain the B-H curve of magnetic materials	2					
7.	Three phase voltage Trainer kit	To Observe the Waveform of three phase voltage on CRO	2					
8.	Universal IC Programmer	For IC flash	2					
9.	P-N Diode Ch.Trainer Kit	To Study the V-I Characteristics, The Trainer Complete with Voltmeter, mA/uA Meter& Variable	1					

10.	B.J.T Ch.Trainer kit	To Study the V-I Characteristics of CB,CE,&CC conf.The Trainer Complete with Voltmeter,mA/uA Meter& Variable D,C Power Supply	1					
11.	Rectifier Trainer kit	To Study & design of Half & full wave Rectifiers & effect of Filters,The Trainer Complete with, Step Down Transformer ,Diodes, capacitors, Load resistors etc	1					
12.	JFET Trainer kit	channel FET, The Trainer Complete with D.c Power supply ,Voltmeter & mA meter	1					
13.	SCR Trainer Kit	To Study the V-I Characteristics of a SCR .This Trainer Complete with DC power supply diode, pots, Load resistor ,DC Voltmeter & U/m ammeter	1					
14.	Clipping & clamping circuit Trainer Kit	To design the +ve /-ve Clipping & Clamping Ckts & study waveforms The trainer complete with diode, Capacitor, Resistor & DC power supply.	1					
15.	R-L-C Circuit Trainer kit	To Design of a series & parallel Rc,RL &RLC CktsTo Design of a series & parallel Rc,RL &RLC Ckts&study the Transient responses, Resonances a Character of RLC Ckts.The Trainer Complete the AC sources, Set of Resistor, Capacitor & Inductor etc.	1					
16.	Network Theorems Trainer kit	To study the DC network Theorems (KVL,KCL,Super position, Thevenine ,Norton).This Trainer Complete with	1					

		DC power Supply, Set of Resistor Voltmeter						
17.	RC Couple Amplifier Trainer Kit	To Study the gain & Band width of RC Couple amplifier. The Trainer Complete with Transistorized amplifiers, Coupling Capacitor ,Power supply, Pots etc.	1					
18.	OP-Amp (741) parameter Trainer kit	To Study OP-Amp parameter DC off set Voltage & Current, null Slew rate CMRR etc.	1					
19.	OP-Amp (741) Application Trainer kit	To Study inv.& noninv.amplifiers,adder,subs,intrgrator ,diff.etc.The Trainer Complete with DC+/-12V power supply ,set of resistors, Capacitors Pots etc.	1					
20.	555 Trainer Kit	To design & study multivibrators & simple timers,pulse generator. The Trainer Complete with IC 555,5V dc sources, LED s,POTs Capacitor etc.	1					
21.	Zener Diode Trainer kit	To Study the V-I characteristics of Zener diode& Zener Diode as voltage regulator.	1					
22.	Phase shift oscillator	Basic design and operations	1					
23.	Digital IC Trainer Kit:	Trainer kit model	6					
24.	TMS 320C6713 (32-Bit Floating Point Processor) Based DSP Trainer Kit	Trainer kit model	2					
25.	Xilinx Virtex-5 FPGA based DSP Development Board	Trainer kit model	2					

26.	Xilinx Zynq-7000 SoC Video and Imaging Kit	Trainer kit model	1					
27.	Digital Multimeter Make: Rish, Model: 15s	4 ½ Digit Display	10					
28.	optocoupler kit	Trainer kit model	1					
29.	Signal Generator and Frequency Modulation Kit	Trainer kit model	2					
30.	Amplitude modulation Kit	Trainer kit model	2					
31.	Amplitude Demodulation Kit	Trainer kit model	2					
32.	FDM Transmitter / Receiver kit	Trainer kit model	2					
33.	Noise Power Spectral Density Measurement kit	Trainer kit model	2					
34.	Frequency Demodulation and Phase Modulation Kit	Trainer kit model	2					
35.	Filter/Noise and Audio Amplifier Kit	Trainer kit model	2					
36.	Noise Power Spectral Density Measurement kit	Trainer kit model	2					
37.	Transmission line Trainer Kit	Trainer kit model	4					
38.	Transient analysis of RLC	Trainer kit model	2					

39.	Transient analysis of RC/RL circuits	Trainer kit model	2					
40.	T and pie Network Trainer	Trainer kit model	2					
41.	Pulse Amplitude Modulation Time Division Multiplexing (PAM-TDM) Kit	Trainer kit model	2					
42.	Pulse code Modulation Kit	Trainer kit model	2					
43.	Pulse Code Demodulation Kit	Trainer kit model	2					
44.	ASK/PSK/FSK Modulation & Demodulation Kit (set)	Trainer kit model	2					
45.	Delta and Adaptive Delta Modulation & Demodulation Kit	Trainer kit model	2					
46.	Pulse Amplitude/Pulse Width/Pulse Position Modulation / Demodulation Kit	Trainer kit model	2					
47.	QPSK Modulation/Demodulation Kit	Trainer kit model	2					
48.	DPSK modulation/Demodulation Kit	Trainer kit model	2					

