

**NORTH-EAST INSTITUTE OF SCIENCE AND TECHNOLOGY
(Formerly Regional Research Laboratory)
(Council of Scientific & Industrial Research)
JORHAT – 785 006 (ASSAM) INDIA**

**TENDER DOCUMENT
OPEN (WEB) TENDER IN *[TWO BIDS] System***

To Be Submitted To

**Stores & Purchase Officer,
North–East Institute of Science and Technology,
(Formerly Regional Research Laboratory)
(Council of Scientific & Industrial Research)
Jorhat – 785 006
Assam: India**

NB: THIS BID DCOUMENT IS **FREE OF COST IF DOWNLOADED FROM THE
WEBSITE**

FAX: + 91 - 0376 – 2372921 TEL: 0376 - 2372710 EPABX: +91- 0376 - 2370117, 121, 139 Ext. 2288, Website: <http://www.rrijorhat.res.in> / www.neist.res.in



NORTH – EAST INSTITUTE OF SCIENCE AND TECHNOLOGY
(Formerly Regional Research Laboratory)
(Council of Scientific & Industrial Research)

NOTICE INVITING TENDER No. II/2009-10

Director N E I S T, Jorhat, Assam, India invites sealed offers in *two bid system* from reputed firms for the supply, installation & commissioning of the following item:

Sl. No.	Reference No.	Items	Qty.	EMD (Rs.) in the form of DD/BC/BG	Tender Document Fee (Rs.) in the form of DD only.
1	1(PEQ)/379/09 -10/PUR	Supply & Installation of Instruments / apparatus on turnkey basis to be installed in 58 Nos. of Science Colleges in 8 (Eight) States in North East Region.	One Package for 58 Colleges.	12,00,000/-	300/-

- (1). **Last date & Time for Submission: 16.02.2010 (17.00 HRS)**
(2). **Date/Time for Opening of Tech. Bids: 17.02.2010 (10.00 HRS)**

Venue of Bid Opening at NEIST, Jorhat – 785 006 (Assam)

The Technical bids will be opened in the presence of representatives of tenderers, if any. **If the date of submission / opening happens to be a holiday, the bids shall be submitted / opened next working day at the same time. Requests for postponement will not be entertained.** Fax/email bids or Late/Delayed tenders shall not be considered. The detailed tender document can also be downloaded from www.rrijorhat.res.in / www.neist.res.in free of cost (Tender Document Fee need not be paid). Director, NEIST, Jorhat reserves the right to accept any or all tenders either in part or in full without assigning any reasons there of.

Stores and Purchase Officer

▼ **DETAILS BELOW** ▼

BRIEF SUMMARY OF QUOTATION & CHECKLIST
(Not To Be Used For Evaluation/Comparison Purpose)

FOR Rs. QUOTE FILL RELEVANT INFORMATION IN Rs.

(Please Fill It Up. DON'T Write 'AS PER QUOTATION' / 'PLEASE REFER TO OUR OFFER')

Quotation Ref. No.		Date	
01	Main Items & / Model Nos.		
02	Unit Price with Item-wise Break-up and Total Cost including Taxes / Duties etc, as applicable (NEIST is exempted from Customs / Excise Duties), as applicable on F O R basis.		
03	Insurance & freight Charges, if any.		
04	Payment Terms <i>(Conditional Payment Terms Will NOT Be Accepted)</i>		
05	Delivery Time (Weeks/Months)		
06	Warranty (Months/Years)		
07	Validity of Quotation (Days/Months)		
CHECKLIST		CHECKLIST	
01	Following Things Are Mentioned On The Main (Outer) Envelope Item Name /Reference No. /Last Date For Submission of Tender/Date of Opening of Tender /Firm's Name & Address		
02	EMD is Enclosed (With The Technical Bid Envelope).		
03	Demand Draft(s) Is/Are In Favour Of Director, NEIST Jorhat – 785 006 (Assam) And Payable At Jorhat (Assam). Firm's Name/Ref. No. Etc. Has Been Mentioned On The Back Side of DDs.		
04	The Bid Papers Have Been PUNCHED With A Hole ● On The Top Left Hand Corner Side And Properly Tagged.		
05	Only Relevant Documents (Technical Brochures/Leaflets Etc.) Required In Support Of The Quoted Item Have Been Enclosed. No Irrelevant Papers like ITCC, User Recommendations etc. Have Been Enclosed Unless Specifically Asked For.		
06	Quotation Have Been Duly Signed And Stamped By The Authorized & Competent Person. All Cuttings/Over Writings Have Been Duly Checked, Initialed And Stamped. (If Applicable)		
07	Single Combined Offer Has Not Been Submitted OR 'Price Bid' Has Not Been Enclosed In The Envelope Marked 'Technical Bid'		
08	This Page Will Be Enclosed With The Price Bid.		

We have read and understood the tender terms and conditions. The undersigned is competent to sign the tender document including this page on behalf of the quoting

Date

(Signature with Seal)

CHAPTER – II: INSTRUCTION TO BIDDERS (I T B)

A. INTRODUCTION

1. Eligible Bidders:

- 1.1 This Invitation for Bids is open to all reputed firms who fulfill the qualifying requirements specified in **Chapter XIII**.
- 1.2 Bidders should not be associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Purchaser to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under this Invitation of Bids.

2. Cost of Bidding

- 2.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and “the Purchase”, will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

B. THE BIDDING DOCUMENTS

3. Cost of Bid Document

- 3.1 The complete bid document can be downloaded **FREE OF COST (No Tender Document Fee To Be Paid)** from our website <http://www.rrljorhat.res.in> / www.neist.res.in Interested eligible bidders may also purchase the Bid Document copy on payment of the prescribed fee as indicated in the NIT above.

4. Contents of Bid Document

- 4.1 The goods required, binding procedures and contract terms are prescribed in this Bid Document which includes the following:

Sl. No.	Title	Chapter No.
01	Notice Inviting Tender	I
02	Instructions to Bidder (ITB)	II
03	General Conditions of Contract (GCC)	III
04	Special Conditions of Contract (SCC)	IV
05	Bid Form	V
06	Bid Security Form	VI
07	Authorization Form from all major manufacturers	VII
08	Bidder's performance Statement Form	VIII
09	Service Support Details	IX
10	Deviation Statement Form (ITB, GCC & SCC)	X
11	Technical Compliance Statement Form	XI
12	Performance Security Form	XII
13	Qualification Requirements	XIII
14	Integrity Pact	XIV
15	Technical Specifications	XV
16	Warranty Details	Annexure - I
17	College wise list of equipments	Annexure - II & III

- 4.2 The Bidder is expected to examine all instructions, forms, terms (ITB/GCC/SCC etc.), and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive shall result in rejection of the bid.

5. Amendment To Bid Document

- 5.1 At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the Bid Document by amendment. Such amendments shall form an integral part of bid documents and it shall amount to an amendment of relevant clauses of the Bid Documents.
- 5.2 All prospective bidders who have *purchased* the Bid Document will be notified of the amendment in writing or by cable or by fax, or by e-mail and will be binding on them.
- 5.3 The prospective bidders are **required** to keep a watch on the NEIST Jorhat website w.r.t. any amendment to the tender document or to clarification to the queries raised by the bidders till 07 (seven) days prior to the opening of the tender. The Purchaser reserves the right to reject the bids if the bids are submitted without taking into account these amendments / clarifications. Further bidder will be fully responsible for downloading of the tender document and amendments thereto, if any, for their completeness.
- 5.4 In order to allow prospective bidders reasonable time in which to take the amendment into account in preparing their bids, the Purchaser, at its discretion, may extend the deadline for the submission of bids.

C. PREPARATION OF BIDS

6. Language of Bid

6.1 The Bid prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the bidder and the purchaser shall be written in English language, provided that any printed literature furnished by the bidder may be written in another language but it is to be accompanied by an English translation of its pertinent page(s) duly signed and verified as true English translation. The responsibility for the correctness of the translation will be solely and completely on the bidder and NEIST (Formerly RRL) Jorhat shall not be responsible for any loss/likely loss due to error in translation whatsoever. In such cases, for the purpose of interpretation of the bid, the English translation shall only govern.

7. Documents Comprising the Bid

The bid is required to be submitted in **two parts**. One part is the Techno-Commercial Unpriced Bid and the other part is the Financial/Price Bid.

7.1 The Techno-Commercial Unpriced Bid prepared by the Bidder shall include the following without indicating the price in the Bid Form.

- (i). Bid Security/EMD As Specified In The Invitation To Bids.
- (ii). Service Support Details Form;
- (iii). T&C Deviation Statement Form;
- (iv). Technical Specification Compliance Form;
- (v). Performance Statement Form;
- (vi). Authorization Form from all major manufacturers.
- (vii). Documentary evidence establishing that the bidder is eligible to bid and is qualified to perform the contract if its bid is accepted as per qualification requirements / criteria.
- (viii). Bid Form.
- (ix). The Annual Maintenance Contract (AMC) / Comprehensive Annual Maintenance Contract (CAMC) terms & conditions detailing the exclusions, if any, and the estimated life of the equipment offered.
- (x). If the demonstration of the goods/equipment is deemed essential as per the technical requirements then confirmation reflecting willingness to arrange demonstration of the equipment offered free of charge at NEIST, Jorhat or any other location on a mutually agreeable date, prior to opening of priced bid to ascertain conformity with the tendered specifications.

7.2 The Price / Financial Bid shall comprise the Techno Commercial Bid with price indicated in the bid form.

8. Bid Prices

The Bidder shall indicate the unit prices with item wise price break-up and total bid prices of the goods it proposes to supply under the order and enclose it with the priced bid.

8.1 Prices indicated shall be entered separately in the following manner (**For Indigenous Items**):

- (i). The price of the goods, quoted on F O R basis including all duties and sales and other taxes already paid or payable
- (ii). **Taxes:** We are exempted from payment of Excise Duty in terms of Govt. Notification number 10/97-Central Excise dated 01.03.1997 and Customs Duty in terms of Govt. Notification No. 51/96 – Customs dated 23.7.1996 under Notification number TU/V/RG-CDE (423)/2006 dated 21.st August, 2008 **Hence Excise Duty and Customs Duty, if any, should be shown separately.** Please mention the applicable taxes (VAT/CST/Service) clearly. We don't issue any 'Form C' or 'Form D'. However, being R&D Organization Concessional Sales Tax Forms can be issued, if it is applicable in the State / s from where the material is being supplied. If there is no explicit mention of taxes in the offer then quoted price will be deemed inclusive of such taxes. **No other charges except those mentioned clearly in the quotation will be paid.**
- (iii). Rates should be quoted **FOR, 58 (fifty-eight) Science Colleges in 8 (eight) States in North East Region as per list enclosed** inclusive of packing, forwarding, insurance, freight, installation and commissioning charges etc.

8.2 If ex-works prices are quoted then packing, forwarding, documentation, freight on door delivery basis and insurance charges must be clearly mentioned separately. Vague terms like “packing, forwarding, transportation etc. extra” without mentioning the specific amount / percentage of these charges will NOT be accepted. Such offers shall be treated as incomplete and rejected. **Where there is no mention of packing, forwarding, freight, insurance charges, such offers shall be summarily rejected as incomplete.**

8.3 Prices quoted by the bidder shall remain fixed during the entire period of contract and shall not be subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non - responsive and rejected.

9. Bid Currency

9.1 Prices shall be quoted in Indian Rupees.

10. Documents Establishing Bidder's Eligibility and Qualifications

10.1 Pursuant to ITB 7, the bidder shall furnish, as part of its bid, documents establishing the bidders' eligibility to bid and its qualification to perform the contract if its bid is accepted.

10.2 That the bidder meets the qualification criteria listed in Bid Document.

11. Documents Establishing Goods' Eligibility and Conformity to Bid Document.

11.1 Specifications are basic essence of the product. It must be ensured that the offers are strictly as per our specifications. At the same time it must also be kept in mind that merely copying our specifications in their quotation shall not make firms eligible for consideration. The documentary evidence of conformity of the goods and services to the Bid Document may be in the form of literature, drawings and data, and shall consist of:

- (i). A detailed description of the essential technical and performance characteristics of the goods;
- (ii). A list giving full particulars, including available sources and current prices, of spare parts, special tools, etc., necessary for the proper and continuing functioning of the goods for a period of minimum five years, following commencement of the use of the goods by the Purchaser; and
- (iii). An item by item commentary on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.

11.2 For purposes of the commentary to be furnished pursuant to above, the Bidder shall note that standards for workmanship, material and equipment, and references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications. Technically unsuitable offers, offers not confirming to tender schedule shall be rejected.

12 Bid Security:

12.1 The Bidder shall furnish, as part of its bid, a bid security for an amount as specified in the invitation for Bids / NIT. The bid security is required to protect the Purchaser against the risk of Bidder's conduct, which would warrant the security's forfeiture.

12.2 The bid security shall be in Indian Rupees and shall be in one of the following forms:

- (i). A bank guarantee issued by a Nationalized/Scheduled bank, in the form provided in the Bid Document (**CHAPTER VI**) and valid for 45 days beyond the validity of the bid; or
- (ii) A Banker's cheque or (iii) demand draft in favour of the purchaser.

12.3 Any bid not secured in accordance with Clauses 12.1 and 12.2 above will be rejected by the Purchaser as non-responsive.

12.4 Unsuccessful bidder's bid security will be discharged/returned as promptly as possible but not later than 15 days after the expiry of the period of bid validity or placement of order which ever is later.

12.5 The successful Bidder's bid security will be discharged upon the Bidder furnishing the performance security.

12.6 The bid security may be forfeited:

- (i). If a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Form; or
- (ii). In case of a successful Bidder, if the Bidder fails to furnish Order Acceptance and Performance Security in the prescribed format within 15 days of the order.

13. Period of Validity of Bids.

13.1 Bids shall remain valid for 180 days after the date of bid opening prescribed by the Purchaser. A bid valid for a shorter period may be rejected by the Purchaser as non- responsive.

13.2 In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing (or by cable, telex, fax or e mail). The bid security provided under Clause 12 shall also be suitably extended. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request will not be required nor permitted to modify its bid.

13.3 Bid evaluation will be based on the bid prices without taking into consideration the above corrections.

14. Format and Signing of Bid

14.1 The Bidder shall submit the bids in two separate envelopes. One envelope shall contain Techno commercial un-priced bid and the other shall contain the priced bid.

14.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract. All pages of the bid, except for un-amended printed literature, shall be initialed by the person or persons signing the bid.

14.3 Any interlineations, erasures or overwriting shall be valid only if the persons or persons signing the bid initial them.

14.4 The Bidder shall furnish information on commissions or gratuities, if any paid or to be paid to agents relating to this Bid, and to contract execution if the Bidder is awarded the contract as per the bid form.

D. SUBMISSION OF BIDS

15. Sealing and Marking of Bids

15.1 The bidder shall seal the Techno Commercial Unpriced Bid and the Price / Financial Bid in two separate envelopes duly marked as "Techno Commercial Unpriced Bid" and "Price / Financial Bid" respectively. Both the envelopes shall then be sealed in one outer (main) envelope.

15.2 The **inner and outer envelopes shall:**

(i). Be addressed to the Purchaser at the following address: **The Stores & Purchase Officer, North-East Institute of Science and Technology, Jorhat – 785 006 (Assam), India**

(ii). Bear the Item Name / Reference No./ Last Date For Submission Of Tender / Date Of Opening Of Tender / Firm's Name & Address and a statement "Do not open before Time hrs (IST) on Date." As per the NIT details.

15.3 If the outer envelope is not sealed and marked as required in Clause 15.2, the Purchaser will assume no responsibility for the bid's misplacement or premature opening.

15.4 Telex, Cable, Fax or e-mail bids will be rejected.

16. Deadline for Submission of Bids

16.1 Bids must be received by the Purchaser at the address specified under Clause 15.2 no later than the time and date specified in the Invitation for Bids. In the event of the specified date for the submission of Bids being declared a holiday for the Purchaser, the Bids will be received upto the appointed time on the next working day.

16.2 The Purchaser may, at its discretion, extend this deadline for submission of bids by amending the bid documents in accordance with Clause 5, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

17. Late Bids

17.1 Any bid received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser, pursuant to Clause 16, will be rejected and/or returned to the Bidder.

18. Modifications and Withdrawal of Bids

18.1 The Bidder may modify or withdraw its bid after submission of the bid provided that written notice of the modification or withdrawal is received by the Purchaser prior to the deadline prescribed for submission of bids.

18.2 The Bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of Clause 15. A withdrawal notice may also be sent by telex or cable or fax or e mail but followed by a signed confirmation copy, post marked not later than the deadline for submission of bids.

18.3 No bid may be modified subsequent to the deadline for submission of bids.

18.4 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the bid form. Withdrawal of a bid during this interval may result in the Bidder's forfeiture of its bid security, pursuant to Clause 12.6

E. OPENING AND EVALUATION OF BIDS

19. Opening of Bids by the Purchaser

19.1 The Purchaser will open all Techno Commercial Unpriced Bids, in the presence of Bidders' representatives who choose to attend, as per the schedule given in invitation to bids.

19.2 The Bidders' representatives who are present shall sign the quotation-opening sheet evidencing their attendance. In the event of the specified date of Bid opening being declared a holiday for the Purchaser, the Bids shall be opened at the appointed time and location on the next working day.

19.3 The bidders' names, bid modifications or withdrawals, specifications, and the presence or absence of requisite bid security and such other details as the Purchaser, at its discretion, may consider appropriate, will be announced at the opening. No bid shall be rejected at bid opening, except for late bid.

19.4 Bids (and modifications sent pursuant to Clause 18.2) that are not opened and read out at bid opening shall not be considered further for evaluation, irrespective of the circumstances.

19.5 If in response to our TWO BID enquiry, a single combined bid is submitted, it will be rejected straightway. Similarly if 'PRICE BID' has been found enclosed in the envelope marked 'TECHNICAL BID' the same shall also be rejected summarily.

20. Clarification of Bids

20.1 To assist in the examination, evaluation and comparison of bids, the Purchaser may, at its discretion ask the bidder for any clarification(s) of its bid. The request for clarification and the response shall be in writing and no change in the price substance of the bid shall be sought, offered or permitted. However no post Bid clarifications at the initiative of the Bidder shall be entertained.

21. Preliminary Examination

21.1 The Purchaser will examine the bids to determine whether they are complete, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

21.2 Arithmetical errors in the priced bids will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the supplier does not accept the correction of errors, its bid will be rejected. If there is a discrepancy between the price quoted in words and figures, whichever is the higher of the two shall be taken as the bid price.

21.3 The Purchaser may waive any minor informality, non-conformity, or irregularity in a bid, which does not constitute a material deviation, provided such a waiver, does not prejudice or affect the relative ranking of any Bidder. 21.4 Prior to the detailed evaluation, the Purchaser will determine the substantial responsiveness of each bid to the Bid Document. For purposes of these Clauses, a substantially responsive bid is one, which conforms to all the terms and conditions of the Bid Document without material deviations. Deviations from or objections or reservations to critical provisions such as those concerning Bid

Security/ Performance Security, Warranty, Force Majeure, Applicable law and Taxes & Duties will be deemed to be a material deviation. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.

21.5 If a bid is not substantially responsive, it will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

21.6 After downloading, the language of standard clauses etc. mentioned in this 'Bid Document' should not be tampered with / changed / modified in any manner whatsoever. If any such modification etc. comes to our knowledge at any stage, the bid shall be rejected immediately and EMD shall also be forfeited.

22. Evaluation & Comparison Of Bids

22.1 For the bids surviving the technical evaluation which have been found to be responsive the evaluation & comparison shall be made as under:

The final landing cost of purchase after all discounts, freight, forwarding, insurance, taxes etc. shall be the basis of evaluation.

22.2 Conditional tenders/discounts etc. shall not be accepted. Rates quoted without attached conditions (viz. Discounts having linkages to quantity, payment terms etc.) will only be considered for evaluation purpose. Thus conditional discounted rates linked to quantities and prompt/advance payment etc will be ignored for determining *inter-se* position. The Purchaser however reserves the right to use the discounted rate/rates considered workable and appropriate for counter offer to the successful tenderers.

22.3 Where there is no mention of packing, forwarding, freight, insurance charges, taxes etc. such offers shall be rejected as incomplete.

23. Contacting the Purchaser

23.1 Subject to ITB Clause 20, no Bidder shall contact or attempt to contact the Purchaser or anyone related to the Purchaser on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded. If the bidder wishes to bring additional information to the notice of the Purchaser, it should do so in writing.

23.2 Any effort by a Bidder to influence the Purchaser in its decisions on bid evaluation, bid comparison or contract award may result in rejection of the Bidder's bid.

24. Post Qualification

24.1 In the absence of pre-qualification, the Purchaser will determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive bid is qualified to perform the contract satisfactorily, in accordance with the criteria listed in **ITB Clause 10**.

24.2 The determination will take into account the Bidder's financial, technical, supply and support service capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Clause 10, as well as such other information as the Purchaser deems necessary and appropriate.

24.3 An affirmative determination will be a prerequisite for award of the contract to the Bidder. A negative determination will result in rejection of the Bidder's bid.

25. Award Criteria

25.1 Subject to ITB Clause 27, the Purchaser will award the contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined to be the lowest evaluated bid, provided further that the Bidder is determined to be qualified to perform the contract satisfactorily.

26. Purchaser's Right To Vary Quantities At Time Of Award

26.1 The Purchaser reserves the right at the time of Contract award to increase or decrease the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions.

27. Purchaser's Right To Accept Any Bid And To Reject Any Or All Bids

27.1 The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process

and reject all bids 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 the Purchaser's action.

28. Notification of Award

28.1 Prior to the expiration of the period of bid validity, the Purchaser will notify the successful bidder in writing by registered letter or by cable or telex or fax or e mail that the bid has been accepted by way of a Purchase Order.

28.2 Upon the successful Bidder's furnishing of performance security pursuant to ITB Clause 29, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to Clause 12.

29. Performance Security

29.1 Within 15 days of the receipt of notification of award/purchase order from the Purchaser, the successful Bidder shall furnish the performance security, in the Performance Security Form provided in the Bid Document.

29.2 Failure of the successful bidder to accept the order shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security and call for new bids.

30. Order Acceptance

30.1 The successful bidder should submit acceptance of the Purchase Order immediately but not later than 15 days in any case from the date of issue of the Purchase Order failing which it shall be presumed that the vendor is not interested and his bid security is liable to be forfeited pursuant to clause 12. 6 of ITB.

CHAPTER – III: GENERAL CONDITIONS OF CONTRACT (GCC)

1. Definitions

1.1 In this Contract, the following terms shall be interpreted as indicated:

- (i). "The Order" means the Purchase Order placed by the Purchaser including all the attachments and appendices thereto and all documents incorporated by reference therein;
- (ii). "The Contract Price" means the price payable to the Supplier under the Order for the full and proper performance of its contractual obligations;
- (iii). "The Goods" means all the equipment, machinery, and/or other materials, which the Supplier is required to supply to the Purchaser under the Contract;
- (iv). "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other obligations of the Supplier covered under the Contract;
- (v). "GCC" mean the General Conditions of Contract contained in this section.
- (vi). "SCC" means the Special Conditions of Contract.
- (vii). "The Purchaser" as specified in Special Conditions of Contract.
- (viii). "The Purchaser's country" is "India".
- (xi). "The Supplier" means the individual or firm supplying the Goods and Services under this Contract.
- (x). "Day" means calendar day.

2. Application

2.1 These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

3. Standards

3.1 The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned institution.

4. Use of Contract Documents and Information

4.1 The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far, as may be necessary for purposes of such performance. The Supplier shall not, without the Purchaser's prior written consent, make use of any document or information enumerated in GCC Clause 4.1 except for purposes of performing the Contract.

4.2 Any document, other than the Contract itself, enumerated in GCC Clause 4.1 shall remain the property of the Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so required by the Purchaser.

4.3 The purchaser may be under obligation to make any document/information submitted by the bidder in response to this bid public if required under the provision of Right to Information Act 2005. Therefore bidder may explicitly indicate if any document/information in his tender includes information of commercial confidence, trade secrets or intellectual property, the disclosure of which would jeopardize the competitive position of the bidder.

5. Patent Rights

5.1 The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.

6. Submission of the bids

6.1 All bids complete in every respect must reach this office within the last date and time of receipt of bid. No extension shall be allowed for any reason what so ever. Late tenders, Tenders received without Bid security / Earnest Money, cost of bidding documents, if applicable etc. shall be rejected summarily.

6.2 Tender documents are available for sale as per the information specified in Invitation for Bids. Interested bidders may purchase the tender documents on payment of the cost there of or download directly from our website, as indicated in invitation for bids. The Purchaser is not liable for either non-receipt of the tender document or for late receipt of the tender documents.

7. Performance Security

7.1 Within 15 days of receipt of the notification of contract award/purchase order, the Supplier shall furnish performance security for the amount specified in SCC.

7.2 The proceeds of the performance security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

7.3 The Performance Security shall be submitted in one of the following forms:

(i). The firm can submit the performance security in the form of Bank Guarantee issued by a Nationalized/Scheduled bank on the format provided in the bidding documents.

7.4 The performance security will be discharged by the Purchaser and returned to the Supplier not later than 60 days following the date of completion of the Supplier's performance obligations, including any warranty obligations, unless specified otherwise in SCC.

7.5 In the event of any contract amendment, the supplier shall, within 15 days of receipt of such amendment, furnish the amendment to the performance security, rendering the same valid for the duration of the contract, as amended for further period of 60 days thereafter.

8. Inspections and Tests

8.1 The Purchaser or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Purchaser. SCC and the Technical Specifications shall specify what inspections and tests the Purchaser requires and where they are to be conducted. The Purchaser shall notify the Supplier in writing in a timely manner of the identity of any representatives retained for these purposes.

8.2 The inspections and tests may be conducted on the premises of the Supplier or its Subcontractor (s), at the point of delivery and/or at the Goods final destination. If conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data - shall be furnished to the inspectors at no charge to the Purchaser.

8.3 Should any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject the goods and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Purchaser.

8.4 The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods Arrival at Project Site shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment.

8.5 Nothing in GCC Clause 8 shall in any way release the Supplier from any warranty or other obligations under this Contract.

9. Packing: 9.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements, if any, specified in SCC and in any subsequent instructions ordered by the Purchaser.

10. Delivery and Documents

10.1 Delivery of the Goods shall be made by the Supplier in accordance with the terms specified by the Purchaser in the order within the period as indicated in the SCC. The details of shipping and / or other documents to be furnished by the supplier are specified in SCC.

11. Insurance

11.1 The Goods supplied under the Contract shall be fully insured against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in SCC.

12. Transportation

12.1 Where the Supplier is required under the Contract to transport the Goods to a specified place of destination defined as Project site, transport to such place of destination in 8 (eight) States in North East Region including insurance, as shall be specified in the Contract, shall be arranged by the Supplier, and the related cost shall be included in the Contract Price.

13. Incidental Services

13.1 The supplier may be required to provide any or all of the following services, including additional services, specified in SCC, if any:

- (i). Performance or supervision of the on-site assembly and/or start-up of the supplied Goods;
- (ii). Furnishing of tools required for assembly and/or maintenance of the supplied Goods;
- (iii). Furnishing of detailed operations and maintenance manual for each appropriate unit of supplied Goods;
- (iv). Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
- (v). Training of the Purchaser's personnel, at the Supplier's plant and / or on-site, in assembly, start-up, operation, maintenance and / or repair of the supplied Goods.

14. Spare Parts

14.1 As specified in the SCC, the Supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

- (i). Such spare parts as the Purchaser may elect to purchase from the Supplier, providing that this election shall not relieve the Supplier of any warranty obligations under the Contract; and
- (ii). In the event of termination of production of the spare parts:
- (iii). Advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements; and
- iv). Following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings and specifications of the spare parts, if requested.

14.2 Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spares for the Goods. Other spare parts and components shall be supplied as promptly as possible but in any case within six months of placement of order.

15. Warranty

15.1 The Supplier warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except when the design and / or material is required by the Purchaser's Specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions prevailing in the country of final destination.

The warranty should be comprehensive and on site.

15.2 This warranty shall be comprehensive and on site for **Standard and 5 (five) years [shown against each item] (please see Annexure – I)** from the date of acceptance, installation & commissioning to the satisfaction of the Purchaser. 15.3 The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

Upon receipt of such notice, the Supplier shall immediately within in 05 days arrange to repair or replace the defective goods or parts thereof free of cost at the ultimate destination. The Supplier shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie on the Purchaser for the replaced parts/goods thereafter. The period for correction of defects in the warranty period is 05 days. If the supplier having been notified fails to remedy the defects within 05 days, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expenses and without prejudice to any other rights, which the purchaser may have against the supplier under the contract.

16. Payment

16.1 The method and conditions of payment to be made to the Supplier under this Contract shall be as specified in the SCC.

16.2 The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and the Services performed, and by documents, submitted pursuant to GCC Clause 10, and upon fulfillment of other obligations stipulated in the contract.

16.3 Payments shall be made promptly by the Purchaser normally within thirty (30) days after submission of the invoice or claim by the Supplier.

17. Prices

17.1 Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid.

18. Change Orders

18.1 The Purchaser may at any time, by written notice given to the Supplier pursuant to GCC Clause 30, make changes within the general scope of the Contract in any one or more of the following:

- (i). Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
- (ii). The method of transportation or packing;
- (iii). The place of delivery; and/or
- (iv). The Services to be provided by the Supplier.
- (v). The delivery schedule.

18.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended.

Any claims by the Supplier for adjustment under this clause must be asserted within fifteen (15) days from the date of the Supplier's receipt of the Purchaser's change order.

19. Contract Amendments

19.1 Subject to GCC Clause 18, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

20. Assignment

20.1 The Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

21. Subcontracts

21.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this Contract if not already specified in the bid. Such notification, in his original bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.

21.2 Sub-contract shall be only for bought-out items and sub-assemblies.

22. Delays in the Supplier's Performance

22.1 Since time is the essence of the contract, delivery of the Goods and performance of the Services shall be made by the Supplier in accordance with the time schedule specified by the Purchaser in the Contract.

22.2 If at any time during performance of the Contract, the Supplier or its sub-contractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s).

22.3 As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may, at its discretion, extend the Supplier's time for performance with or without penalty, in which case the extension shall be ratified by the parties by amendment of the Contract.

22.4 Except as provided under GCC Clause 25, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of penalty pursuant to GCC Clause 23, unless an extension of time is agreed upon pursuant to GCC Clause 22.2 without the application of penalty clause.

23. Penalty

23.1 Subject to GCC Clause 25, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the Percentage specified in SCC. Once the maximum is reached, the Purchaser may consider termination of the Contract pursuant to GCC Clause 24.

24. Termination for Default

24.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:

- (i). If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the order, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 22; or
- (ii). If the Supplier fails to perform any other obligation(s) under the Contract.
- (iii). If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

24.2 For the purpose of this Clause:

- (i). "Corrupt practice" means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.
- (ii). "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition;"

24.3 In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 24.1, the Purchaser may procure, upon such terms and in such manner, as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or Services. However, the Supplier shall continue the performance of the Contract to the extent not terminated.

25. Force Majeure

25.1 Notwithstanding the provisions of GCC Clauses 22, 23 and 24, the Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

25.2 For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

25.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing

of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

26. Termination for Insolvency

26.1 The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the Purchaser.

27. Resolution of Disputes

27.1 The Purchaser and the supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

27.2 If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms specified in the SCC. These mechanisms may include, but are not limited to, conciliation mediated by a third party, adjudication in an agreed national or international forum, and national or international arbitration.

28. Governing Language

28.1 The contract shall be written in English language. Subject to GCC Clause 30, English language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract, which are exchanged by the parties, shall be written in the same language.

29. Applicable Law

29.1 The Contract shall be interpreted in accordance with the laws of the Union of India and all disputes shall be subject to place of jurisdiction as specified in SCC.

30. Notices

30.1 Any notice given by one party to the other pursuant to this contract/order shall be sent to the other party in writing or by cable, telex, FAX or e mail and confirmed in writing to the other party's address specified in the SCC.

30.2 A notice shall be effective when delivered or on the notice's effective date, which ever is later.

31. Taxes and Duties

31.1 Suppliers shall be entirely responsible for all taxes, duties, license fees, octroi, road permits, etc., incurred until delivery of the contracted Goods to the Purchaser. However, VAT in respect of the transaction between the Purchaser and the Supplier shall be payable extra, if so stipulated in the order.

CHAPTER – IV: SPECIAL CONDITIONS OF CONTRACT (SCC)

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The corresponding clause number of the General Conditions is indicated in parentheses.

1. Definitions (GCC Clause 1)

1.1 The Purchaser is 'The Director, North-East Institute of Science And Technology (N E I S T), Jorhat, Assam, INDIA.

2. Performance Security (GCC Clause 7) Substitute clause 7.1 of the GCC by the following:

2.1 Within 15 days after the Supplier's receipt of order, the Supplier shall furnish Performance Security to the Purchaser for an amount of 10% of the contract value, valid upto 60 days after the date of completion of performance obligations including warranty obligations.

2.2 If the performance security is not furnished within the stipulated time as per 2.1 above, the contract shall be deemed terminated in pursuance of GCC Clause 24.

3. Inspection and Tests: Inspection and tests and at final acceptance are as follows:

3.1 The acceptance test will be conducted by the Purchaser, their consultant or other such person nominated by the Purchaser at its option after the equipment is installed at purchaser's site in the presence of supplier's representatives. The acceptance will involve trouble free operation and ascertaining conformity with the ordered specifications and quality. There shall not be any additional charges for carrying out acceptance test. No malfunction, partial or complete failure of any part of the equipment is expected to occur. The Supplier shall maintain necessary log in respect of the result of the test to establish to the entire satisfaction of the Purchaser, the successful completion of the test specified.

3.2 In the event of the ordered item failing to pass the acceptance test, a period not exceeding one week will be given to rectify the defects and clear the acceptance test, failing which the Purchaser reserve the right to get the equipment replaced by the Supplier at no extra cost to the Purchaser.

3.3 Successful conduct and conclusion of the acceptance test for the installed goods and equipments shall also be the responsibility and at the cost of the Supplier.

4. Manuals and Drawings

4.1 Before the goods and equipments are taken over by the Purchaser, the Supplier shall supply operation and maintenance manuals. These shall be in such details as will enable the Purchaser to operate, maintain, adjust and repair all parts of the works as stated in the specifications.

4.2 The Manuals shall be in the ruling language (English) in such form and numbers as stated in the contract.

4.3 Unless and otherwise agreed, the equipment shall not be considered to be completed for the purposes of taking over until such manuals and drawing have been supplied to the Purchaser.

5. Packing (GCC Clause 9) Add as Clause 9.3 of the GCC of the following:

5.1 Packing Instructions: Each package will be marked with proper paint / indelible ink, the following:

- (i). Item Nomenclature
- (ii). Order/Contract No.
- (iii). Supplier's Name and
- (vi). Packing list reference number

6. Delivery and Documents (GCC Clause 10)

6.1 Delivery of the goods should be made within the period specified in purchase order. Within 24 hours of shipment, the supplier shall notify the purchaser and the insurance company by cable/telex/fax/e mail the full details of the shipment including contract number, railway receipt number / C / N number etc and date, description of goods, quantity, name of the consignee, invoice etc. The supplier shall mail the following documents to the purchaser with a copy to the insurance company:

- (i). 4 Copies of the Supplier invoice showing contract number, goods' description, quantity, unit price, total amount;
- (ii). Acknowledgment of receipt of goods from the consignee(s) by the transporter;
- (iii). Insurance Certificate if applicable;
- (iv). Manufacturer's/Supplier's warranty certificate;
- (v). Two copies of the packing list identifying the contents of each package.