49.	Telephone Trainer Kit	Trainer kit model	3					
50.	EPABX Trainer KIT	Trainer kit model	2					
51.	Mobile Hand Set Trainer Kit	Trainer kit model	2					
52.	TMS 320C6713 (32-Bit Floating Point Processor) Based DSP Trainer Kit	Trainer kit model	5					
53.	TMS 320C6416 (32-Bit Fixed Point Processor) Based DSP Trainer Kit	Trainer kit model	2					
54.	Microphone trainer kit	Trainer kit model	2					
55.	BLACK AND WHITE T.V trainer kit	Trainer kit model	1					
56.	Separate sections of Black and White T.V.	Trainer kit model	2					
57.	Color pattern generator	Trainer kit model	2					
58.	Color T.V trainer kit	Trainer kit model	2					
59.	Separate sections of Color T.V trainer	Trainer kit model	2					
60.	DVD Player trainer	Trainer kit model	1					

61.	MODEL-PID,PID CONTROL TRAINER	Trainer kit model	1					
62.	OPEN LOOP/CLOSE LOOP MOTOR SPEED CONTROL TRAINER kit	Trainer kit model	1					
63.	STEPPER MOTOR CONTROL TRAINER kit	Trainer kit model	1					
64.	Klystron Mount	Freq. Range (GHz):8.2-12.4	5					
		Flange:UG-39/U						
		Waveguide:RG-52/U						
65.	Klystron tube	2k-25 (X-band)	5					
66.	Isolator	Freq. Range(GHz):8.6-10.0	5					
		Max VSWR (dB):1.2						
		Min. Insertion loss(dB):0.4						
		Min.Isolation(dB):20						
67.	Frequency Meter (DR)	Freq. Range(GHz):8.2-12.4	5					
		Calibration Accuracy:+2						
		Calibration Increment(MHz):10						
		VSWR Max.:1.02						
		Freq. range:8.2-12.4	5					

68.	Variable Attenuator	VSWR :1.1						
		Av. Power:2W						
		Waveguide:RG-52/U						
		Flange :UG-39/U						
69.	Slotted Section	Freq. range(GHz):8.2-12.4	5					
		Residual VSWR:1.01						
		Slope(dB):+ 0.2						
		Waveguide:RG-52/U						
		Flange:UG-39/U						
70.	Tunable Probe	Freq. Range:8.2-12.4	5					
		Detector:IN-23						
		Outputconnector:BNC(F)						
		Type:Tunable						
71.	Detector Mount	Freq. Range:8.2-12.4	5					
		Crystal:IN21						
		OutputconnectorFemale:BNC						
72.	Movable Short	Freq. Range:8.2-12.4	5					
		Reflection co-efficientT:0.98						
		Waveguide:RG-52/U						
		FLANGE:UG-39/U						
73.	Matched termination	Freq. Range: 8.2-12.4	5					
		VSWR: 1.02						
		Flange: UG-39/U, Waveguide: RG-52/U						
74.	S. S. Tuner	Freq. Range (GHz):8.2-12.4	5					
		Flange:UG39/U						
		Waveguide:RG-52/U						
		Max. VSWR:20:1.02						

75.	Waveguide stand	Universal waveguide stand	20					
76.	VSWR Meter	Sensitivity: 0.2 μ V at a 200 ohms input for full scale deflection	5					
		Noise Level: At least 5 dB below full scale at rated sensitivity and maximum band width input terminated in 100 ohms and 500 ohms for crystal low and high respectively.						
		Calibration: Square law, meter indicates SWR, dB.						
		Range: 70 dB, input attenuator provides 60 dB in 10 dB steps, accuracy + 0.2 dB per 10 dB steps Maximum commutative error + 0.5 dB.						
		Scale Selector: Normal Expand and – 5dB.						
		Meter Scale: SWR1-4, SWR 3-10 , expand SWR 1.1.3, dB 0-10, expand dB0.2.						
		Gain Control: Adjust the reference level, variable range 0-10 dB approx.						
		Input: “Bolo” bias provided for 4.3 mA low current bolo meters.						
		Recorder output: Socket provided for recording having 1 V for full scale deflection, internal resistance of 1000 ohms or less.						

		A/C Output: BNC connector for amplified output.						
		Input Connector: BNC (F).						
		Frequency: 1000Hz + 10%.						
		Power: 230 volts A.C + 50 Hz, mains supply						
77.	Solid State Klystron Power supply	Beam Supply:	5					
		Voltage Range: 195-400 V continuously variable						
		Current: 45mA Max.						
		Regulation: Better than 0.5% for + variation in Mains Supply Voltage						
		Ripple: Less tan 5 mV rms						
78.	Cooling Fan with stand	100 mm. square fan with stand	5					
79.	BNC Cable	Coaxial cable RG-52 both end BNC connector	10					
80.	Gunn Oscillator	Freq.Range (GHz):8.2-12.4	5					
		Pushing fac.(MHz/V):8						
		Bias V. Max:10V						
		Nominal Power output:10						
		Temp.Coeff.(MHz):+ 0.2						
		Output Connector:BNC(F)						
		Freq. Adjustment:By Micrometer						
		W. guide:RG-52/U						
		Flange :UG-39/U						
81.	PIN Modulator	Freq. Range(GHz):8.2-12.4	5					
		Bias Volt.:0.10 VOLTS						
		Output connector:TNC (F)						

		Waveguide:RG-52/U						
		Flange:UG-39/U						
82.	Gunn Power Supply	Voltage Range:0 to 12 volts variable	5					
		Current:1 Amp. Max						
		Regulation:0.2+ 10% variation in the Mains Supply voltage						
		Ripple:1 m V rms						
		Modulation Freq.:1 KHz + 20% (900-1100 Hz)						
		Output Connector :BNC (F) for Gunn Oscillator and YNC (F) for Pin Modulator						
83.	TNC Cable	Coaxial cable with both end TNC connector	5					
84.	Mechanical Turn Table	Wooden table size fixed with accessories	5					
85.	Standard Gain Horn	Freq.range: 8.4-12.4	5					
		Flange: UG-39/U, waveguide RG-25/U						
86.	E-plane Bend	Freq. range: 8.2-12.4GHz, VSWR MAX: 1.05, Waveguide: RG-52/U, Flange: UG-39/U	10					
87.	Pick up horn	Freq.range: 8.4-12.4	2					
		Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.2						
88.	Slotted Antenna - Broad Wall	Freq.range: 8.4-12.4	2					
		Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.2						
		Freq.range: 8.4-12.4	2					

89.	Slotted Antenna - Narrow Wall	Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.2						
90.	Dielectric Antenna	Freq.range: 8.4-12.4	2					
		Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.2						
91.	E-Sectoral Horn	Freq. Range(GHz):8.2-12.4	2					
		Flange:UG-39/U						
		Waveguide:RG-52/U						
		Type:E-Sectoral						
		Gain:15						
		Max.VSWR:1.2						
92.	H-Sectoral Horn	Freq. Range(GHz):8.2-12.4	2					
		Flange:UG-39/U						
		Waveguide:RG-52/U						
		Type:H-Sectoral						
		Gain:15						
		Max.VSWR:1.2						
93.	Parabolic Disc (with feed) 8" dia	Freq.range: 8.4-12.4	2					
		Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.3						
94.	Pyramidal Horn		2					
		Freq. Range(GHz):8.2-12.4						
		Flange:UG-39/U						
		Waveguide:RG-52/U						
		Type:Pyramidal						
		Gain:16						
Max.VSWR:1.2								
95.	Precision Short	Freq.Range:8.2-12.4	2					
		Reflection Co-efficient:0.98						

		Wave guide:RG-52/U						
		Flange:UG-39/U						
96.	Solid Dielectric Cell	Freq. Range(GHz):8.2-12.4	2					
		Max. length of cell(mm):110						
		Plunger Movement (mm):25						
97.	Liquid Dielectric Cell	Freq. Range(GHz):8.2-12.4	2					
		Max. length of cell(mm):200						
		Plunger Movement (mm):65						
98.	Phase Shifter	Freq. Range:8.2-12.4	2					
		VSWR Max:1.3						
		Calibration Accuracy:+2.50						
		Waveguide:RG-52/U						
		Flange:UG-39/U						
99.	Fixed Attenuator : 3 dB	Band : X,	2					
		Freq. range: 8.2-12.4,						
		VSWR Max.: 1.08,						
		Av. Power: 2W,						
		Accuracy: +0.5dB,						
		Waveguide: RG-52/U,						
		Flange: UG-39/U						
100.	Fixed Attenuator : 6 dB	Band : X,	2					
		Freq. range: 8.2-12.4,						
		VSWR Max.: 1.08,						
		Av. Power: 2W,						
		Accuracy: +0.5dB,						
		Waveguide: RG-52/U,						
		Flange: UG-39/U						

101.	Fixed Attenuator : 10 dB	Band : X,	2					
		Freq. range: 8.2-12.4,						
		VSWR Max.: 1.08,						
		Av. Power: 2W,						
		Accuracy: +0.5dB,						
		Waveguide: RG-52/U, Flange: UG-39/U						
102.	Magic Tee	Freq.range: 8.4-12.4	2					
		Flange: UG-39/U, waveguide RG-52/U, VSWR: 1.25						
103.	Directional Coupler : 3 dB	Freq. Range (GHz): 8.2-12.4	2					
		Coupling(DB): 3+0.6						
		Directivity(MIN.):35						
		VSWR(MAIN):1.12						
		VSWR (AUSILLIRRY LINE):1.2						
104.	Directional Coupler : 10 dB	Freq. Range (GHz): 8.2-12.4	2					
		Coupling(DB): 10+0.6						
		Directivity(MIN.):35						
		VSWR(MAIN):1.12						
		VSWR (AUSILLIRRY LINE):1.2						
105.	CD-coupler-20db	Freq.Range(GHz): 8.4-12.4,	2					
		Couplig DB-20,						
		Min. Directivity-25						
		Coupling accuracy + 1DB						
106.	T Circulator	Freq. Range(GHz): 8.6-9.6	2					
		Max VSWR (dB): 1.2						
		Min. Insertion loss(dB):0.4						
		Min.Isolation(dB):20						