6.2 The above documents should be received by the Purchaser before arrival of the Goods (except where the Goods have been delivered directly to the Consignee with all documents) and, if not received, the Supplier will be responsible for any consequent expenses.

7. Insurance (GCC Clause 11)

7.1 For delivery of goods at site as per list enclosed, the insurance shall be obtained by the Supplier in an amount equal to 110% of the value of the goods from "warehouse to warehouse" (final destinations) on "All Risks" basis including War Risks and Strikes. The insurance shall be valid for a period of not less than 3 months after installation and commissioning.

8. Incidental services (GCC clause 13) The incidental services also include:

8.1 Furnishing of 01 set of detailed operations & maintenance manual.

9. Warranty (GCC Clause 15)

9.1 Warranty as per GCC Clause 15

10. Payment (GCC Clause 16)

10.1 80% payment shall be made by the Purchaser against delivery & inspection in good condition at site and balance 20% after successful, installation, commissioning and acceptance of the package to the entire satisfaction of the Purchaser and on production of unconditional performance bank guarantee as specified in Clause 2.1 of SCC.

10.2 Agency commission, if any shall be paid after satisfactory installation & commissioning of the goods at the destination at the exchange rate prevailing on the date of negotiation of LC documents, subject to DGS&D registration of the party for restricted items.

11. Penalty Clause (GCC Clause 23)

11.1 For delays: GCC Clause 23.1 -- The applicable rate is 1% per week and the maximum deduction is 10% of the contract price.

12. Resolution of Disputes (Clause 28): Add as GCC Clause 27.3 the following:

12.1 The dispute resolution mechanism to be applied pursuant to GCC Clause 27 shall be as follows:

- (i). In case of Dispute or difference arising between the Purchaser and a domestic supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996, the rules there under and any statutory modifications or re-enactments thereof shall apply to the arbitration proceedings. The dispute shall be referred to the Director General, Council of Scientific & Industrial Research and if he is unable or unwilling to act, to the sole arbitration of some other person appointed by him willing to act as such Arbitrator. The award of the arbitrator so appointed shall be final, conclusive and binding on all parties to this order.
- (ii). In the case of a dispute between the purchaser and a Foreign Supplier, the dispute shall be settled by arbitration in accordance with provision of sub-clause (a) above. But if this is not acceptable to the supplier then the dispute shall be settled in accordance with provisions of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules.
- (iii). The venue of the arbitration shall be the place from where the order is issued.

13. Applicable Law (GCC Clause 29) Add as Clause 29.1 of the GCC the following:

13.1 The place of jurisdiction would be Jorhat, Assam, INDIA.

14. Notices (GCC Clause 30)

14.1 For the purpose of all notices, the following shall be the address of the Purchaser and Supplier.

(i). **Purchaser:** The Director,
North East Institute of Scientific and Technology,
Jorhat – 785 006, Assam

(ii). **Supplier:** (To be filled in by the supplier)

.....
.....
.....

15. Progress of Supply

15.1 Supplier shall regularly intimate progress of supply, in writing, to the Purchaser as under:

- (i). Quantity dispatched/delivered to consignees and date;
- (ii). Quantity accepted/rejected by inspecting agency and date;
- (iii). Quantity where incidental services have been satisfactorily completed with date;
- (iv). Quantity where rectification/repair/replacement effected/completed on receipt of any communication from consignee/Purchaser with date;
- (v). Date of completion of entire Contract including incidental services, if any; and
- (vi). Date of receipt of entire payments under the Contract (In case of stage-wise inspection, details required may also be specified).

16. Right to Use Defective Goods

16.1 If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation.

17. Supplier Integrity

17.1 The Supplier is responsible for and obliged to conduct all contracted activities in accordance with the Contract using state of the art methods and economic principles and exercising all means available to achieve the performance specified in the contract.

18. Training

18.1 The Supplier is required to train the designated Purchaser's technical and end user personnel to enable them to effectively operate the total equipment.

Bidder Information Form

[The Bidder shall fill in this Form in accordance with the instructions below. No alterations to its format shall be permitted and no substitutions shall be accepted. This should be done of the letterhead of the firm]

Date: [insert date (as day, month and year) of Bid Submission]

Tender No.: [insert number from Invitation for Bids]

Page 1 of Pages

1	Bidder's Legal Name [insert Bidder's legal name]
2	In case Joint Vendor, legal name of each party: [insert legal name of each party in JV]
3	Bidder's actual or intended Country of Registration: [insert actual or intended Country of Registration]
4	Bidder's Year of Registration: [insert Bidder's year of registration]
5	Bidder's Legal Address in Country of Registration: [insert Bidder's legal address in country of registration]
6	Bidder's Authorized Representative Information Name: [insert Authorized Representative's name] Address: [insert Authorized Representative's Address] Telephone / Fax numbers: [insert Authorized Representative's telephone / fax numbers] E-mail Address: [insert Authorized Representative's email address]
7	Attached are copies of original documents of: [check the box(es) of the attached original documents] Articles of Incorporation or Registration of firm named in 1, above, in accordance with ITB Sub-Clauses 4.1 and 4.2

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

CHAPTER – V: BID FORM

The Director,
North-East Institute of Science And Technology,
Jorhat – 785 006, (Assam)

Sir,

Having examined the bidding document the receipt of which is hereby duly acknowledged, we the undersigned offer to supply and deliver _____(Description of Goods) in conformity with the said bidding documents for a sum or such other sums as may be ascertained from the bid.

We undertake that if our bid is accepted to deliver the goods in accordance with the delivery schedule specified.

If our bid is accepted we will obtain the guarantee of the bank as specified in SCC for the due performance of the contract, in the form prescribed by your goodself.

We agree to abide by this bid for requisite period of time after the date fixed for bid opening as per the instructions to the bidders 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.

Commissioning and gratuities, if any, paid or to be paid by us to the agents relating to this bid, and to contract executions if we are awarded the contract, are listed below:

Name and address	Amount in Rupees	Purpose of Commission of agent
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(if none, state “none”)

We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this _____ day of _____ 20_____

Signature _____

In the capacity of _____

Duly authorized to sign the bid for and on behalf of _____

CHAPTER – VI: BID SECURITY FORM / BANK GUARANTEE

Whereas¹ (*hereinafter called “the Bidder”*) has submitted its bid dated (*Date of submission of bid*) for the supply of (*Name and/or description of the goods*) (Hereinafter called “the Bid”).

KNOW ALL PEOPLE by these presents that WE (*Name of bank*) of (Name of country), having our registered office at (*Address of bank*) (Hereinafter called “the Bank”), are bound unto **Director, North-East Institute of Science And Technology, Jorhat, Assam** (Hereinafter called “the Purchaser”) in the sum of _____ for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this ____ day of _____ 2010.

THE CONDITIONS of this obligation are:

1. If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or
2. If the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of bid validity:
 - (a) Fails or refuses to execute the Contract Form if required; or
 - (b) Fails or refuses to furnish the performance security, in accordance with the Instruction to Bidders.

We undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including forty-five (45) days after the period of the bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

(Signature with Seal of the Bank)
(Complete Contact Details with Tel./Fax/email etc)

¹ *Name of Bidder*

CHAPTER – VII: MANUFACTURERS' AUTHORIZATION FORM

No. _____

Dated _____

The Director,
North-East Institute of Science And Technology,
Jorhat – 785 006, Assam

Dear Sir:

We _____ who are established and reputable manufacturers of having factories at _____ (*address of factory*) do hereby certify that M/s (*Name and address of Agent*) is our authorized dealer to quote against your tender enquiry.

We hereby extend our full guarantee and warranty as per Clause 15 of the General Conditions of Contract and Clause of the Special Conditions of Contract for the goods and services offered by the above firm.

Yours faithfully,

(Name)

(Name of manufacturers)

Note: This letter of authority should be on the **letterhead of the manufacturer** and should be signed by a person competent and having the power of attorney to bind the manufacturer. It should be included by the Bidder in its techno-commercial unpriced bid.

CHAPTER – VIII: BIDDER’S PERFORMANCE STATEMENT FORM
(For A Period of Last 3 Years)

Name of the Firm

Order Placed by (full address of Purchaser)	Order No. and date	Description and quantity of ordered equipment	Value of Order	Date of Completion of delivery as per contact	Date of actual completion of delivery	Remarks indicating reasons for late delivery, if any	Has the equipment been installed satisfactorily ? (Attach a certificate from the purchaser/ Consignee)	Contact Person along with Tel. NO., Fax No. & e-mail address

Signature and Seal of the Manufacturer / Bidder

Place:

Date:

CHAPTER IX: SERVICE SUPPORT DETAILS FORM

Sl. No.	Nature of training imparted	List of similar type equipment served in the past 3 years.	Address, Telephone Nos. , Fax and e-mail address of the firm located in nearby Jorhat, Assam

Place:

Date:

Signature and Seal of the Manufacturer/Bidder.....

CHAPTER – X: DEVIATION STATEMENT FORM (ITB, GCC, SCC)

The following are the particulars of deviations (ITB, GCC, SCC Clauses) from the requirements of the tender document and specifications:

CLAUSE	DEVIATION	REMARKS (INCLUDING JUSTIFICATION)

Place:

Date

Signature and seal of the Manufacturer / Bidder

NOTE: Where there is no deviation, the statement should be returned duly signed with an endorsement indicating “No Deviations”.

CHAPTER – XI: TECHNICAL COMPLIANCE STATEMENT FORM

An item-by-item commentary on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.

ITEM NAME			
S.No.	Tender Specifications	Bidder's Specifications	Remarks/Deviation If any

(Technical literature/brochures/manuals should be attached along with this format)

Please note:

1. Compliance/Deviation statement comparing the specifications of the quoted model to the required specifications. This statement should also give the page number(s) of the technical literature where the relevant specification is mentioned.
2. Bids must have supporting documents (technical literature or copies of relevant pages from the service manual or factory test data) for all the points noted above, failure regarding which may result in rejection of bid.

CHAPTER – XII: PERFORMANCE SECURITY FORM / PERFORMANCE BANK GUARANTEE

The Director,
North-East Institute of Science And Technology,
Jorhat – 785 006, Assam, India

WHEREAS (Name of Supplier)

Hereinafter called "the Supplier" has undertaken, in pursuance of Contract No.....
dated,..... 200... to supply.....(Description of Goods and
Services) hereinafter called "the Contract".

AND WHEREAS it has been stipulated by you in the said Contract that the Supplier shall furnish
you with a Bank Guarantee by a recognized bank for the sum specified therein as security for
compliance with the Supplier's performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Supplier a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the
Supplier, up to a total of (Amount of the Guarantee
in Words and Figures) and we undertake to pay you, upon your first written demand declaring the
Supplier to be in default under the Contract and without cavil or argument, any sum or sums within
the limit of (Amount of Guarantee) as aforesaid, without your needing to prove
or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until theday of.....200.....

Signature and Seal of Guarantors

(Complete Address/Contact Details with Tel./Fax/email etc)

Date

CHAPTER - XIII: QUALIFICATION REQUIREMENTS

1. The Bidder should be a firm of reputation having sufficient expertise and experience in the subject tender with sound warranty / service support capability and authorization from manufacturers of all major items. The firm should also have the capability & networking facility to take total responsibility on turnkey basis in execution of the contract in 58 Science Colleges situated in 8 (Eight) States in the N-E Region.
2. The annual turnover of the bidder during any of the last three financial years should be Rs. 2.00 Crores approximately.
3. The bidder should have executed at least one of similar instruments / apparatus order valuing Rs. 50.00 lakhs approximately successfully during the preceding three financial years. The details should be incorporated in the performance statement form along with documentary evidence (supported by P O copies).
4. Details of service support facilities (State wise office address, contact person and contact number) to be provided during the warranty period should be submitted in the Service Support Details Form. The bidder or the their principal should have proper service network throughout most of the 8 States in N E region so that prompt after sales support can be provided in the remote areas also.
5. That the Bidder will assume total responsibility in supply, installation and for the fault-free operation and maintenance during warranty period.
6. Bidders who do not meet the criteria given above are subject to be disqualified, if they have made untrue or false representation in the forms, statements and attachments submitted in proof of the qualification requirements or have a record of poor performance, not properly completing the contract, inordinate delays in completion or financial failure, etc.
7. Any additional bid participation criteria / eligibility conditions etc. mentioned in the Technical Specifications sheet will also form part of the Qualification Requirements along with those mentioned in this chapter.

CHAPTER – XIV**INTEGRITY PACT****Between**

Council of Scientific & Industrial Research (CSIR) hereinafter referred to as “The Principal”.

Andherein referred to as “The Bidder/ Contractor.”

Preamble The Principal intends to award, under laid down organizational procedures, contract/s forThe Principal values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/ transparency in its relations with its Bidder(s) and/or Contractor(s).

In order to achieve these goals, the Principal will appoint an Independent External Monitor (IEM), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

- (1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - a. No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - b. The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - c. The Principal will exclude from the process all known prejudiced persons.
 - (2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary action.
- Section 2 – Commitments of the Bidder(s)/Contractor(s)

- (1) The Bidder(s)/Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
 - a. The Bidder(s)/Contractor(s) will not, directly or through any other Person or firm, offer, promise or give to any of the Principal’s employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

- b. The Bidder(s)/Contractor(s) will not enter with other Bidders into any Undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- c. The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s)/Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- d. The Bidder(s)/Contractor(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly the Bidder(s)/Contractors(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the “Guidelines on Indian Agents of Foreign Suppliers” shall be disclosed by the Bidder(s)/Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/representative have to be in Indian Rupees only. Copy of the “Guidelines on Indian Agents of Foreign Suppliers” is annexed and marked as Annexure.
- e. The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- (2) The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process and exclusion from future contracts.

If the Bidder(s)/Contractor(s), before award or during execution has committed a transgression through a violation of Section 2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/Contractor(s) from the tender process or take action as per the procedure mentioned in the “Guidelines on Banning of business dealings”. Copy of the “Guidelines on Banning of business dealings” is annexed and marked as Annex -“B”.

Section 4 – Compensation for Damages

- (1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
- (2) If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the contract value or the amount equivalent to Performance Bank Guarantee.

Section 5 – Previous transgression

- (1) The Bidder declares that no previous transgressions occurred in the last 3 Years with any other Company in any country conforming to the anti corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- (2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action can be taken as per the procedure mentioned in “Guidelines on Banning of business dealings.”

Section 6 – Equal treatment of all Bidders / Contractors/ Subcontractors.

- (1) The Bidder(s)/Contractor(s) undertake(s) to demand from all Subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
- (2) The Principal will enter into agreements with identical conditions as this one with all Bidders, Contractors and Subcontractors.
- (3) The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section 7 – Criminal charges against violating Bidders / Contractors/ Subcontractors.

- (1) The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- (2) The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the JS(A), CSIR.
- (3) The Bidder(s)/Contractor(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/Contractor(s)/Subcontractor(s) with confidentiality.
- (4) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- (5) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- (6) The Monitor will submit a written report to the JS(A), CSIR within 8 to 10 weeks from the date of reference or intimation to him by the Principal and should the occasion arise, submit proposals for correcting problematic situations.
- (7) Monitor shall be entitled to compensation on the same terms as being extended to/provided to Independent Directors on the CSIR.
- (8) If the Monitor has reported to the JS(A), CSIR, a substantiated suspicion of an offence under relevant IPC/PC Act, and the JS(A), CSIR has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.
- (9) The word ‘Monitor’ would include both singular and plural.

Section 9 – Pact Duration

This Pact begins when both parties have legally signed it. It expires for the Contractor 10 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made/lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by JS(A), CSIR.

Section 10 – Other provisions

- (1) This agreement is subject to Indian Law. Place of performance and Jurisdiction is the Registered Office of the Principal, i.e. New Delhi
- (2) Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- (3) If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- (4) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

(For & On behalf of the Principal) (For & On behalf of Bidder/Contractor)

(Office Seal) (Office Seal)

Place.....

Date.....

Witness 1:

(Name & Address): _____

Witness 2:

(Name & Address): _____

CHAPTER – XV: TECHNICAL SPECIFICATIONS

TENDER DOCUMENT

Ref. No. 1(PEQ)/379/09-10/PUR

Sub: Supply & Installation of Instruments / apparatus on turnkey basis to be installed in 58 Nos. of Science Colleges in 8 (Eight) States in North East Region.

N B: Last date & Time for Submission: 16.02.2010 (17.00 HRS)

Date/Time for Opening of Tech. Bids: 17.02.2010 (10.00)

PART - A
BILL OF MATERIAL & SPECIFICATION

SL	Item Description	Quantity
01	Oscilloscope (60 MHz)	03 Nos.
02	Oscilloscope (100 MHz)	05 Nos.
03	Dumpy level	11 Nos.
04	Diode and zener diode characteristics Panel	18 Nos.
05	Energy band gap experimental panel	04 Nos.
06	GM Counter	08 Nos.
07	LCR series and parallel resonance	05 Nos.
08	Lloyd's mirror setup	03 Nos.
09	Melting point apparatus	26 Nos.
10	Michelson interferometer	03 Nos.
11.	Oscilloscope (30 MHz, 2 channel, 4 trace)	48 Nos.
12.	OPAMP	11 Nos.
13.	Optical bench complete set	13 Nos.
14.	Newton's ring apparatus	21 Nos.
15.	Planck's constant apparatus	21 Nos.
16.	Platinum resistance thermometer	16 Nos.
17.	Post office box	06 Nos.
18.	Digital potentiometer	07 Nos.
19.	Spectrometer-goniometer	03 Nos.
20.	Refrigerator	18 Nos.
21.	Spectrometer setup	36 Nos.
22.	UV-Vis spectrophotometer	08 Nos.
23.	UV-Vis spectrophotometer	34 Nos.
24.	Spirometer	02 Nos.
25.	Transistor characteristics	10 Nos.
26.	Theodolite	08 Nos.
27.	Telescope reflecting	07 Nos.
28.	Water and soil analysis kit	16 Nos.
29.	Audio oscillator	06 Nos.
30.	Anderson bridge	27 Nos.
31.	DC Power supply	06 Nos.
32.	Ballistic galvanometer	09 Nos.
33.	Determination of cauchy's constant	03 Nos.
34.	Diffraction grating	04 Nos.
35.	Function generator (20 MHz)	08 Nos.
36.	Function generator (10 MHz)	16 Nos.
37.	GPS	22 Nos.
38.	LCR meter	07 Nos.
39.	Astronomical telescope	05 Nos.
40.	Flame photometer	06 Nos.
41.	Colorimeter	19 Nos.
42.	Phoenix hardware	58 Nos.
43.	Digital turbidity meter	02 Nos.
44.	Weighing balance	64 Nos.
45.	LCD Projector	58 Nos.
46.	Laptop	58 Nos.

DETAIL SPECIFICATION

1. Digital storage Oscilloscope (60 MHz) Qty -03 Nos.

Bandwidth	60 MHz
Sample Rate (Real-Time)	500MS/s
Equivalent Sampling	50GSa/s
Number of Channels	CH1, CH2 & Ext. Trigger
Memory	4K per channel
Vertical Sensitivity (/div)	2mV/div - 5V/div
Vertical Accuracy	±3%
Vertical Resolution	8 bits
Rise Time	5.8ns
Input Impedance	50 ohms, 1Mohm approx. 19pF.
Time base Range	5ns/div-50s/div
Horizontal Accuracy	100 ppm
Trigger Source	CH1, CH2, ext, ext/5, AC line
Trigger Type	Edge, TV, Pulse, Delay
Auto Measure	V, Freq., Rise Time, Fall Time, Period, -Overshoot, +Overshoot, +duty, -duty, etc.
Auto Measure	Math Add, subtract, multiply, divide & FFT
FFT Window	Hanning, Hamming, Blackman, Rectangular
Sample	1024 points
Probe Compensation Output	3V p-p, 1KHz
Interface	USB, USB Host for Flash Drive
Display	5.6" TFT LCD, 320 x 234 pixel
Accessories	Probe x2 (10x), Power Cable, User Manual, Software CD, USB Device Cable

2. Digital storage Oscilloscope (100 MHz) Qty -05 Nos.

Bandwidth	100 MHz
Sample Rate (Real-Time)	500MS/s
Equivalent Sampling	50GSa/s
Number of Channels	CH1, CH2 & Ext. Trigger
Memory	4K per channel
Vertical Sensitivity (/div)	2mV/div - 5V/div
Vertical Accuracy	±3%
Vertical Resolution	8 bits
Rise Time	3.5 ns
Input Impedance	50 ohms, 1Mohm approx. 19pF.
Time base Range	2ns/div-50s/div
Horizontal Accuracy	100 ppm
Trigger Source	CH1, CH2, ext, ext/5, AC line
Trigger Type	Edge, TV, Pulse, Delay
Auto Measure	V, Freq., Rise Time, Fall Time, Period, -Overshoot, +Overshoot, +duty, -duty, etc.
Auto Measure	Math Add, subtract, multiply, divide & FFT
FFT Window	Hanning, Hamming, Blackman, Rectangular
Sample	1024 points
Probe Compensation Output	3V p-p, 1KHz
Interface	USB, USB Host for Flash Drive
Display	5.6" TFT LCD, 320 x 234 pixel
Accessories	Probe x2 (10x), Power Cable, User Manual, Software CD, USB Device Cable

3. DUMPY LEVEL (QUICK SET)

Qty: 11 Nos.

300 mm (12") Erect image Internal focusing
A. 45 sec accuracy
Sensitive bubble on the top of the telescope
8 minutes sensitive cross Bubble for preliminary setting of instruments
compass Having ring with glass reticulate graduated to read 1:100'
Magnification 30x
Min reading 5M
Max Reading 500'
telescopic aluminum stand

4. Diode and Zener diode characteristic Panel**Qty: 18 Nos.**

The board should consist of the following built-in parts :
01. 0-10V D.C. at 10mA, continuously variable regulated Power Supply with low ripple & hum and integral current limiting resistor.
02. D.C. Voltmeter, 65mm rectangular dial, with switch selectable ranges of 1V and 10V.
03. D.C. Micro ammeter, 65mm rectangular dial, with switch selectable ranges of 50 mA and 10mA.
04. A Germanium semiconductor Diode mounted behind the panel.
05. A Zener Diode mounted behind the panel.
06. Mains ON/OFF switch, Fuse and Jewel light.
The unit should be operative on 230V \pm 10% at 50Hz A.C. Mains.

5. Energy band gap experimental panel**Qty -04 Nos.**

.The board should consist of the following built-in parts :
01. 2V D.C. at 10mA, regulated Power Supply.
02. Digital Micro ammeter, 3½ digits having range 200mA D.C
03. Semiconductor Diode.
04. Thermometer 0-110 °C.
05. Oven, Electrically heated to heat the Semiconductor Diode.
06. Mains ON/OFF switch and Fuse.

3. Geiger counting system (Microcontroller based)**Qty: 08 Nos.**

G.M. Input (From G.M.Counter) :	
(a) Polarity	Negative
(b) Amplitude	250 mV(min)
Resolving Time	6 micro sec (approx)
EHT Output	Variable EHT using ten turn pot up-to a maximum of 1500 volts at 1 mA
Line and load regulation	Better than 0.05%.
Ripple	Less than 20mV.
Display	16 x 2 LCD dot-matrix display; Counts Capacity :999999 counts
Preset time	(0-9999) sec.
Data Storage	Up-to 1000 readings
Programmability	Includes selection of Preset Time, Storing / Recalling of data, Starting and stopping of acquisition, label assignment for data counts BG (Background), ST (Standard) & SP (sample) etc.,.
Printer Port	Built-in centronics port facilities connection to a printer for direct data printing selectively.
Serial Port	RS 232C facilities data communication to PC under programme control.
Paralysis Time	A choice of three paralysis times 250, 350 and 550 micro sec plus OFF position selected through PROG keyG.M. Pulse Output
G.M. Detector pulses	should be seen on the oscilloscope.G.M. Socket :
ACCESSORIES FOR G.M. SYSTEM	(a) End Window G.M. Detector (b) Stand for End Window GM Detector (c) Radioactive Source kit Contains One Gamma Source (Cesium – Cs-137) & One Beta Source (Thallium Tl-204) (d) Aluminum Absorber Set (Consisting of 10 Aluminum foils with different thickness) (e) Lead / Copper Absorber Set (Consisting of 5 Lead foils & 5 Copper foils with different thickness)

4. LCR series and parallel resonance**Qty: 05 Nos.**

One board consists of following Build in Parts.	
1. Two decades in steps of 10pF & 100pF total steps are 20 and total capacitance is 1100 pF.	
2. Audio frequency milliammeter having three steps of 1mA, 2mA and 5mA.	
3. Four resistances are provided for observing damping effect	
4. Heavy duty air core inductance coil of 6" diameter with metal (ferromagnetic) plate fitted in sun mica polished wooden box	

08. Lloyd's mirror setup**Qty: 03 Nos.**

The complete Experimental Set-up should consist of the following	
Optical Bench	Two 150 cm long steel rods 3/4" dia. forming a bench with end supports having leveling screws. One of the two steel rods is graduated in cm and mm. It has four riders, two with transverse motion
Lloyd's Mirror	Mounted
Lens Holder	Spring action type having well ground stainless steel jaws.
Micrometer Eye Piece	A Ramsden 10X eye piece carried on a slide which moves along a micrometer screw. The movement is read on a 30-0-30 mm steel scale and directly on micrometer head to .001 cm. No backlash.
Optical Slit	Optically true, precision ground stainless steel jaws. The jaws open uniformly all along through the milled head.
Double Convex Lens	50 mm Diameter and F.L. 10cm.
Sodium Light source	Sodium light source complete with sodium lamp 35 watt with vacuum jacket, Transformer & Wooden Box having four holes with slide covers one each on every side at different heights.

09. Melting Point Apparatus (Automatic)**Qty: 26 Nos.**

LED display on front panel.
Automatic Furnace cut off with audio and visual indication.
Range 40° C to 350° C, readability 1° C
Fully automatic operation

10. Michelson interferometer**Qty: 03 Nos.**

Should be able to perform the following experiments:
To setup Michelson interferometer out of individual components and observe fringes.
To find the proportionality constant of lever system: it should be possible to measure various electrical and mechanical transducers with 325 nm accuracy.
To determine the wavelength of monochromatic light: Diode laser with wavelength 650 nm (RED)
To measure the refractive index of transparent materials.
To find the thickness of transparent materials.

11. OSCILLOSCOPE (30MHz 2 CHANNEL 4 TRACE)**Qty: 48 Nos.**

VERTICAL DEFLECTION (Y)	
Deflection coefficient (CH1 & CH2)	1mV/div to 5V/div. 5mV/div to 5V/div in , x5 Magnification increases
Accuracy	x1 : $\pm 3\%$, x5 : $\pm 5\%$.
Variable	1 / 2.5 times uncalibrated continuously variable control extends the Deflection Coefficient to more than 12.5V/div.
Rise Time	11.6ns or less.
Display Modes	CH1, CH2, DUAL (CH1, CH2 ALT/CHOP), Algebraic ADD and SUBTRACT, CH2 INVT & X-Y (CH1 as X, CH2 as Y).
TIME BASE	
Sweep Speed	20 Calibrated steps. 0.1 μ s/div to 0.2s/div in 1, 2 & 5 sequence.
Sweep Magnifier	x5 Magnification increases the fastest sweep upto 20ns/div.
Accuracy	$\pm 3\%$.
Variable	Uncalibrated continuously variable control between steps, extends slowest sweep speed to 0.5s/div (approx.).
ALT MAG Trace	x5 magnified sweep is displayed along with normal sweep.
TRIGGER SYSTEM	
Triggering Mode	AUTO, NORM, TV-V, TV-H. Source : INT (CH1 or CH2) / CH2 / LINE / EXT
Trigger Sensitivity	Internal : Auto : 1.5 div - 20Hz to 30MHz. Normal : 1.5 div - 10Hz to 30MHz. Lock : 2.0 div - 50Hz to 20MHz. Alt : >3div - 50Hz to 30MHz.
COMPONENT TESTER	
Test Voltage	9V rms (No Load).
Test Current	2mA when shorted.

12. OPAMP**Qty: 11 Nos.**

The board should consist of the following built-in parts:
± 12 V D.C. at 100mA, IC regulated Power Supply.
OP-AMP IC-741.
DPM 20 V.
DPM 20 mA.

13. OPTICAL BENCH COMPLETE SET**QTY: 13Nos.**

The complete Experimental Set-up should consist of the followings :	
01. OPTICAL BENCH	Two 150 cm long steel rods 3/4" dia. forming a bench with end supports having leveling screws. One of the two steel rods is graduated in cm and mm. It has three riders, two with transverse motion.
02. MICROMETER EYE PIECE	: A ramsden 10X eye piece carried on a slide which moves along a micrometer screw. The movement is read on a 30-0-30 mm steel scale and directly on micrometer head to .001 cm. No backlash.
03. OPTICAL SLIT	Optically true, precision ground stainless steel jaws. The jaws open uniformly all along through the milled head.
04. SODIUM LIGHT SOURCE	Sodium light source complete with sodium lamp 35 watt with vacuum jacket, Transformer & Wooden Box having four holes with slide covers one each on every side at different heights

14. NEWTON'S RING APPARATUS**QTY: 21Nos.**

The complete Experimental Set-up should be consist of the following .:	
01. Newton's Rings Apparatus	Comprising a pair of glasses, one plane and the other slightly convex, in metal frame with three screws for applying pressure 60mm dia.
02. Wooden reflector	It should consist of two glass plates are at 45° Angle & another at bottom.
03. Traveling Microscope for Newton's Rings Apparatus	Bridge type body
04. Sodium light source	Sodium light source complete with sodium lamp 35 watts with vacuum jacket, Transformer & Wooden Box having four holes with slide covers, one each on every side at different heights.
05. Lens	Double convex lens with stand

15. PLANCK'S CONSTANT APPARATUS**QTY: 21 Nos.**

	PLANCK'S CONSTANT BY SPECTROMETER AND PHOTO VOLTAIC CELL The complete Experimental Set-up should consist of the following :
01. <i>Spectrometer Standard :</i>	6" dia circle reading 30seconds, with a long arm in place of Telescope fitted with double convex lens 50mm dia, focal length 40cm on one end and photo voltaic cell with width adjustable slit on the other end. The distance between lens and photo voltaic cell can be adjusted for better focussing. Prism table should be provided with three leveling screws and is engraved with concentric rings and lines. The scales and verniers should be of stainless steel and should be machine divided.
02. Digital nanometer	
Range	100nA, 1mA, 10mA, 100mA
Accuracy	±0.25% for all ranges
Resolution	0.1nA, 1.0nA, 10nA, 100nA.
Input Resistance	25W, 2.5W, 0.25W, 0.025W.
Display	3½ digit 7segment LED (12.5mm height) with auto polarity and decimal indication.
03. <i>Prism :</i>	Optically worked with two faces polished, Equilateral, size 38mm x 38mm.
04. <i>Power Supply :</i>	0-6V DC at 3A, IC regulated, continuously variable and short circuit protected power supply with coarse and fine voltage controls with two Digital Panel Meters (DPM) of 3½ digit one of 19.99 volt D.C. and other of 19.99 Amp. D.C.
05. <i>Photo voltaic cell</i>	With width adjustable slit
06. <i>Incandescent bulb</i>	With house on stand
07. <i>Double convex lens</i>	(50mm dia. and F.L. 10cm) with holder on stand.

16. PLATINUM RESISTANCE THERMOMETER**QTY: 16 Nos.**

Enclosed in a corning glass tube of approx. 50 cm length and 2 cm diameter
A fine platinum wire should be wound on mica frame. Its resistance should be approximately 2.8 ohms.
The two platinum leads and two compensatory leads to be connected to four terminals on square block

17. POST OFFICE BOX**QTY: 06 Nos.**

The resistances are arranged such that these can be grouped into three branches which forms the three arms of a Wheat Stone's Bridge, the fourth arm can be formed by connecting the unknown resistance across the terminals marked "UNKNOWN".
This should use one percent precision high stability cracked carbon resistors of one watt rating. The resistors used are non-inductive and non capacitive

18. Digital potentiometer**Qty: 07 Nos.**

Potentiometer (Digital)	
Redox Potential Measurement	
Display	4 digit LED
Range	0 to + 1999 mv
Resolution	1 mv
Accuracy	+ 0.1 %,
Accessories	O.R.P. Electrodes, Electrode Stand & Dust Cover

19. Spectrometer-goniometer**Qty: 03 Nos.**

Inspection telescope magnification	10x Resolution of prism table 10 arc minute
Resolution stage	1 arc minute
Fixed slit	25 μ m & 50 μ m
Variable slit	Micrometer controlled continuously variable 0-3mm

20. REFRIGERATOR**QTY: 18 Nos.**

200 Ltr
double door

21. Spectrometer setup:**Qty: 36 Nos.**

The complete Experimental Set-up should consist of the following :	
01. <i>Spectrometer</i> standard:	
	6" dia circle reading 30 seconds
	rack and pinion focussing arrangement
	Telescope arm and prism table with fine and coarse adjustment
	The scales and verniers are of stainless steel and should be machine divided
02 <i>Mercury light</i> source	Complete with Mercury Vapour lamp 80W along with choke & wooden box with holes with slide covers one each on three sides
03. <i>Prism</i>	Optically worked with two faces polished, Equilateral, size 38mm x 38mm
04. <i>Reading lens</i>	40/50mm diameter with handle
05. <i>Sprit Level</i> :	60/80mm length

22. Spectrophotometer(UV-Vis)**Qty: 08 Nos.**

Wavelength Range	190 to 1100 nm
Wavelength Accuracy	± 1 nm (200 – 900nm)
Wavelength Resolution	Selectable (0.1, 0.2, 0.5, 1.0, 2.0, and 5.0 nm)
Wavelength Calibration	Automatic
Spectral Bandwidth	≤ 3 nm
Photometric Readout	-0.3 to 3.0 A or 0.1 to 100.0 %T
Photometric Accuracy	± 0.005 A at 0.0 to 0.5 A, 1% at 0.5 to 2.0 A Stray Light
KI solution	at 220 nm > 3.3 Abs. ≤ 0.05 % T max at 220 and 320 nm
Scanning Speed	Depending on selected resolution (100 to 4500 nm/min)
Source Lamps	Deuterium (UV) and tungsten (visible)
Essential Features:	
• Should have MICRO-FOCUSSED BEAM TECHNOLOGY.	
• Should have fixed wavelength mode to measure sample absorbance or % transmittance at up to 4 user selected wavelengths between 190 and 1100 nm including factor for dilution correction and calculation in user selectable concentration units.	
• Should include a wavelength scan mode that collects and stores sample spectra measured in absorbance or % transmittance from 190 to 1100 nm at selectable rates to provide high throughput scanning or high resolution spectra, in both real time graphical display and tabulated format.	
• Should have kinetic/time mode for rate analysis by linear regression and provide real time graphical display and tabulated format.	
• Should include a quantitative Protein Analysis mode for common assays including Bradford, Lowry, Biuret, Colloidal Gold, Bicinchoninate, and Direct UV	
• Should include a Nucleic Acid Analysis mode to characterize and quantify DNA, RNA, and oligonucleotide samples, determine the theoretical T _m , molecular weight, molar absorbtivity concentration as well as check for protein contamination using standard or user-defined multiple ratios with or without background correction	
• Should include a mode for determination of dye (%) in microarrays.	
• Should have a power up diagnostics routine to automatically perform a series of diagnostic tests and display the test results to ensure proper operation of major system components.	
• Should include user selectable UV source with manual and automatic on/off function. The automated utility function must be programmable to turn the source off to prolong lamp life.	
• Should be able to save and retrieve up to 50 user programs.	
Able to store, recall and send data to printer and memory devices via USB port.	
Able to setup password protection, operator I.D. and sample I.D.	
Should have serial number of instrument, date, and time stamp when data is sent via the parallel or the serial port.	