107.	Y.Circulator	Freq. Range(GHz): 8.6-9.6	2					
		Max VSWR (dB): 1.2						
		Min. Insertion loss(dB):0.4						
		Min.Isolation(dB):20						
108.	E- Plane Tee	Freq. Range:8.2-12.4	2					
		Flange:UG-39/U						
		Waveguide:RG-52/U						
109.	H- Plane Tee	Freq. Range:8.2-12.4	2					
		Flange:UG-39/U						
		Waveguide:RG-52/U						
110.	VLSI Trainer kit	FPGA,LCD module, segment displays, stepper motor interface,	1					
111.	CPLD Trainer kit	CPLD using Xilinx standard, LCD module, segment displays,	1					
112.	FPGA XC2S50 Development Board trainer kit	Sub-board for CPLD, FPGA, VGA interface, Verilog HDL, VSDL	1					
113.	ARM Processor trainer kit	ARM based 32 bit, GPIO expansion header, DAC/ADC header	1					
114.	Xilinx SPARTAN XC3S50 trainer kit	FPGA Xilinx Spartan 3 XC3S400, Flash ROM	1					
115.	Virtex 5Kit PCLe 280 FPGA trainer kit	FPGA on board, Virtex 5 with 330000 logic cell	1					
116.	Basic Fibre Optic Trainer Kit		2					
117.	Fibre Optic Communication Trainer Kit		2					

118.	Biometric fingerprint analyser with Door Access Control	Fingerprint for all fingers, contact based.	10					
119.	TCP IP Trainer	To understand P2P, client-server network, network topology,	10					
		IPX/SPX, NetBEUI, TCP/IP, DLC, NETBIOS, Hub, repeater, router, logins bridge, switch, gateway, IRQ, I/O port address, protocols such as						
		SMTP/HTTP/FTP, UDP socket with necessary hardware and software						
120.	TCP/IP protocol suite kit	Hardware & software including hub, switch, bridge, router, gateway	1					
121.	Cathode Ray Oscilloscope (CRO): 30 MHZ Dual Trace		20					
122.	LCD Color Digital Storage oscilloscope: 100 MHz, 4 Channel		5					
123.	Function Generator / Counter: Frequency : 2 MHz		10					
124.	Regulated DC Power Supply: 0-30v dc volt		10					

Consumable Items

1.	Side Cutting Pliers Taparia	Length:205 mm	7					
2.	Ball pen Hammer Taparia	110gm	5					
3.	4-pin crystal	1 MHz	25					
		12 MHz	25					
4.	Two-pin crystal	3.58 MHz	25					
		1 MHz	25					
		11.059 MHz	25					
		12 MHz	25					
		24 MHz	25					
		36 MHz	25					
5.	Switch	8 Line DIP Switch	25					
		10 Line DIP Switch	25					
		4 Line DIP Switch	25					
6.	USB male connector	PCB mount type	25					
	USB female connector	PCB mount type	25					
7.	Seven segment display	Common Anode	100					
8.	Alpha Numeric Display	Common Anode	100					
9.	LED	RED 5 mm	100					
		RED 10 mm	100					
		GREEN 10 mm	100					
		BLUE 5 mm	100					
		GREEN 5 mm	100					
		White 5 mm	100					
		RED 3 mm	100					
		BLUE 3 mm	100					

		GREEN 3 mm	100					
		BI-COLOR 3 mm	100					
10.	Female berg strip	40 x 1	50					
11.	Male berg strip	40 x 1	50					
12.	Copper broad	1 sq ft	25					
13.	Battery Snapper	9v	25					
		8 pin	100					
		14 pin	100					
14.	IC bases	16 pin	100					
		18 pin	100					
		20 pin	100					
		24 pin	100					
		40 pin (DIP)	100					
15.	Pulse Transformer	1:01	25					
16.	Motor Driver	L293D	10					
		L298	10					
17.	PWM IC	UC 494	20					
18.	PWM IC	UC 3524A	20					
19.	Glue Gun		5					
20.	Glue Stick		20					
21.	Nose Pliers		5					
22.	Screw Driver Set		5					
23.	Soldering Wire		2					
24.	Soldering Stand	Small Size	20					
		Big size	20					
25.	Soldering tip	25 Watt	30					
		35 Watt	30					
		50 Watt	30					

26.	Potentiometer (Bread Broad Mount type-	0-100	50					
		0-500	50					
		0-1K	50					
		0-5K	50					
		0-10K	50					
		0-50K	50					
		0-100K	50					
		0-470K	50					
		0-1M	50					
27.	Diode	1N 4007	200					
		1N 4148	200					
		IN 4007	200					
		IN 5819	200					
		IN 5821	200					
		IN 4148	100					
		BL 127	100					
		MUR 1560	100					
		IN 4729	100					
		IN 4730	100					
		IN 4732	100					
		IN 4733	100					
		IN 4734	100					
		28.	Zener	IN 4735	100			
IN 4736	100							
IN 4738	100							
IN 4740	100							
IN 4742	100							
IN 4744	100							
IN 4746	100							

		IN 5359	100					
29.	Transistor	BC 107B	100					
		BC 109B	100					
		BC 547	100					
		BC 548	100					
		BC 556	100					
		BC 557	100					
		TIP 121	100					
		TIP 122	100					
		BC 639	100					
		BC 108	100					
		BFY 90	100					
		2N 2907	100					
		2N 2906	100					
		2N 2222	100					
		SL 100	100					
30.	Optocoupler	MCT 2E	100					
		HP 3101	100					
31.	Transistor Array	LM 3046	30					
		2N 2646	50					
32.	N Channel UJT	2N 918	50					
		TIP 31	50					
33.	JFET	2N 5461	50					
34.	DIAC	DB3	50					
		BT 138	50					
35.	TRIAC	BT 136	50					
		BT 151	50					
36.	SCR	TYN 616	100					
		TYN 604	100					