23. Spectrophotometer (UV-Vis)**Qty: 34Nos.**

Spectral:Wavelength	195 to 1000 nm
Spectral bandwidth	2 nmAccuracy: + 0.5nm
Repeatability	: +0.3 nmResolution: 0.1 nm
Photometric:	
Photometric range	: %T : 0 to 100%, Abs: 0 to 1.999 Conc: 0 to1999,
K-factor:	0 to 1999
Accuracy	+ 0.005 abs at 1.0 abs +0.010 Abs at 1.5 Abs
Stray light	Less than 0.1% at 320 nm
Readability	+ 1 countData readout: LCD display
Keyboard:	soft touch membrane type
Printer interface:	Printer interface for any centronics dot matrix printer
Serial interface	RS232C interface
Light source:	a) Tungsten halogen lamp b) Deuterium lamp
Detector	Wide range silicon photodiode
Optics:	Complete mirror optics with resolution 1200 grooves/mm grating
Sample holder	4 position adjustable sample holder
Power	230V+10%, 50 Hz AC

24. Spirometer**Qty: 02 Nos.**

Capacity 6 litre
complete with chain/chord compensates counter balance to float through pulley.
Tube calibrated to denote volume.
Inlet and outlet tubes provided.
Complete with corrugated tube and mouth piece.

25. Transistor characteristics**Qty: 10 Nos.**

The board should consist of the following built-in parts :
01. Two 0-10V D.C. at 200mA, continuously variable Power Supplies for Base Emitter & Collector Emitter junctions.
02. Two D.C. Ammeters, 65mm rectangular dial with switch selectable ranges of 200 mA &10mA.
03. Two D.C. Voltmeters, 65mm rectangular dial with switch selectable ranges of 1V and 10V.
04. Two silicon (NPN & PNP) transistors and two Germanium (NPN & PNP) transistors.
05. Adequate no. of other electronic components 06. Mains ON/OFF switch, Fuse and Jewel light

26. THEODOLITE (PRECISION VERNIER TRANSIT)**Qty: 08 Nos.**

As per ISS No.2988/1965
178 mm Internal focusing
20 sec Accuracy with optical Plummet
Erect Image Magnification 25x
Effective Aperture 38 mm
Field of view 2.6m at 100m
Short Focus 1.5m,Max Range 700'
Stadia Ratio 1:100
Stadia Constant 0.Circles
Diameter HZ 113mm, V100mm
Graduation 20"
Vernier Reading 20"
Accessories: Diaphragm Extractor, Trough Compass, Plumbob, Pin, Sun filter, Rayshade, Screw Driver, Cleaning Brush, highly polished Teakwood box, Export Quality Telescopic aluminum stand Packed in waterproof canvas cover

27. Telescope (Reflecting)**Qty: 07 Nos.**

Full size (36" high) metal tripod stand higher
30x-60x-75x-150x power range.four magnifications with eyepieces and Barlow lens.
6x power finder telescope for ease in locating object
Tube dia.: 90mm; length: 31"

28. Water and soil analysis Kit (Digital)**Qty: 16 Nos.**

3½ digit LCD display.
6 parameters pH, Conductivity, TDS, ORP, D.O. and Temperature
Battery cum mains operated, complete with accessories, fitted in briefcase

29. Audio Oscillator**Qty: 06 Nos.**

01. REQUENCY RANGE	15Hz to 150KHz in four ranges.
02. REQUENCY ACCURACY :	± 2% or cycles whichever is greater
03. OUTPUT WAVEFORM :	Sinusoidal.
04. OUTPUT VOLTAGE :	0-1V RMS continuously variable.
SOURCE IMPEDANCE	600 ohms approximately.
HARMONIC DISTORTION	at 1 KHz, Second harmonic ± 0.5% Third Harmonic ± 0.1%

30. Anderson Bridge**Qty: 27 Nos.**

The board should consist of the following built-in parts :
01. Anderson Bridge circuit with arms values.
02. Potentiometer for varying one arm.
03. Three different value inductances
04. Potentiometer with calibrated dial
05. Five capacitors selected by a band switch.
06. Audio Amplifier with its IC regulated Power Supply.
07. One KHz Sine Wave Oscillator with its IC regulated Power Supply.
08. Speaker.

31. DC Power supply**Qty: 06 Nos.**

Range	$\pm 15V$, 1 Amp
Metering	3 Digit DPM.
Meter Accuracy	± 3 counts.
Constant Voltage Mode	
a) Regulation:	Line : $\pm 0.01\% \pm 2mV$ for $\pm 10\%$ change in line output. Load : $\pm 0.01\% \pm 2mV$ for load change from zero to full load
B) Ripple & Noise	1mV rms max. 20Hz - 20MHz.
Constant Current Mode	
a) Regulation	Line : $\pm 0.1\% \pm 250\mu A$ for $\pm 10\%$ line change. Load : $\pm 0.1\% \pm 250\mu A$ for change in output voltage from 0 Volts to maximum output voltage.
b) Ripple & Noise :	0.04% rms.
Mode Indication:	LED indication for constant voltage / constant current operating mode.
Output Polarity:	Floating w.r.t. ground.
Overload Protection	Automatic overload and short circuit protection.
Transient Response	100 μ secs to within 10mV of set output voltage for load change from 10% to 90%.
Stability.	Total drift within 8 hours, after warm-up.: $< \pm 0.2\%$ plus 5mV in constant voltage mode. $< \pm 0.5\%$ plus 5mA in constant current mode with constant line, load and ambient temperature conditions.
Operating Temperature	0-50°C.
Line Voltage:	:230V AC $\pm 10\%$ 50Hz, single phase

32. Ballistic galvanometer**Qty: 09 Nos.**

Determination of ballistic constant: The Set up should consists of the following :	
01. Ballistic Galvanometer should consist of moving coil having a fairly large periodic time and large moment of inertia. The phosphor bronze suspension strip prevents shifting of zero. Its deflection is closely proportional to current. The resistance of coil is about 500W and gives sensitivity per microcoulomb at one metre distance of about 600 mm.	
02. Lamp and Scale Lamp is of cast aluminum with heavy iron adjustable stand. It is fitted with 8 volt electric bulb through built in transformer and works on 220V A.C. Translucent Perspex scale graduated in 25-0-25 cm is used.	
03. A fixed resistance 10K 0.25W	
04. Decade Resistance Box, Single dial in steps of 1 ohm, total 10 ohm	
05. Decade Resistance Box, Single dial in steps of 100 ohm, total 1K ohm	
06. Cell eliminator (Leclanche Cell 1V5).	
07. One Way Plug key.	
08. Tapping key.	
09. Reversing key	

33. Determination of cauchy's constant**Qty: 03 Nos.**

The complete Experimental Set-up should consist of the following :	
01. Spectrometer standard	
	6" dia circle reading 30 seconds
	rack and pinion focussing arrangemen
	Telescope arm and prism table with fine and coarse adjustment
	The scales and verniers are of stainless steel and should be machine divided
02 Mercury light source :	Complete with Mercury Vapour lamp 80W along with choke & wooden box with holes with slide covers one each on three sides.
03. Prism :	Optically worked with two faces polished, Equilateral, size 38mm x 38mm.
04. Reading lens :	40/50mm diameter with handle.
05. Sprit Level	: 60/80mm length

34. Diffraction grating**Qty: 04 Nos.**

The complete Experimental Set-up should consist of the following :	
01. Spectrometer standard	
	6" dia circle reading 30 seconds
	rack and pinion focussing arrangement
	Telescope arm and prism table with fine and coarse adjustment
	The scales and verniers are of stainless steel and should be machine divided
02. Diffraction grating	Hilger & Watts Type, 15000 line per inch/6000 lines per cm.
03. Mercury light source	Complete with Mercury Vapour lamp 80W along with choke & wooden box with holes with slide covers one each on three sides.
04. Prism	Optically worked with two faces polished, Equilateral, size 38mm x 38mm.
05. Reading lens :	40/50mm diameter with handle.
06. Spirit Level	60/80mm length.

35. Function/ Signal generator (20 MHz)**Qty: 08 Nos.**

Output Frequency	0.2Hz ~20 MHz
Variable Decade Ranges	8
Output Impedance	50 Ohms, TTL / CMOS SYNC 600 Ohms.
Output Waveform	Sine, Square , Triangle and Sweep, Pulse, CMOS, TTL, FSK, AM, FM.
Output Display	5 digit (10.000Hz ~ 20000KHz), 4 digit (0.200Hz ~ 9.999Hz)
Output Amplitude	:14V p-p $\pm 10\%$ max.7 Vp-p into 50 Ohms.
Synchronous Output Pulse	TTL, CMOS
Amplitude Display	3 digits with automatically positioned decimal point.
Display Error	$\pm 20\%$ +1 digit.
DC Off-Set	-5V ~ +5V $\pm 10\%$ in to 50 Ohms, -10V ~ +10V $\pm 10\%$ in Open Load.
Attenuation	0dB, 20dB, 40dB and 60Db
Duty Cycle / Symmetry	20% ~ 80% adjustable.
VCF Input	0 ~ 2V
Internal Sweep	Sweep Mode Linear / Log. Sweep Time 10 msec ~ 5sec, $\pm 10\%$. Sweep Width >1 Full Frequency Range
Internal Modulation	FSK Freq. : 1 KHz., Freq Offset : 0 ~ $\geq 5\%$. FM Internal Freq. : 1KHz, Freq. Range : 0 ~ $\geq 5\%$. AM Internal : Frequency 1KHz, Depth : 0 ~ 100% $\pm 5\%$.
External Modulation	
FM	Input Signal 0V ~ 2V. Signal Period 10msec ~ 5sec.
AM	Input Signal 0V ~ 2V. Signal Period 10msec ~ 5sec
Frequency Counter	Display 8 Digit.
Frequency Range	0.2Hz ~ 100000KHz.
Sensitivity:	50mV ~ 2V (10Hz ~ 20MHz), 100mV ~ 2V (0.2Hz ~ 10Hz and 20MHz ~ 100MHz).
Input Impedance	500K Ohms // 30 pF.
Wave-Form	Sine / Square.
Power Supply	220V $\pm 10\%$, 50Hz, <30VA

36. Function generator (10 MHz)

Qty: 16 Nos.

Output Frequency	0.2Hz ~10 MHz
Variable Decade Ranges	8
Output Impedance	50 Ohms, TTL / CMOS SYNC 600 Ohms.
Output Waveform	Sine, Square , Triangle and Sweep, Pulse, CMOS, TTL, FSK, AM, FM.
Output Display	5 digit (10.000Hz ~ 20000KHz), 4 digit (0.200Hz ~ 9.999Hz)
Output Amplitude	:14V p-p $\pm 10\%$ max.7 Vp-p into 50 Ohms.
Synchronous Output Pulse	TTL, CMOS
Amplitude Display	3 digits with automatically positioned decimal point.
Display Error	$\pm 20\%$ +1 digit.
DC Off-Set	-5V ~ +5V $\pm 10\%$ in to 50 Ohms, -10V ~ +10V $\pm 10\%$ in Open Load.
Attenuation	0dB, 20dB, 40dB and 60Db
Duty Cycle / Symmetry	20% ~ 80% adjustable.
VCF Input	0 ~ 2V
Internal Sweep	Sweep Mode Linear / Log. Sweep Time 10 msec ~ 5sec, $\pm 10\%$. Sweep Width >1 Full Frequency Range
Internal Modulation	FSK Freq.: 1 KHz. Freq Offset: 0 ~ $\geq 5\%$. FM Internal Freq.: 1KHz, Freq. Range : 0 ~ $\geq 5\%$. AM Internal: Frequency 1KHz, Depth: 0 ~ 100% $\pm 5\%$.
External Modulation	
FM	Input Signal 0V ~ 2V. Signal Period 10msec ~ 5sec.
AM	Input Signal 0V ~ 2V. Signal Period 10msec ~ 5sec
Frequency Counter	Display 8 Digit.
Frequency Range	0.2Hz ~ 100000KHz.
Sensitivity:	50mV ~ 2V (10Hz ~ 20MHz), 100mV ~ 2V (0.2Hz ~ 10Hz and 20MHz ~ 100MHz).
Input Impedance	500K Ohms // 30 pF.
Wave-Form	Sine / Square.
Power Supply	220V $\pm 10\%$, 50Hz, <30VA

37. GPS

Qty 22 Nos.

Navigation Features
Marine Database
Cities: City Locations
Waypoints:
Total: 500
Nearest: 9 (automatic)
Proximity: 9
Routes: 20 reversible routes with up to 30 points each
TracBack: Automatic track log navigation
Coordinates: Lat/Lon, UTM/UPS, MGRS, plus 7 grids, including Maidenhead and User UTM
Performance
Receiver: 12 parallel channel receiver continuously tracks and uses up to twelve satellites to compute and update position
Acquisition Times
Warm: Approx. 15 seconds
Cold: Approx. 45 seconds
Auto Locate: Approx. 5 minutes
EZinit: Easy initialization, 45 seconds
Update Rate: 1/second, continuous
Accuracy:
Velocity: 0.1 knot RMS steady state
Dynamics: 6g's
Position: 15 meters (49 feet) RMS
Interfaces: NMEA 0183 and RTCM 104 DGPS corrections
Antenna: External QuadHelix, BNC connector for remote
Power Source: 4 AA batteries or 10-32vDC
Battery Life: Up to 24 hours

38. LCR Meter (Handheld)**Qty: 07 Nos.**

Measurement Parameters	
Z	Absolute value of impedance.
L	Inductance.
C	Capacitance.
DCR	Direct current resistance.
ESR	Equivalent series resistance.
D	Dissipation factor.
Q	Quality factor.
Ø	Phase angle
Ranging	Auto-range and Range-hold.; Relative : Relative mode.
Cal	Open / Short calibration.
RS232C Connector	IrDA.
TEST SIGNAL	
Frequency	100Hz, 120Hz, 1KHz, 10KHz, 100KHz
Basic Accuracy	±0.4%
Level	1V rms, 0.25V rms, 0.05V rms, 1V DC (for DCR).
Output Impedance	100 ohms, ±3%.
Display range	
L	0.001µH to 9999H
Z	0.001Ω to 9999MΩ
C	0.001PF to 9999F
DCR	0.001Ω to 9999MΩ
ESR	0.001Ω to 9999Ω
D	0.001 to 9999
Q	0.001 to 9999
Ø	-180 to 180

39. Astronomical telescope**Qty: 05 Nos.**

203 mm (8") diameter mirror
Power Range: 48x, 72x, 96x, 144x, 192x, 216x, 288x and 384x
Tube dia.: 250mm; length: 48"

40. Flame photometer**Qty: 06Nos.**

Dual channel, single aspirations with filter (Na and K).
Final result in ppm
2 ½ digit dual LED display for simultaneous result
Along with compressor and accessories

41. Colorimeter**Qty: 19Nos.**

Microprocessor photo colorimeter 8 filters
facility for direct measurement of result in conc.,%T & O.D.
memory for storage of 3 standards
Automatic zero setting facility
1 ml. solution measurement

42. Phoenix hardware

Qty: 58 Nos.

ITEMS :
<u>Phoenix (USB Version) with standard accessory set</u>
<u>Analog Companion USB to Serial Adapter with Cable</u>
<u>Light Barrier</u>
<u>Pendulum Waveform Digitizer</u>
<u>Rod Pendulum</u>
<u>Programming Cable and LCD display</u>
<u>40KHz Piezo Transmitter + Receiver</u>
<u>IC555 Oscillator Circuit</u>
<u>IC55 Monoshot Circuit</u>
<u>Coils, Ferrites & Magnets for EM Induction studies</u>
<u>Electromagnet and Metal Ball</u>
<u>GM Counter circuit for radiation detection</u>
<u>Radiation Detection and Analysis (MCA)</u>
<u>Small Vacuum Chamber</u>
<u>9mm x 9mm PN Junction Detector</u>
<u>Phoenix Micro-controller Development Kit</u>
<u>Phoenix-MDK-USB (with USB & prog. cable)</u>

43. Digital turbidity meter

Qty: 02 Nos.

3 ½ Digit LED display
Range upto 1000 NTU/JTU

44. Weighing balance (Digital- High precison)

Qty: 64 Nos.

Capacity :300 gm
Readability :0.001 mg
Repeatability :0.001 mg
Linearity: +/- 0.002 mg
Pan size : 90 mm Ø
Response time: 3-4 Sec
Calibration : Automatic External
Tare Range : Full
Power Supply AC Adaptor 220V or 50-60 Hz
Automatic external calibration
Density measurement for soild and liquid
Standard RS 232 C Interface
High Resolution, quick weighing, Accurate result
S.S Weighing pan, Level Indicator, Adjustable fit
Tare range upto max. Capacity of the balance

45. LCD Projector**Qty: 58Nos.**

Type Of Digital Projector DLP, Portable
Resolution : SVGA 800 x 600
<u>Lamp Features:</u>
a) Illumination 2500 ANSI Lumens
b) Contrast Ratio 3000:1
b) Aspect Ratio 4:3, 16:9
Minimum Image Size Generated (Inches) : 36
Maximum Image Size Generated (Inches) : 246
Projection Distance (Feet) : 3.94 - 32.81
Life of Lamp In Eco Mode (Hours) : 4000
Life of Lamp In Standard Mode (Hours) : 3000
<u>Audio Features:</u>
Noise Levels (db) : 32
Convenience Features: Zoom Lens, Digital Keystone Correction, Remote Control, On Screen Display
Compatibility: NTSC/PAL Playback, SECAM, HDTV, Composite Video Input, Component Video Input, S-Video Input
Power Requirement Voltage (Volts)100-240
Total Power Consumption (Watts)280
Power Consumption By Projection Lamp (Watts)189

46. Laptop**Qty: 58 Nos.**

Laptop
<u>Processor Description :</u>
a) Dual Core T4200 Process
b) Speed (MHz)2000
c) Processor Cache Memory (KB)1024
d) Front Side Bus: 800,
<u>System Memory :</u>
Standard RAM (MB)2048
Upgradable RAM (MB)4096
Hard Disk Drive Type : Inbuilt Hard Disk Drive Capacity (GB): 250
Optical Drive : DVD Writer Drive
<u>Display Features :</u>
Display Screen Size (Inches)14.1
Maximum Display Resolution (dpi)1280 x 800
Screen Type Crystal Brite -
Video Display Card: Video Display Card Integrated Manufacturer: Intel Video Card GM 965 Video Card Memory Type Shared,
<u>Internet and Fax Utilities :</u>
Internal Modem Modem Speed (Kbps) 56 WiFi 802.11b/g,
<u>Multimedia :</u>
Sound Card, Sound Card MakeRealtek Microphone, Speakers.
Camera : Built-in Camera Resolution (Mega Pixel) 0.3
<u>Computer Interfaces (Ports and Cards) :</u>
USB Port : 4
Bluetooth: 1
Operating System : Operating System Windows Vista Home Premium/Windows 2007
Mouse : Type of Mouse Touchpad, Machine

BILL OF MATERIAL & SPECIFICATION

Bill of Material (To be tendered by NEIST)

SL	Item Description	Quantity
1.	Bacteriological incubator	07 Nos.
2.	BOD incubator	22 Nos.
3.	Centrifuge (General purpose)	16 Nos.
4.	Centrifuge (High speed)	18 Nos.
5.	Dissolved oxygen meter	02 Nos.
6.	Hot air oven	35 Nos.
7.	Laminar air flow	16 Nos.
8.	Lux meter	05 Nos.
9.	Hot plate with magnetic stirrer	34 Nos.
10.	Muffle furnace	04 Nos.
11.	Trinocular microscope with projection camera and monitor	12 Nos.
12.	Trinocular microscope with camera and imaging software	17 Nos.
13.	Projection microscope	09 Nos.
14.	Trinocular stereozoom microscope	11 Nos.
15.	Monocular microscope	206 Nos.
16.	Inverted tissue culture research microscope	02 Nos.
17.	Binocular microscope	30 Nos.
18.	Rotary micotome precision	21 Nos.
19.	Erma japan type rotary microtome	02 Nos.
20.	Paraffin bath	05 Nos.
21.	Polarimeter (Laboratory type)	51 Nos.
22.	Mechanical shaker	12 Nos.
23.	Rotary evaporator	04 Nos.
24.	Soxhlet extraction unit	05 Nos.
25.	Autoclvae	09 Nos.
26.	Water bath shaker	05 Nos.
27.	Water bath (Double walled)	14 Nos.
28.	Water distillation unit- Glass (Double stage)	24 Nos.
29.	Water distillation unit – metal (table model)	11 Nos.
30.	Distillation unit (Kjedehl)	04 Nos.
31.	Conductivity meter (Table model)	46 Nos.
32.	Binocular	14 Nos.
33.	Refrigerated centrifuge	04 Nos.
34.	Deep freezer	02 Nos.
35.	Gel electrophoresis apparatus (Vertical)	03 Nos.
36.	Helium discharge tube	02 Nos.
37.	Water de-ionizer	04 Nos.
38.	pH meter Digital	17 Nos.
39.	Camera Lucida (Mirror type)	02 Nos.
40.	Travelling microscope	32 Nos.
41.	Phase contrast microscope	02Nos.
42.	Monocular rock polarizing petrographic microscope	04 Nos.
43.	Trinocular polarizing petrographic microscope	03 Nos.
44.	Vortex mixer	03 Nos.
45.	pH Meter	66 Nos.
46.	Benchtop pH/conductivity/TDS meter	03 Nos.
47.	Gel electrophoresis apparatus (Horizontal)	09 Nos.

DETAIL SPECIFICATION

1. Bacteriological Incubator

Qty: 07 Nos.

Size	300 x 300 x300 mm
Temperature Control	
Temperature variation (time)	$\pm 0.5^{\circ}\text{C}$
Temperature deviation(spatial)	$\pm 0.5^{\circ}\text{C}$
Readability/ Set ability	0.5°C
Temperature range	5°C above ambient to 90°C
Sensor	thermocouple Type K
Controller	Microcontroller
Display	LCD
Safety thermostats	
Temperature variation (time)	$\pm 3^{\circ}\text{C}$
Sensor	thermocouple Type K

2. B.O.D. Incubator

Qty: 22 Nos.

Size	455x610x410 mm
Temperature Control	
Temperature variation (time)	$\pm 0.5^{\circ}\text{C}$
Temperature deviation(spatial)	$\pm 0.5^{\circ}\text{C}$
Readability/ Set ability	0.5°C
Temperature range	5°C above ambient to 90°C
Sensor	thermocouple Type K
Controller	Microcontroller
Display	LCD
Safety thermostats	
Temperature variation (time)	$\pm 3^{\circ}\text{C}$
Sensor	thermocouple Type K
	Automatic setting
	Adjustable limits

3. Centrifuge (General Purpose)

Qty: 16 Nos.

Max. Speed	5000 RPM
Max. RCF x g	3450
Max. Capacity	8 x 15 ml
Type	Angle

4. Centrifuge (High Speed)

Qty: 18 Nos

Max. Speed	20,000 RPM
Max. RCF x g	34500
Max. Capacity	6 x 15 ml
Type	Angle

5. Dissolved oxygen meter (Portable model)**Qty: 02 Nos.**

Range	0.0-10.0 mg/l
Accuracy(@ 20°C)	+/- 0.2 mg/l +/-3% of reading
Resolution	0.1 mg/l
Typical EMC Deviation	+/- 0.1 mg/l
Light Source	LED @ 430nm
Light Detector	Silicon photocell
Battery Type and Life	1 x 9v battery approx 40 hours of continuous use
Auto Shut-off	After 10mins of non-use

6. Hot air oven**Qty: 35 Nos.**

Size	355x355x355 mm
Temperature Control	
Temperature variation (time)	+/- 0.5°C
Temperature deviation (spatial)	+/- 0.5 °C
Readability/ Set ability	0.5°C
Temperature range	50°C to 250°C
Sensor thermocouple Type	K
Controller	Nano technology based ergonomic controller
Display	LCD
Safety thermostats	
Temperature variation (time)	+/- 3°C
Sensor	thermocouple : Type K
Automatic setting	Yes
Adjustable limits	Yes

7. Laminar Air Flow table**Qty: 16 Nos**

Type	Horizontal
Hepa Filter	99.999 %efficiency for particles >0.3 µm
Pre-Filter	85 %efficiency for particles >0.5 µm
Particle Count	Better than US Fed Std 209B Class10 and VDI 2083
Class 3 Cabinet	Laminated High Quality Wooden Board
Work Table	AISI 304 Stainless Steel
Airflow Speed Control	Speed Controller (Three Step Speed Controller)
Blower	High efficient centrifugal type with lifetime lubricated bearings
Light	High intensity, low wattage >800 lux
Noise Level	<55 dBA
Standard Accessories	Air/gas cock and .mains power socket (16A)
Power Supply	220-230 V,50 Hz.
Internal Work pace	600mmx600mmx600mm

8. Lux meter (Digital)**Qty: 05 Nos.**

up to 1,00,000 Lux

9. Hot plate with magnetic stirrer**Qty: 34 Nos.**

Capacity	2 ltrs
Maximum Speed	RPM 1800
Heating Capacity	500 Watts
Dimension (W x D x H)	190 x190 x 170 mm
Stirring Paddle (B x L)	10 x 50 mm

10. Muffle furnace**Qty: 04 Nos.**

Size	225 x 100 x 100 mm
Working temp	up to 900 Deg C
Temperature Control	
Temperature variation (time)	+/- 1%°C
Temperature deviation (spatial)	+/- 1%
Readability/ Set ability	0.5°C
Temperature range	50°C above ambient to 900°C
Sensor	thermocouple Type K
Controller	Solid State digital Controller
Display	LED/LCD

11. Trinocular microscope with projection camera and Monitor : Qty: 12 Nos.

The system should consist of:
(A) TRINOCULAR MEDICAL MICROSCOPE
OBSERVATION HEAD
Siedentopf observation head inclined at 30° rotatable at 360°
Diopter adjustment ring on ocular tube
Interpupillary distance from 55mm to 75mm
EYEPIECE
Wide field Eyepiece 10X (Paired) FOV 18mm
OBJECTIVES (INFINITE)
Plan Achromatic 4X, 10X, 40X(SL), 100X Oil (SL)
MECHANICAL BODY
a) Co-axial focusing system with PRE-FOCUSING LEVER & SUB STAGE CONDENSER Abbe Condenser N.A.1.25 with Iris Diaphragm TENSION ADJUSTMENT RING. The slow motion has 1Div= 0.002 mm
b) Reverse Angle quadruple nosepiece revolves on ball bearing.
c) Mechanical stage size 125mm X135mm having low positioned co-axial controls on ball bearing guide ways.
d) The transmitted light illumination has 6V/20W halogen lamp with intensity control knob.
STANDARD ACCESSORIES
6V/20W Halogen Tungsten Bulb, Blue & Grey filters, STYRO FOAM Molded pack.
B) PROJECTION CAMERA
Sensor: 1/2.5 inch Progressive Scan.
Pixel Size: 5.2 X 5.2 microns.
Frame Rate: 25 fps at 1280 X 124
Resolution: 1280 X 124
Cross hair: 8 Cross hairs
Storage: USB Storage up to 2 GB
Output: Vesa standard PC graphic output D-sub 15 pin interface.
RBB gain: R, G, B adjustable separately.
Wireless Remote Control
C) COLOR MONITOR

12. Trinocular microscope with camera and imaging software: Qty: 17 Nos.

A) TRINOCULAR MEDICAL MICROSCOPE
<u>TRINOCULAR OBSERVATION HEAD</u>
Siedentopf observation head inclined at 30° rotatable at 360°
Diopter adjustment ring on ocular tube.
Interpupillary distance from 55mm to 75mm
<u>EYEPIECE</u>
Wide field Eyepiece 10X (Paired) FOV 18mm
<u>OBJECTIVES (INFINITE)</u>
Plan Achromatic 4X, 10X, 40X(SL), 100X Oil (SL)
<u>MECHANICAL BODY</u>
Co-axial focusing system with PRE-FOCUSING LEVER & TENSION ADJUSTMENT RING. The slow motion has 1Div= 0.002 mm
Reverse Angle quadruple nosepiece revolves on ball bearing.
Mechanical stage size 125mm X135mm having low positioned co-axial controls on ball bearing guide ways.
The transmitted light illumination has 6V/20W halogen lamp with intensity control knob.
<u>SUB STAGE CONDENSER</u>
Abbe Condenser N.A.1.25 with Iris Diaphragm
<u>STANDARD ACCESSORIES</u>
6V/20W Halogen Tungsten Bulb, Blue & Grey filters, STYRO FOAM Molded pack.
B) 8 MEGA PIXEL DIGITAL CAMERA
<u>IMAGER</u>
Sensor: ½.5" (Micron MT9E001)
Color Filter RGB.24bit
Pixel 3264 X 2448(8.0MP)
Pixel Size 1.758X 1.75 microns
Dynamic range >60dB
Exposure time 0.1 milliseconds to 12 second
Exposure mode Automatic (gray level selectable)
ManualParameters Gain (1~40), Saturation (0~255) Gamma (0.10~2.50), color rectify
Shutter Electronic rolling Shutter
C) IMAGING SOFTWARE
<u>IMAGE EDITING</u>
1. Compression
2. Conversion to other format BMP, JPG, TIF, PNG, GIF & PSD
3. Flood fill or spray with selected color at selected portion.
4. Grid creation; 5X5, 10X10 & 100X100 lines.
5. Montage feature to merge stored image together.
6. Image stitching.
7. Pixel by Pixel Correction by key board.
8. Filter application on selected area
<u>VIEW</u>
1. Image flipping; horizontal or vertical axis
2. Intensity histogram.
3. Image Information
<u>IMAGE PROCESSING</u>

1. Background subtraction and contrast enhancement of color or monochrome images
--

2. Arithmetic image functions (Boolean Math; Add, AND, OR, XOR, DIFF, MIN, MAX, +, -, /, *, And Simple).
<u>ROUTINE FILTERS</u>
Invert, Brightness, Contrast, Hue, Saturation, Blur, Noise Remove, Emboss, Engrave, Gamma R, Gamma G, Gamma B, Yellow, Magenta, Cyan, Mosaic, Smooth, De-saturation, Pseudo Color, Colorize,
<u>SPECIAL FILTERS & KARNELS</u>
High Boost, High Spatial, Low Pass Spatial, Ranking (Max, Med, Min), Point detection, Line detection, Homogeneity
<u>EDGE DETECTION</u>
Laplacing, Sobel, Kirsch, Prewitt Gradient, Shift & Difference, Combine, Contrast Base, Quick, Range And Variance.
<u>MORPHOMETRY</u>
Skelotizing, Pruning,
SKIZ, Histogram Equalization, Histogram Smoothing, Histogram Peak, Histogram Valley, Segmentation by Over/Under and Quantized, Contouring, Dilation / Erosion on Binary, Gray & colored Images, Opening/ Closing on Gray & Binary Images, Special Opening/Closing, Split/Combine Of RGB, YUV, YIQ, XYZ, & HSL, Changing any Image to 1, 4, 8 & 24 Bits, Medial Axis. C17. Transformation, Halftone. Image Addition, Image Average, Image Subtraction, Image Multiplication.
<u>MEASUREMENT</u>
a) Spartial calibration
b) Line measurements for Distance, Length, Width, Perimeter, Angle, Three Point Radius.
c) Area by enclosed line controlled by four arrow keys available on keyboard arrows with zoomed preview.
<u>COUNT AND CLASSIFICATION</u>
Identification of objects in an image, count them, obtain several features measurements. Objects identification by user or automatically. User defined classification on basis of size or intensity.
<u>THRESHOLD PARTICLE MEASUREMENT</u>
Manual, Auto bright and Auto dark methods to identity intensity range defined object to be measured.
<u>MORPHOMETRY</u>
Roundness, Shape, Orientation, Elongation, Equal Circular Diameter, Equal Sphere Volume.
<u>LOCATIONAL</u>
Centroid X, Centroid Y, Major X1, Major Y1, Minor X1, Minor Y1, Major X2, Major Y, Major X2, Minor Y2, Box X1, Box X2, Box Y, Box Y2 & Box Area.
<u>SEGMENTATION</u>
Measure area fraction & volume fraction. Identify multiple phases within Microstructure. Also delineate phases from the histogram.
<u>REPORT</u>
a) Three options: Direct printout with original image processed Image & Tabular results
b) Export to MS Office or Excel for further modification.

13. Projection Microscope

Qty: 09 Nos.