37.	MOSFET	IRFZ44	100							
		IRF840	50							
		IRF540	50							
		IRF740	50							
38.	CAPACITOR (CERAMIC)	22 pf/50V	100							
		220PF/50v	100							
		33pf/50V	100							
		330 pf/50V	100							
		47 pf/50V	100							
		470 pf/50V	100							
		50 pf/50V	100							
		10 pf/50V	100							
		100 nf/50V	100							
		3200 pf	100							
		10000 pf	100							
		39.	CAPACITOR DISC TYPE	101	100					
				102	100					
103	100									
104	100									
0.001µf	100									
0.1µf	100									
0.047 µf	100									
0.0022 µf	100									
0.022 µf	100									
40.	CAPACITOR (ELECTROLYTI C)			0.1µf (16V)	100					
		0.1µf (35V)	100							
		0.1µf (63V)	100							
		0.22µf (16V)	100							
		0.22µf (35V)	100							

		0.22µf (63V)	100					
		0.47µf (16V)	100					
		0.47µf (35V)	100					
		0.47µf (63V)	100					
		0.33µf (16V)	100					
		0.33µf (35V)	100					
		0.33µf (63V)	100					
		2.2µf (16V)	100					
		2.2µf (35V)	100					
		2.2µf (63V)	100					
		0.47µf (16V)	100					
41.	CAPACITOR (ELECTROLYTI C)	10µf (16V)	100					
		10µf (35V)	100					
		10µf (50V)	100					
		10µf (63V)	100					
		22µf (16V)	100					
		22µf (25V)	100					
		22µf (35V)	100					
		22µf (63V)	100					
		220µf (16V)	100					
		220µf (63V)	100					
		4700µf (16V)	100					
		4700µf (25V)	100					
		100µf (16V)	100					
		100µf (25V)	100					
		100µf (35V)	100					
		100µf (63V)	100					
		1000µf (160V)	100					
		1000µf (160V)	50					

		10000µf (160V)	500					
42.	Voltage Regulator	7912	100					
		7905	100					
		7815	100					
		7812	100					
		7812	100					
		7805	100					
43.	8Kx8 CMOS EPROM	2764	25					
44.	8KX8 Static RAM	6264	20					
45.	GENERAL PURPOSE OPAMP	741C (Plastic)	100					
		741C (Metal)	100					
		741A (Plastic)	100					
		741A (Metal)	100					
46.	Single Stand flexible wire	27SWg	5					
		26SWG	5					
		19SWG	2					
47.	Digital Gate	74HC00	100					
		74HC02	100					
		74HC04	100					
		74HC05	100					
		74HC08	100					
		74HC10	100					
48.	FLIP FLOP and GATE	74HC107	100					
		74HC132	100					
		74HC138	100					
		74HC139	100					
		74HC148	100					
		74HC151	100					

		74HC192	100					
		74HC20	100					
		74HC221	100					
		74HC251	100					
		74HC27	100					
		74HC30	100					
		74HC367	100					
		74HC373	100					
49.	LATCH/Counter/ Register	74H374	100					
		74H393	100					
		74H42	100					
		74H47	100					
		74H75	100					
		74H76	100					
		74H83	100					
		74H85	100					
		74H86	100					
		74H90	100					
		74H92	100					
		74H93	100					
		74H95	100					
		74H199	100					
		89652	100					
		ADC0804	100					
		ADC0808	100					
50.	Microcontroller	AT Mega8	100					
51.	8 bit DAC	DAC 0800	100					
52.	Universal 24 pin PLDs	GAL 20V8	100					

53.	1.5 Amp Voltage regulator	LM 317	100					
54.	Quad OP Amp	LM 348	100					
		LM 324	100					
		LM 339	100					
		LM 741	100					
55.	Dual Frequency Compensation OP Amp	LM 358	100					
56.	General Purpose PLL	LM 565	100					
57.	Dual RS 232 Driver	MAX 232	100					
58.	3:8 Analog MUX/DEMUX	MC 14051B	100					
59.	Timer	NE 555	100					
60.	RELAYS-RW-SH-106D	GOOD-SKY-6V-12A	100					
		GOOD-SKY-9V-12A	100					
		GOOD-SKY-12V-12A	100					
61.	Mini jumper	2 pin	50					
		3 pin	50					
62.	ZIF-SOCKET	20 pin	50					
		28 pin	50					
		40 pin	50					
63.	Rectifier bridge	25 Amp/1000	5					
		IN746	100					
		IN751	100					
		IN 4007	100					
64.	Resistor	MFR RES 1/4W VALUE Ğ 1E,	(500 each)					
		10E, 100E, 1K, 10K, 22K, 27K,						
		33K, 39K, 47K,56K, 68K, 82K,						