Vertical monocular body
horse shoe sturdy face - inclinable through 90* illumination with high powerful condenser
to be worked with transformer screen of convex lens of diameter 6" dia
all objective are strictly para focal optical combination X
are strictly para focal optical combination eyepiece 15x & 10x objective 10x & 45x complete with microscope

14. TRINOCULAR STEREOZOOM MICROSCOPE**Qty: 11 Nos.**

<u>TRINOCULAR OBSERVATION HEAD</u>
• Siedentopf observation head inclined at 45° rotatable at 360°
• Diopter adjustment ring on ocular tube.
• Interpupillary distance from 55mm to 75mm.
<u>EYEPIECE</u>
Wild field Eyepieces 10X (Paired) FOV 22mm
<u>OBJECTIVES</u>
Zoom 0.7X to 4.5X with magnification ratio of 6:1
<u>MECHANICAL BODY</u>
a) Lateral zoom control movement.
b) Reflected and transmitted light system with 12V-10W halogen tungsten lamp. The system regulated with transformer has intensity control knob. On/Off switch provides flexibility to use either both light or any of them.
c) Clip for holding specimen.
d) Base size is 260mm X 290mm
<u>MAGNIFICATION RANGE</u>
7X to 45X
<u>WORKING DISTANCE</u>
98mm

15. Monocular microscope**Qty: 206 Nos.**

Tube -inclined monocular , Rota table by 360 degrees
Coarse focusing - rack and pinion Fine focusing -double lever type 200mm graduated knobs.
Nose piece - quadruple ball - bearing mounted with positive click stop
Stage - 120 x 140 mm with detachable mechanical stage
Sub stage - (Abbe type) NA. 1.2 condenser illuminator -A built in base illumination on 220 volts mains with special eccentric ring setting for light Optics - eye piece 5x,10x,and 15x,
Objective 10x, 45x and 100x 1.
Magnification -50xto1500x

16. Inverted tissue culture research. Microscope**Qty: 02 Nos.**

quadruple revolving nose - piece equipped with binocular head assembled from prism and optical components having full prismatic optical path
large co- axial specimen stage
coarse and graduated slow motion knobs
built in variable intensity controlled solid stage transformer fitted with 12V -50W HALOGEN BULB
set of long working distance optics : four achromatic objectives: 5x, 10x, 20x, (SL) & 45x (SL)
two paired eye -pieces : H5x and W.F. 10x

17. BINOCULAR MICROSCOPE(Biological Type)**Qty: 30 Nos.**

<u>BINOCULAR OBSERVATION HEAD</u>
Siedentopf observation head inclined at 30° rotatable at 360°
Diopter adjustment ring on ocular tube. Interpupillary distance from 55mm to 75mm
<u>EYEPIECE</u>
EWF 10X FOV 18 mm
<u>OBJECTIVES (INFINITE)</u>
E-Plan Achromatic 4X,10X, 40X (SL), 100X Oil (SL)
<u>MECHANICAL BODY</u>
a) Co-axial focusing system. PRE-FOCUSING LEVER & TENSION ADJUSTMENT RING. The slow motion has 1Div= 0.002 mm
b) Reverse Angle quadruple nosepiece revolves on ball bearing.
c) Mechanical stage size 125mm X135mm having low positioned co-axial controls on ball bearing.
d) Built-in-base illumination system with 6V/20W halogen bulb and power supply.
e) Cross movement 55mmX 75mm
<u>SUB STAGE CONDENSER</u>
Abbe Condenser N.A.1.25 swings out filter holder, Iris Diaphragm.
<u>STANDARD ACCESSORIES</u>
6V/20W Halogen Tungsten Bulb, Blue & Grey filters, STYRO FOAM Molded pack

18. Rotary Microtome Precision - Qty: 21 Nos.

Cuts section from one microns to 50 microns in steps of one micron.
Rotary should be of A.O.Spencer type
Total feed excursion 28 mm.
Ball and flange type object lamp accommodates specimen up to 32 x 27 mm.
Independent feed mechanism with automatic feed release safely device.
Counter Balanced drive wheel with locking device. Knife manufactured from highest quality fine grained carbon steel.
Accessories : 3 Object holder, 1 knife 120mm with back and handle

19. Erma Japan type rotary microtome (Close pattern)**Qty: 02 Nos.**

Elegant housing affords effective protection to the mechanism against dust and wax.
The feed should be fully automatic independent and adjustable from 1 to 25 microns, equipped with easily reset 1 micron.
Efficient ball and socket clamp and paraffin stage with a single motion.
Knife block equipped with a rotating knife clamp and can be moved forward or backward.
<u>The Accessories :</u>
3 Objectives discs
1 Microtome knife with handle -120 mm,
1 Sharpening hone ; leather strap ; bottle of oil

20. PARAFFIN BATH**Qty: 05 Nos.**

DIMENSIONS	
a) Bowl :	Diameter (top) 222mm x Depth 85mm
b) External :	Length 322mm x Depth 275mm x Height 120mm
TEMPERATURE RANGE :	40° - 70°C (+/- 1.5°) at 30°C ambient
POWER SUPPLY/RATING	220 - 240V 50/60Hz AC 250 Watts

21. POLARIMETER (LABORATORY TYPE) Qty: 51 Nos.

Highly sensitive polarimeter consist of half shade device to determine the optical rotation of sugar , salts , medicine,etc.
Workable tube : 200mm. in sodium light source circular scale 0-360.
sugar scale (-) 0-30 C and + 0 to 130 s.
Vernier least count 0.05 analyser and polariser made of Polaroid
200 mm tube plywood packing case and instruction manual

22. Mechanical Shaker (Rotary Flask Shaker) Qty: 12 Nos.

Platform size: 45 x 45 cm
Motor capacity 0.25 HP
Holding capacity: 16 flasks/250 mlIt should be s compact bench top model unit.
Heavy platform fitted with rubber discs to hold conical flasks from 50 ml to 1000ml capacity.
The shaker should be mounted on ball bearing crankshafts to give an orbital circular motion to the flasks.
The diameter of the orbit should be approximately 2".
The entire assembly should be mounted on a rental casing which houses a motor coupled by means of V belt with pitch pulleys.
Power Requirements :To work on 220 Volts, single phase, 50 Hz, AC supply

23. Rotary evaporator Qty: 04 Nos.

Evaporator type; Vacuum
Capacity: 3 ltr
The unit is fitted with a quick action jack having flask capacity of 1 ltr.
The unit is supplied complete with stand, glass parts, digitally controlled water bath,
Slow motion Jack and Rotary High Vacuum Pump (25 ltrs Cap) with protective guard.

24. Soxhlet Extraction Unit with glass parts Qty: 05 Nos.

Should be consist of solvent reservoir extraction assembly with 6 extraction places with concentric metal rings of various diameter to suit 100 ml flasks to 250 ml flasks and built in steam generator.
Complete with stand, clamp holder soxhlet extraction (Condenser) glass and extraction flask of 60 ml volume.
Temperature Range : 50°C to 350°C
Temperature control: Temperature should be controlled through electronic solid state temperature controller cum indicator or micro processor based digital temperature controller cum indicator or hydraulic thermostat with energy regulators.
The temperature should be controlled with an efficiency of $\pm 2\%$ (Set Value)
Power Requirements: Power 2 KW, Single Phase, 230 Volts.

25. Autoclave (Vertical) Qty: 09 Nos.

Size: 250 x450 mm
The inner and outer chamber should be made of high-grade stainless steel sheet; the strong and sturdy sheet lid is also made of high grade stainless steel sheet.
The unit should be fitted with very efficient radial locking system made of mild steel, chrome plated, with paddle lifting device.
The unit is fitted with very efficient radial locking system made of mild steel, chrome plated, with paddle lifting device.
The unit is fitted with very efficient radial locking system made of mild steel, chrome plated, with paddle lifting device. Electrically heated by special flange type/immersion type heaters bearing ISI mark, to work on 220 volts single phase 50 cycles.
The pressure inside the chamber should variable from 5 psi. to 20 psi. But the normal recommended pressure for sterilization process is 1.2 kgf/cm sq.g (15 psi - 17 psi)
Working Temperature: 121° C / 134° C
Hydrotest Pressure: 2.5 kgf/cm sq.g (35 psi)
<u>Standard Controls:</u>
1 Double safety radial locking arrangement.
2 Stainless steel steam release valve.
3 Spring loaded safety valve of stainless steel (grade SS-304)
4 Water inlet and water valves
5 Water level indicating gauge glass with stainless steel guard.
6 Pressure gauge.
7 Electrical control box, fitted with toggle switch, indicating Neon lamps and steam release valve. Footpaddle lifting device

26. Water Bath Shaker

Qty: 05 Nos.

Size: 275x275x75 mm
Temperature Range: 50C above ambient temperature to 1000CTemperature Control:
The temperature of the metabolic shaker is effectively controlled by a micro-processor based programmable controller with an accuracy of (+ 0.40C or better)
Power Requirements: To work on 220-230 Volts 50Hz AC Supply.

27. Water bath (double walled) with PID cotroller

Qty: 14 Nos.

Temperature Sensitivity $\pm 0.5^{\circ}\text{C}$ or better
Spatial Deviation In Temperature $\pm 0.5^{\circ}\text{C}$ or better
Readability :0.1 °C
Temperature range °C 5°C above ambient to 90°C (Standard)
Temperature Sensor P100
Temperature Controller : PID Controller
Display : LED/LCD
Adjustable alarm limits : With PID controller only.
<u>Safety thermostats</u>
Temperature variation Adjustments 3
Temperature Sensors PT-100
Automatic temperature setting

28. Water distillation unit –Glass (Double stage)

Qty: 24 Nos.

Output : 5 Litre
<u>Distilled Water Quality -</u>
a) Conductivity (using raw water) : 3.0-4.0 x 10 ⁻⁶ S/cm
b) Conductivity (using treated water) : 1.5-2.0 x 10 ⁻⁶ S/cm
c) PH : 5.5 - 6.0
d) Distillate Quality : Pyrogen free
Electrical Power: 220/240 Volts, 50, Single Phase
3 KW Silica heater
Cooling water reqd :1-2 lit/min
Min. Pr.: 3 p.s.i
Automatic Low Water Level Cut-off Device, in case water supply is stopped
Special grade rubber tubing (coil of 10 meters)

29. Water distillation unit- metal (table model)

Qty: 11 Nos.

The inner and outer chamber should be made of high-grade stainless steel sheet
Output : 6 ltr
Electrical Power: 220/240 Volts, 50, Single Phase

30. Distillation Units (Kjeldahl)

Qty: 04 Nos.

Minimum of 3 mantles which are made of a knitted layer of glass fabric combined with flexible heating element, encased in Mild Steel housing.
Layer of glass fabric accommodating the flexible heater, another layer of glass cloth is placed on the lower mantle held firmly by a circular aluminum ring.
Temperature ranges form ambient to 350°C controlled by a Sun Vic Energy Regulator with either a single control or individual controls, with corresponding indicating lamps
DITILLATION UNITS should be provided with a fume duct which is held by clamps (provided with the unit) suspended on a stand having mobility for both horizontal and vertical movements.

31. Conductivity meter (table model)

Qty: 46 Nos.

Measuring range : 0.01mS/cm to 199.9mS/cm. (Depending on the cell used 0.1 / 1.0 / 10.0 K)
Resolution : - 0.01 (displayed)
Accuracy : - 0.5%
Temperature range : 0 to 99 .90 C;
Automatic; Display : 20 x 2 line backlighted LCD display
Keyboard : Alphanumeric splash waterproof polyester soft keys
<u>Report format :</u>
(a) Report of selected conductivity readings
(b) Calibration report
Power requirement : 230 Vac ±10%, 50Hz.

32. Binoculars

Qty: 14 Nos.

Range: 50 x 50
Field 7.8 Deg

33. Refrigerated centrifuge

Qty: 04 Nos.

Max. Speed (RPM): 18000
Max. RCF : 28600 X g
Max. Tube Size :200 ml
Max. Capacity 800: ml
Lowest Temp. -10 oC
Width : 875 mm
Depth : 620 mm
Height : 660 mm
Interchangeable Rotor Head : Capacity: 4 x 200 ml, 5200 RPM

34. Deep freezer

Qty: 02 Nos.

Outer casing should be galvanized steel with baked on paint finish for durability.
Inner liner is Stainless Steel/Pre coated GI
High density, environment friendly, polyurethane foam for better insulation.
R-134 a refrigerant, chlorine free, environment friendly.
Carrier/Kirloskar/Tecumseh compressor.
Built in voltage stabilizer with time delay relay
Energy saver compressor-low energy consumption.
Longer thaw out time to take care of prolonged periods of failure.
60mm thick insulation
Temperature range (ambient to -22oC)
Temperature controlled through solid-state digital temperature controller cum indicator.
Volume: 270 liters

35. Gel Electrophoresis apparatus (Vertical)

Qty: 03 Nos.

Vertical Slab Gel Systems For one 9x7cm. gel with casting unit basic unit with platinum electrode assembly .
glass plates- notched & rectangular 2sets.
teflon comb: 14
1,5mm. spacers,1
1.5mm.(3+3) single gel casting unit 1 set
metal clips .plastic puches. 1pk.
clamp & screws 1set.
Digital display with timer
Accessories:
Power Mini Pack -250 V output - 50,100,150,200,or 250 V DC, Max current 500 Ma

36. Helium Discharge tube

Qty: 02 Nos.

37. Water De-ionizer with analog conductivity meter : Qty: 04 Nos.

Capacity: 100 ltr/hr
having treated water parameters conforming to IS- 1069/64
Should yield chemically pure water equal to multiple distilled water having a conductivity of less than 10 micro siemens / cm and pH of 7.5 to 9pH.
Treated water quality:
Conductivity (Micro S/cm) Silica (ppm)
TC < 10 0.2
HCI 2 av. 0.2
HSC 2 av 0.2
Vessel:ERP with vinylester lining; Controller: PLC

38. Digital pH meter (Laboratory type)

Qty: 17Nos.

Conductivity : 0 to 199 μ S/cm, 200 to 1999 μ S/cm, 2.00 to 19.99mS/cm, Accuracy: \pm 2%FS, Max resolution: 0.1 μ S/cm
TDS/Salinity 0 to 99.9ppm (mg/L), 100-999ppm (mg/L (mg/L) , 1.00 to 9.99ppt Accuracy: \pm 2%FS, Max. resolution: 0.1ppm
pH : 0.00 to 14.00pH , Max resolution:0.01pH, Accuracy: \pm 0.01pH
Temperature 23 $^{\circ}$ to 194 $^{\circ}$ F (-5 to 90 $^{\circ}$ C) , Max resolution: 0.1 $^{\circ}$ F/ $^{\circ}$ C, Accuracy: \pm 1.8 $^{\circ}$ F/1 $^{\circ}$ C
Memory 25 datasets
Waterproof IP57
Dimensions 1.4 x 7.3 x 1.6" (36 x 186 x 41mm)

39. Camera Lucida (Mirror type)

Qty: 02 Nos.

Mirror type
fits on the eye tube of all microscope.
large mirror with adjustable inclination
complete in a velvet lined case.

40. Travelling Microscope

Qty: 32 Nos.

Vertical and horizontal movement
10x eye piece

41. Phase contrast microscope

Qty: 02 Nos.

Equipped with double slider unit and condenser system which enable bright filed ,dark ground and phase contrast observation by a simple change over procedure
Convenient observation of all colorless and transparent specimens and living bacteria etc. without staining
Excellent contrast and a perfect flat image
Instantly convertible from phase to bright filed by keeping the phase slider at zero mark .
Coarse motion with universal locking device and highly sensitive fine focusing reading to 0.002 mm.
Slider phase contrast cum dark field equipment having phase annuls with abbe condenser and set of phase plates and provision for accurate centering supplied with DIN standard optics

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42. Monocular rock polarizing petrographic microscope

Qty: 04 Nos.

Designed for transmitted ray as well as incident ray microscopy in polarized light.

Coarse focusing adjustment effected by rack and pinion fine focusing adjustment form both sides with graduated right drum, each division equals 0.002 mm with ball bearing type self centered.
Triple revolving nosepiece.
Circular centering rotatable stage with degree calibration, with two lens aplanatic abbe condenser with rotatable polariser mount having 15 degree calibration
Analyzer provided in a slide which can be swung in and out of the microscope tube.
Equipped with a Bertrand lens which can be swung in and out, with a slot size 12mm x 4mm Provided in the tube at 45 degree to the polariser axis for compensators
Equipped with an incident ray illuminator provided with Iris diaphragm and built in incident ray polarizer
Low voltage bulb and variable transformer in put 220 V Ac and out put to 7 volts / 5 amps
Adjustable by a rotary control switch on and off switch and pilot light in painted metal case.
Two achromatic objectives 10x and 40 x or 45x
Two huyghenian eyepieces 10 x (Cross hair) and 15x

43. Trinocular polarizing petrographic microscope

Qty: 03 Nos.

For visualizing objects in polariser light used for petrographic, crystallographic geological and mineralogical studies
Low positioned controls focusing adjustment effected by rack & pinion fine focusing adjustment for both sides with graduated right drum each division equals 2/1000mm. with ball bearing type self centered quadruple revolving nose piece.
Circular centering rotatable stage with degree calibration having attachable mechanical stage with two lens aplanatic. Abb condenser with rotatable polariser mount having 15 Degree calibration.
Analyzer provided in a slide which can be swung in and out of the microscope tube.
The polaroids is also equipped with a Bertrand lens , which can be swung in and out, with a slot size 12mm x 4mm provided in the tube at 45 degree to the polariser axis for compensators.
The microscope should have built – in halogen lamp illuminator in the base , centerable lens and low voltage variable transformer. Input 220V , AC and out put 3 to 7 volts / 5 amps. Adjustable by a rotary switch, on and off switch and pilot light.

44. Vortex mixer

Qty: 03 Nos.

The speed should be regulated by a speed control device.
Motor should impart Short eccentric stroke for vigorous agitation to the tubes or flasks.
The equipment should be workable on 220 V AC 50 HZ single phase

45. pH Meter

Qty: 66 Nos.