		100K, 150K, 220K, 270K, 330K, 390K, 470K, 560K, 1M, 2.2M, 10M, 22M , 4.7k, 3.7k						
65.	Resistor	CFR RES 1/4W VALUE Ğ 1E, 10E, 100E, 1K, 10K, 22K, 27K, 33K, 39K, 47K,56K, 68K, 82K, 100K, 150K, 220K, 270K, 330K, 390K, 470K, 560K, 1M,4.7k, 3.7k, 2.2M, 10M, 22M	(500 each)					
66.	Ceramic Capacitor	CER CAP 0.1NF	100					
		CER CAP 0.01UF	100					
		CER CAP 0.1UF	100					
		CER CAP 0.27UF	100					
		CER CAP 0.33UF	100					
67.	Electrolytic Capacitor	ELE CAP 0.1UF	100					
		ELE CAP 1UF	100					
		ELE CAP 10UF	100					
		ELE CAP 22UF	100					
		ELE CAP 33UF	100					
		ELE CAP 47UF	100					
		ELE CAP 100UF	100					
		ELE CAP 200 UF	100					
		ELE CAP 470UF	100					
		ELE CAP 1000UF	100					
68.	Transistor	2N2219 (NPN & PNP)	100					
		SK100 (NPN & PNP)	100					
		TIP29 (NPN & PNP)	100					
		TIP30 (NPN & PNP)	100					
69.		LM747	30					

Analog Electronics IC	LM324	30					
	LM336	10					
	LM339	10					
	LM334	10					
	7805	10					
	7905	10					
	7812	10					
	7912	10					
	723	10					
	555	20					
	556	10					
	TL494	10					
	CA3080	10					
	CA3130	10					
	CA3140E	10					
	CA3160E	10					
	CA3240E	10					
	ICL7611D	10					
	ICL7641E	10					
	ICL7642E	10					
	ICL7650S	10					
	ICL7652C	10					
	LF347	10					
	LF351	10					
	LF353	10					
	LF355N	10					
	LM10CLN	10					
	LM301	10					
	LM301AN	10					

		LM308N	10					
		LM358	10					
		LM833N	10					
		LM1458N	10					
		LM3900N	10					
		NE531N	10					
		NE5532	10					
		NE5534	10					
		NE5539	10					
		OP27	10					
		RC4558	10					
		TLO61	10					
		TLO62	10					
		TLO64	10					
		TLO71	10					
		TLO72	10					
70.	Hook up Wire 90 mtr roll approx	74LS00	10					
		74LS01	10					
		74LS02	10					
		74LS03	10					
		74LS06	10					
		74LS07	10					
		74LS08	10					
		74LS11	10					
		74LS14	10					
		74LS20	10					
		74LS27	10					
		74LS30	10					
71.	Digital IC	74LS47	10					

		74LS48	10					
		74LS51	10					
		74LS73	10					
		74LS74						
		74LS75	10					
		74LS76	10					
		74LS83						
		74LS85	10					
		74LS86	10					
		74LS90						
		74LS92	10					
		74LS93	10					
		7400						
		7401	10					
		7402	10					
		7404						
		7405	10					
		7406	10					
		7407						
		7411	10					
		7403	10					
		7410						
		7413	10					
72.	BREAD BOARD WB102	BREAD BOARD WB102	40					
Total of all consumable items (in figures)								
Total of all consumable items (in words)								

Category 2: Physics Laboratory Items

Sl No	Item Name & Description / Specification	Quantity	Unit Rate	Amount	Tax (in %)	Total Amount with Tax	AMC Charges for Capital Items only after completion of Warranty Period of 3 years
Capital Items							
1	Determination of MH and M/H of a bar magnet.	4					
	(i) Box type vibration magnetometer						
	(ii) Deflection magnetometer						
	(iii) bar magnets (two), stop watch- 1 analog stop watch, 1 electronic timer						
2	Precision Balances: Readability (0.1 mg to 1 g), Capacity (410g to 64g), Minimum weight (0.012 to 180g)	1					
3	To determine the angle of prism and also angle of minimum deviation for parallel rays using Spectrometer and hence to find refractive index of the material of the prism supplied. (i) Spectrometer, (ii) Prism, (iii) Sodium vapour lamp/Mercury vapour lamp, Reading lens.	2					

4	Resistivity and band gap measurement. (i) 4 probe set up (spring loaded probes), (ii) Sample- Ge/Si (chip/slice), (iii) oven-200oC (glowing LED indicator when oven power supply is ON), (iv) Multirange digital voltmeter-Range *1(0-200.0 mV) & *10(0-2.000)V, Resolution-100 V at *1range, Accuracy- 0.1% of reading 1digit, Display-7 segment LED with auto polarity and decimal indication, Overload indicator-sign of 1 on the left and blinking of other digits. (v) Constant current generator- Open circuit voltage- 18V, Current range- 0-20mA, Resolution- 10 A, Accuracy- 0.25% of reading 1 digit, Load regulation: 0.03% for 0 to full load, Line regulation- 0.05% for 10% changes.	2					
5	<p>Programmable curie temperature measurement system.</p> <p>(i) Tube Size – 40 mm x 200 mm</p> <p>(ii) Maximum temperature – 700°C</p> <p>(iii) Controller- Digital temperature PID Controller</p> <p>(iv) Heating elements – Kanthal heating elements</p> <p>(v) Thermocouple – ‘K’ type</p> <p>(vi) Sample holder – Stainless Steel Cup and Rod</p> <p>(vii) Muffle Size – 40 mm x 200 mm</p> <p>(viii) Power – 220 volt single phase</p>	1					

(ix) Load – 500 watt (Approx.)								
Total of Physics Laboratory Items (in figures)								
Total of Physics Laboratory items (in words)								

Category 3: Chemistry Laboratory Items:

SI No	Item Name & Description / Specification	Quantity	Unit Rate	Amount	Tax (in %)	Total Amount with Tax	AMC Charges for Capital Items only after completion of Warranty Period of 3 years
Capital Items							
1	Analytical Balance Single pan with ± 0.1 mg accuracy	1					
2	Quartz Double/Single Water Distillation unit 1.5 liter per hour	1					
3	Double Beam UV Spectrophotometer with Peltier Temperature Control System from 0-1000C Sources - Pre-aligned Deuterium Tungsten Halogen lamps with automatic source change; Wavelength range : 190 - 1100 nm, Wavelength Accuracy : ± 0.1 nm at D2 peak 656.1 nm ; Cell Type : Cell (quartz) – with stopper/lid – volume – 3.5 ml.. – pack of 2; Software : user friendly software to work in Scanning, Wavelength Program, Time-drive, Rate, Quant, Scanning Quant modes; Peltier Single Sample + Single Reference Accessory, Peltier single cell holders for the sample and reference positions. Also a reference position cover, power supply and power cables to be included, Diffuse Reflection & Scattered Transmittanc Accessory for analyzing insoluble Solid Materials	1					
4	Shaking Machine: Which can hold upto 10-12 bottles	1					

Total of Chemistry lab items (in figures)		
Total of Chemistry Lab items (in words)		

Category 4: Engineering Workshop Laboratory Items:

SI No	Item name & its description/Specification	Quantity	Unit Rate	Amount	Tax (in %)	Total Amount with Tax	AMC Charges for Capital Items only after completion of Warranty Period of 3 years
Capital Items							
1	Arc welding set	- 200A air cooled,C58	1				
		- Single phase/two phase combined,					
		- Electrode capacity 2.5 mm to 3.15 mm					
		- Holder (1 No.)					
		- Welding rod (Box of 12 packets)					
		- Electric cable (10 m)					
		- Gloves (1 Pair)					
2	ESAB make Welding machine	- 150 A with 3 m main cable return cable with earth clamp and welding cable with holder	1				
		- Suitable for scratch TIG					
		- Open circuit voltage: 60-75 VDC (max)					
		- Weld current ranges: 4-150 A					
		- Output at 60% duty cycle: 110 A					
		- Enclosure class IP23C					
		- Application class: Standard compliance: IEC60974-1, EN50199					

3	Pedestal Grinding Machine,	- Double ended bench grinder with grinding wheel at the both ends fitted with ball bearing complete with rotary switch, wheel guard and tool rests	5					
		- Wheel size: 180 x 20 mm	5					
		- Wheel centre distance: 445 mm	5					
4	Bench Grinding Machine,	- Double ended bench grinder with grinding wheel at the both ends fitted with ball bearing	2					
		complete with rotary switch, wheel guard and tool rests	5					
		- Wheel size: 100 x 20 x 12.7 mm	5					
		- Motor: 0.25 HP, 3000 rpm	5					
5	Hydraulic Hacksaw Machine,	- Electric motor, starter, hydraulic pump unit, mechanical coolant pump with fittings, 'V'	1					
		Belts, right angle vice & gauge stop.	5					
		- Round bar cap: 170 mm	5					
		- Blade size: 350 mm	5					
		- Motor: 1 HP	2					
6	Hand Drilling Machine	Bench vice No. 4	2					
		Hand vice	5					
		Pipe vice No. 3	5					
		Pin vice	5					
		G clamp 6"	5					
		Ball peen hammer, 800 g	5					
		Straight peen hammer, 1 kg	5					
		Cross peen hammer 800 g	5					
Total of Capital Items Engineering Workshop (in figures)								
Total of Capital Items Engineering Workshop (in Words)								

Consumable Items								
1	Gas Welding	- Oxygen regulator (1 No.)	1					
		- Acetylene regulator (1 No.)	1					
		- LPG regulator (1 No.)	1					
		- Gas cutter (1 No.)	1					
		- Gas welding torch-(small) (1 No.)	1					
		- Gas welding torch-(big) (1 No.)	1					
		- Hose pipe (ISI) (5 m)	1					
		- Oxygen with cylinder (1 No.)	1					
		- Acetylene with cylinder (1 No.)	1					
		Hand shield	10					
		Welding goggles	10					
		Chipping hammer	10					
		Pliers 7"	10					
		Measuring tape, 3 m	10					
		Steel rule 12"	10					
		Hand gloves	10					
		Ball peen hammer, 800 g	10					
Cross peen hammer, 800 g	10							
2	OPTIONAL ACCESSORIES	Drill chuck 0-1/2" with arbour	5					
		Drill sleeve	2					
		Drill vice – 100 mm	2					
		Elec. Coolant pump with tank & fittings	2					
3	Cutting Tools	Flat chisel	5					
		Round nose chisel	5					
		Solid frame hacksaw	5					
		Adjustable frame hacksaw	5					
		10" flat Files	5					
		10" square Files	5					

		10" triangular Files	5					
		Scraper 8"	5					
		Tap and die set ¼ to ½,	5					
		Drill bits 1/8" to 1/2", 10 pc set,	5					
		Hacksaw blade	5					
		Tin cutter	5					
4	Marking/Measuring Tools	Steel rule, 12"	5					
		Try square, 12"	5					
		Scriber 7"	5					
		Combination set	5					
		Calipers, 10"	5					
		Divider 10"	5					
		V block 4"	2					
5	SHEET METAL SHOP	14" Shearing Machine with 7" blade heavy duty-steel body	2					
		Mallet hammer 200 g	1					
		Flat nose pliers 15 computer	2					
		Try square – 12"	2					
		Tri square – 24"	5					
		Folding try – square 8"	5					
		Round nose pliers – 20 computer	5					
		Sheet thickness gauge	2					
		Combination plier 8 inch	2					
		7 feet bending machine 18 gauge capacity heavy duty steel body	5					
		Hand drill electric machine, 220 volts, heavy duty certified company	1					
		Drill bit set of 13 pieces 1/6 x ¼ high speed steel	1					
		Pipe vice ½" to 1.5"	2 set					

		Snip (Straight)	1					
		Snip (Round)	5					
		Divider 6"	5					
		Pipe bending machine ½"to 1" (manual type)	5					
		Soldering iron 250 g steel body wood handle	1					
		Spring divided Compass 8"	1					
		Anvil 100 kg (Single Horn)	5					
6	SMITHY SHOP & FOUNDRY SHOP	Hearth Electric blower-size-12" with all accessories (Hood, Chimney, Body, Nozzle, Cooling tank, 3-Phase Electric Motor etc.)	3					
		Hearth (Hand Forge)	2					
		Blower size - 12" with all accessories	2					
		Anvil 100 kg (Single Horn)	5					
		Leg Vice, Table size – 15" x 24", Jaw size – 8" x 30"	3					
		Round tongs, length – 18"	1					
		Square tongs, length – 18"	5					
		Flat tongs, length – 18"	5					
		Pick-up tongs, length – 18"	5					
		Side tongs, length – 18"	5					
		Ring tongs, length – 18"	5					
		Flatter, 2"x 2"x 3"	5					
		Top fuller, ¼" to 1"	5					
		Bottom fuller, ¼"to 1"	5					
		Hammer with handle ball peen 500 g	5					
		Hammer with handle ball peen 750 g	5					
		Hammer with handle ball peen 1kg	5					
Double faced sledge hammer 3.5 kg (7 lbs)	5							

		Hot chisel, cutting edge angle-30 ⁰ , length – 6” & 8”	5					
		Cold chisel, cutting edge angle-60 ⁰ , length – 6” & 8”	5 nos. each					
		Swage block, 12” x 12” x 6”	5 nos. each					
		Poker 30”	1					
		Round punch, ¼” to 1”, length-6”	5					
		Square punch, ¼” to 1”, length-6”	5					
		Top swage, ¼” to 1”, length-3”	5					
		Bottom swage, ¼” to 1”, length-3”	5					
		Moulding tool box, (Consisting of shavel, riddle, hand rammer, vent hole, slick, lifter, simple swab, bellow, towels – 3 types, draw spike etc.)	5 5 1 box					
		Riddle, fitted in brass circular frame mesh 2.36 mm, 3 mm, 4 mm, 4.25 mm in one set	2 box					
		Crucibles 10 kg, capacity best quality for moulding non-ferrous metal	1 set					
7	CARPENTRY SHOP	Machine Tools						
		Wood turning lathe along with compatible Motor of Crompton Creaves	2					
		Surface planer machine	2					
		Circular saw machine	2					
		Jig saw machine	2					
		Wooden grinding machine	2					
		Disc sander	2					
Total of Consumables Items for Engineering Workshop (in figures)								
Total of Consumable items for Engineering Workshop (in words)								

Category 5: Computer Science Laboratory Items:

SI No	Item Name & Description / Specification	Quantity (Agartala)	Unit Rate	Amount	Tax (in %)	Total Amount with Tax	AMC Charges for Capital Items only after completion of Warranty Period of 3 years
1	DSLR camera: Canon EDOS 70D	1					
2	Camera lens kit and accessories compatible with Canon EOS 70D	1					
3	Hand held video camera: with 4K video capture	1					
4	Studio Speaker set with Dolby/DTS certification, silk dome tweeters, amplifier compatible, 120dB signal noise ratio, 16 Hz - 22 kHz	1					
5	Wireless Noise cancellation headphones	50					
6	Microphone: plug n play type	5					
7	Sound mixer and amplifier: yamaha	1					
8	USB HDD 1TB: USB 3.0, slim type	10					
9	USB Portable web cam	2					
10	External/USB CDV Writer: with external power option	5					
11	Bar Code reader	5					
12	QR Code reader/scanner	5					
Total of Item for computer Science Lab (in figures)							
Total of Computer Science Lab (in words)							
Total for all tables (Table 1 – 5) (in figures)							
Total of all tables (1 -5) (in words)							

Note:

- 1. Wherever there is any discrepancy between figures and words of the total value(s), the value mentioned in words will prevail.**
- 2. Rates quoted should be inclusive of all Transportation charges.**
- 3. Lowest bidder (L1) will be evaluated based on Total value for each of the Category.**
- 4. AMC Charges will not be taken into consideration while finalising the Lowest Vendor.**