Manual Temperature Compensation and combination pH electrode
Digital display
for pH and Redox Potential Measurement (Table Model)

46. Benchtop pH/conductivity/TDS meter**Qty: 03 Nos.**

TDS: 0.00 to 9.99, 10.0 to 99.9, 100 to 999 ppm; 1.00 to 9.99, 10.0 to 99.9, 100 to 200 ppt
pH : 0 to 14.00 pH \pm 2
Temperature: 32 to 212°F (0 to 100°C)
Conductivity: 0.0 to 19.99, 0 to 199.9, 0 to 1999 μ S; 0 to 19.99, 0 to 199.9 mS
Display: Dual LCD shows measurement plus temperature

47. Gel electrophoresis apparatus (Horizontal)**Qty: 09 Nos.**

Power Supply: With timer and Digital Display, Input AC Volt 220V \pm 10, Output DC Volt 0-500 V,
Maximum output 0-500mA, Out put: Two in parallel 4 MM socket
Horizontal Electrophoresis system: Basic unit (1No), Lid (1No), Platinum electrode (2Nos)
Gel running tray 300x250mm, 33 well acrylic comb 2mm (3Nos), with pipette, connecting cord
Dimensions(cm) 40X33X12, Gel Size (cm) 30x25, No of samples 99 with water circulation
With compactable Transilluminator

LIST OF COLLEGES

Sl. No.	Name of the College
ARUNACHAL PRADESH	
1	Jawaharlal Nehru College, Pasighat, Arunachal Pradesh
2	Dera Natung Govt. College, Itanagar- 791113, Arunachal Pradesh
ASSAM	
3	Gurucharan College, Silchar- 788004, Assam
4	Cachar College, Silchar- 788001, Cachar, Assam
5	Karimganj College, Karimganj- 788710, Assam
6	Srikishan Sarda College, Hailakandi- 788151, Assam
7	Diphu Govt. College, Diphu, Assam
8	Dibrugarh H S Kanoi College, Dibrugarh- 786001, Assam
9	Duliajan College, Duliajan – 786602, Dibrugarh, Assam
10	Jagannath Barooah College, Barpatra Ali, Jorhat- 785 001, Assam
11	Dergaon Kamal Dowerah College, Dergaon- 785614, Golaghat, Assam
12	Lakhimpur Girls' College, Lakhimpur- 787031, Assam
13	North Lakhimpur College, Khelmati- 787031, North Lakhimpur, Assam
14	Dhemaji College, Dhemaji- 787057, Assam
15	Dibru College, Dibrugarh- 786003, Assam
16	Tinsukia College, Tinsukia- 786125, Assam
17	Sibsagar College, Joysagar- 785665, Assam
18	Debraj Roy College, Golaghat- 785621, Assam
19	Moran College, Moranhat- 785670, Assam
20	Science College Jorhat, Chenijan, Jorhat- 785010, Assam
21	Arya Vidyapeeth College, Guwahati- 781016, Assam
22	Goalpara College, Goalpara- 783101, Assam
23	Nowgong College, Nagaon- 782001, Assam
24	Dimoria College, Khetri- 782403, Kamrup, Assam
25	Morigaon College, Morigaon- 782105, Assam
26	Rangia College, Rangia- 781 354, Kamrup, Assam
27	Kokrajhar Govt. College, Kokrajhar- 783370, BTC, Assam
28	Pandu College, Pandu, Guwahati- 781012, Assam
29	Madhab Choudhury College, Barpeta- 781301, Assam
30	Darrang College, Tezpur- 784001, Assam
31	Dakshin Kamrup College, Mirza, Kamrup- 781125, Assam
32	Nalbari College, Nalbari- 781335, Assam
33	Bajali College, Pathsala, Barpeta-781325, Assam
34	Handique Girls' College, Guwahati-781001, Assam
35	Lokanayak Omeo Kumar Das College, Dhekiajuli, Sonitpur – 784110, Assam
36	Kaliabor College, Kuwaritol, Nagaon- 782137, Assam

MANIPUR	
37	D M College of Science, Imphal, Manipur
38	Modern College, Porompat, Imphal East- 79 005
39	GP Women's College, Imphal, Manipur
40	Manipur College, Imphal, Manipur
MEGHALAYA	
41	St. Edmund's College, Shillong- 793003, Meghalaya
42	Synod College, Tegfan Building Jaiaw-Lumdiengjri, Shillong- 793 002, Meghalaya
43	Union Christian College, Umiam Khwan, Shillong- 793122, Meghalaya
44	Saint Mary's College, Shillong- 793003, Meghalaya
45	Shillong College, Laitumkhrah, Shillong- 793003, Meghalaya
46	St Anthony's College, Shillong- 793001, Meghalaya
MIZORAM	
47	Pachhunga University College, Aizawl, Mizoram
48	Government Kolasib College, Kolasib- 796081, Mizoram
49	Govt. Champhai College, Champhai- 796321, Mizoram
50	Lunglei Govt. College, Lunglei- 796701, Mizoram
NAGALAND	
51	Patkai Christian College, Chumukedima-Seithekema, B.P.O. Patkai- 797103, Dimapur, Nagaland
52	Kohima Science College, Jotsoma, Nagaland
53	Fazl Ali College, Mokokchung, Nagaland
SIKKIM	
54	Sikkim Government College, Tadong, Gangtok
TRIPURA	
55	Maharaja Bir Bikram College, College Tilla, P.O. Agartala College - 799004, Agartala, Tripura
56	Women's College, Agartala, Tripura (West)
57	Belonia College, Belonia, Tripura
58	Ramkrishna Mahavidyalaya Kailashahar, North Tripura

N B: The supply of 1 Set. as per Purchase Order is to be made in each of 58 Colleges as per list above.

ANNEXURE I

PART A			
Item No.	Name of the Equipment		
		Warranty	Total Quantity
1	Digital Storage Oscilloscope (60 MHz)	Five Years	3
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)	Five Years	5
3	Dumpy level	Five Years	11
4	Diode and Zener diode characteristic Panel	Standard	18
5	Energy Band gap experimental panel	Standard	4
6	GM counter	Five Years	8
7	LCR series and parallel resonance	Standard	5
8	Lloyd's mirror setup	Standard	3
9	Melting point apparatus	Five Years	26
10	Michelson interferometer	Five Years	3
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	Five Years	48
12	OPAMP	Standard	11
13	Optical bench complete set	Standard	13
14	Newton's ring apparatus	Five Years	21
15	Planck's Constant Apparatus	Five Years	21
16	Platinum resistance thermometer	Standard	16
17	Post office box	Standard	6
18	Digital potentiometer	Five Years	7
19	Spectrometer-Goniometer	Five Years	3
20	Refrigerator	Standard	18
21	Spectrometer setup	Standard	36
22	Spectrophotometer (UV-Vis)	Five Years	8
23	Spectrophotometer (UV-Vis)	Five Years	34
24	Spirometer	Five Years	2
25	Transistor characteristics	Standard	10
26	Theodolite (Precision Vernier Transit)	Five Years	8
27	Telescope (Reflecting)	Five Years	7
28	Water and Soil Analysis Kit	Standard	16
29	Audio Oscillator	Five Years	6
30	Anderson bridge	Standard	27
31	DC power supply	Five Years	6
32	Ballistic galvanometer	Five Years	9
33	Determination of Cauchy's constant	Standard	3
34	Diffraction grating	Standard	4
35	Function/ Signal generator (20 MHz)	Five Years	8
36	Function generator (10 MHz)	Five Years	16
37	GPS	Five Years	22
38	LCR meter (Handheld)	Five Years	7
39	Astronomical telescope	Five Years	5
40	Flame photometer	Five Years	6
41	Colorimeter	Five Years	19
42	PHOENIX Hardware	Standard	58
43	Digital turbidity meter	Five Years	2
44	Weighing balance (Digital- High precision)	Five Years	64
45	LCD Projector	Five Years	58
46	Laptop	Five Years	58

PART B			
Item No.	Name of the Equipment	Warranty	Total Quantity
1	Bacteriological Incubator	Five Years	7
2	BOD incubator	Five Years	22
3	Centrifuge (General Purpose)	Five Years	16
4	Centifuge (High Speed)	Five Years	18
5	Dissolved oxygen meter (Portable model)	Five Years	2
6	Hot air oven	Five Years	35
7	Laminar air flow	Five Years	16
8	Lux meter	Five Years	5
9	Hot Plate with magnetic stirrer	Five Years	34
10	Muffle furnace	Five Years	4
11	Trinocular microscope with projection camera and Monitor	Five Years	12
12	Trinocular microscope with camera and imaging software	Five Years	17
13	Projection microscope	Five Years	9
14	Trinocular Stereozoom Microscope	Five Years	11
15	Monocular microscope	Standard	206
16	Inverted tissue culture research microscope	Five Years	2
17	Binocular microscope (Biological Type)	Standard	30
18	Rotary Microtome Precision	Five Years	21
19	Erma Japan type rotary microtome	Five Years	2
20	Paraffin bath	Standard	5
21	Polarimeter (Laboratory type)	Five Years	51
22	Mechanical shaker (Rotary Flask Shaker)	Five Years	12
23	Rotary evaporator	Five Years	4
24	Soxlet extraction unit	Five Years	5
25	Autoclave (Vetrical)	Five Years	9
26	Water bath shaker	Five Years	5
27	Water bath (double walled) with PID controller	Five Years	14
28	Water distillation unit –Glass (Double stage)	Five Years	24
29	Water distillation unit- metal (table model)	Five Years	11
30	Distillation unit (Kjedehl)	Five Years	4
31	Conductivity meter (table model)	Five Years	46
32	Binocular	Standard	14
33	Refrigerated centrifuge	Five Years	4
34	Deep freezer	Five Years	2
35	Gel electrophoresis apparatus (Vertical)	Five Years	3
36	Helium discharge tube	Standard	2
37	Water De-ionizer with analog conductivity meter	Five Years	4
38	Digital pH meter (Laboratory type)	Five Years	17
39	Camera lucida (Mirror type)	Standard	2
40	Travelling microscope	Standard	32
41	Phase contrast microscope	Five Years	2
42	Monocular Rock Polarizing Petrographic Microscope	Five Years	4
43	Trinocular Petrographic Polarizing Microscope	Five Years	3
44	Vortex mixer	Five Years	3
45	pH meter	Standard	66
46	Benchttop pH/conductivity/TDS meter	Five Years	3
47	Gel electrophoresis apparatus (Horizontal)	Five Years	9

ANNEXURE II

PART A			1	2	3	4	5
Item No.	Name of the Equipment						
		Total Quantity	Sikkim Govt College, Tadong, Gangtok	Maharaja Bir Bikram College, Agartala, Tripura	Women's College, Agartala, Tripura (West)	Belonia College, Belonia, Tripura	Ramkrishna Mahavidyalaya Kailashahar, North Tripura
1	Digital Storage Oscilloscope (60 MHz)	3		1			
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)	5					
3	Dumpy level	11			2		
4	Diode and Zener diode characteristic Panel	18					
5	Energy Band gap experimental panel	4					
6	GM counter	8					
7	LCR series and parallel resonance	5		2			
8	Lloyd's mirror setup	3					
9	Melting point apparatus	26					2
10	Michelson interferometer	3					
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	48				2	1
12	OPAMP	11	2				
13	Optical bench complete set	13	4			1	1
14	Newton's ring apparatus	21					
15	Planck's Constant Apparatus	21					
16	Platinum resistance thermometer	16					1
17	Post office box	6					
18	Digital potentiometer	7					
19	Spectrometer-Goniometer	3					
20	Refrigerator	18	1				
21	Spectrometer setup	36		1		1	3
22	Spectrophotometer (UV-Vis)	8					
23	Spectrophotometer (UV-Vis)	34	1	1	1	1	
24	Spirometer	2			1	1	
25	Transistor characteristics	10					
26	Theodolite (Precision Vernier Transit)	8			2		
27	Telescope (Reflecting)	7					
28	Water and Soil Analysis Kit	16					
29	Audio Oscillator	6					
30	Anderson bridge	27	1				
31	DC power supply	6	2				
32	Ballistic galvanometer	9	4				
33	Determination of Cauchy's constant	3					
34	Diffraction grating	4	1				
35	Function/ Signal generator (20 MHz)	8	1				
36	Function generator (10 MHz)	16	1	1		1	1
37	GPS	22					
38	LCR meter (Handheld)	7					1
39	Astronomical telescope	5					
40	Flame photometer	6					
41	Colorimeter	19			1		
42	PHOENIX Hardware	58	1	1	1	1	1
43	Digital turbidity meter	2					
44	Weighing balance (Digital- High precision)	64	2	1	2	1	1
45	LCD Projector	58	1	1	1	1	1
46	Laptop	58	1	1	1	1	1

PART A		6	7	8	9	10	11
Item No.	Name of the Equipment						
		D M College of Science, Imphal, Manipur	Modern College, Porompat, Imphal East	GP Women's College, Imphal, Manipur	Manipur College, Imphal, Manipur	Gurucharan College, Silchar, Assam	Cachar College, Silchar, Assam
1	Digital Storage Oscilloscope (60 MHz)						
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)					1	
3	Dumpy level						
4	Diode and Zener diode characteristic Panel	4					3
5	Energy Band gap experimental panel						
6	GM counter		1				
7	LCR series and parallel resonance						
8	Lloyd's mirror setup						
9	Melting point apparatus		2		1		1
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	2	2	6			
12	OPAMP						
13	Optical bench complete set		2				1
14	Newton's ring apparatus						1
15	Planck's Constant Apparatus	1			1		
16	Platinum resistance thermometer						1
17	Post office box						5
18	Digital potentiometer						1
19	Spectrometer-Goniometer				3		
20	Refrigerator						
21	Spectrometer setup					2	1
22	Spectrophotometer (UV-Vis)	1					
23	Spectrophotometer (UV-Vis)	1			1	1	1
24	Spirometer						
25	Transistor characteristics						
26	Theodolite (Precision Vernier Transit)						
27	Telescope (Reflecting)						
28	Water and Soil Analysis Kit						1
29	Audio Oscillator						
30	Anderson bridge						
31	DC power supply			4			
32	Ballistic galvanometer						1
33	Determination of Cauchy's constant						
34	Diffraction grating						
35	Function/ Signal generator (20 MHz)						
36	Function generator (10 MHz)			2			
37	GPS	1		1			
38	LCR meter (Handheld)						
39	Astronomical telescope						
40	Flame photometer						
41	Colorimeter			2			1
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter						
44	Weighing balance (Digital- High precision)		1	2	1	1	1
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		12	13	14	15	16	17
Item No.	Name of the Equipment						
		Karimganj College, Karimganj, Assam	Srikishan Sarda College, Hailakandi, Assam	Diphu Govt. College, Diphu, Assam	Dibrugarh H S Kanoi College, Dibrugarh, Assam	Duliajan College, Duliajan, Assam	Jagannath Barooah College, Jorhat, Assam
1	Digital Storage Oscilloscope (60 MHz)						
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)						
3	Dumpy level				1		
4	Diode and Zener diode characteristic Panel			4			
5	Energy Band gap experimental panel						
6	GM counter	1					
7	LCR series and parallel resonance						
8	Lloyd's mirror setup						
9	Melting point apparatus			2	1		
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)		2				
12	OPAMP	2			4		
13	Optical bench complete set						
14	Newton's ring apparatus	1	1	3	2	1	
15	Planck's Constant Apparatus				2		
16	Platinum resistance thermometer						
17	Post office box						
18	Digital potentiometer			2			
19	Spectrometer-Goniometer						
20	Refrigerator						1
21	Spectrometer setup	2	2			2	
22	Spectrophotometer (UV-Vis)						1
23	Spectrophotometer (UV-Vis)	1	1		1		
24	Spirometer						
25	Transistor characteristics	2					
26	Theodolite (Precision Vernier Transit)						
27	Telescope (Reflecting)						
28	Water and Soil Analysis Kit				1		
29	Audio Oscillator						
30	Anderson bridge				4	1	
31	DC power supply						
32	Ballistic galvanometer						
33	Determination of Cauchy's constant					2	
34	Diffraction grating						
35	Function/ Signal generator (20 MHz)						
36	Function generator (10 MHz)		1		1		
37	GPS		1				
38	LCR meter (Handheld)						
39	Astronomical telescope		1				
40	Flame photometer						
41	Colorimeter						
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter			1		1	
44	Weighing balance (Digital- High precision)	1	1		1	1	
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		18	19	20	21	22	23
Item No.	Name of the Equipment						
		Dergaon Kamal Dowerah College, Dergaon, Assam	Lakhimpur Girls' College, Lakhimpur, Assam	North Lakhimpur College, North Lakhimpur, Assam	Dhemaji College, Dhemaji, Assam	Dibru College, Dibrugarh, Assam	Tinsukia College, Tinsukia, Assam
1	Digital Storage Oscilloscope (60 MHz)						
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)						
3	Dumpy level	3					
4	Diode and Zener diode characteristic Panel						
5	Energy Band gap experimental panel						
6	GM counter						
7	LCR series and parallel resonance					2	
8	Lloyd's mirror setup	1				2	
9	Melting point apparatus				1	1	
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	1	1		1	1	
12	OPAMP					3	
13	Optical bench complete set		1				
14	Newton's ring apparatus		1	1	1		
15	Planck's Constant Apparatus	1	1	1			
16	Platinum resistance thermometer				1	5	
17	Post office box						
18	Digital potentiometer						
19	Spectrometer-Goniometer						
20	Refrigerator		1	1	1		1
21	Spectrometer setup		1	1	1	2	
22	Spectrophotometer (UV-Vis)						1
23	Spectrophotometer (UV-Vis)	1	1				
24	Spirometer						
25	Transistor characteristics		1				
26	Theodolite (Precision Vernier Transit)	2					1
27	Telescope (Reflecting)	2					
28	Water and Soil Analysis Kit		1	1			
29	Audio Oscillator						
30	Anderson bridge		1	2	1	3	
31	DC power supply						
32	Ballistic galvanometer				1		
33	Determination of Cauchy's constant						
34	Diffraction grating						
35	Function/ Signal generator (20 MHz)						
36	Function generator (10 MHz)	1	1				
37	GPS		1	1			
38	LCR meter (Handheld)		1	1			
39	Astronomical telescope						1
40	Flame photometer				1		
41	Colorimeter	1					
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter						
44	Weighing balance (Digital- High precision)	1	1		1	2	2
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		24	25	26	27	28	29
Item No.	Name of the Equipment						
		Sibsagar College, Joysagar, Assam	Debraj Roy College, Golaghat, Assam	Moran College, Moranhat, Assam	Science College Jorhat, Assam	Arya Vidyapeeth College, Guwahati, Assam	Goalpara College, Goalpara, Assam
1	Digital Storage Oscilloscope (60 MHz)						
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)						2
3	Dumpy level						
4	Diode and Zener diode characteristic Panel						
5	Energy Band gap experimental panel						
6	GM counter						
7	LCR series and parallel resonance	1					
8	Lloyd's mirror setup						
9	Melting point apparatus		1				1
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)		1	1	1		
12	OPAMP						
13	Optical bench complete set		1	1	1		
14	Newton's ring apparatus				3		
15	Planck's Constant Apparatus	2		1	2		
16	Platinum resistance thermometer	1					
17	Post office box						
18	Digital potentiometer						
19	Spectrometer-Goniometer						
20	Refrigerator			1			
21	Spectrometer setup		1	1	1	2	
22	Spectrophotometer (UV-Vis)						
23	Spectrophotometer (UV-Vis)	1	2	1	1		
24	Spirometer						
25	Transistor characteristics			1			
26	Theodolite (Precision Vernier Transit)						
27	Telescope (Reflecting)						2
28	Water and Soil Analysis Kit		1	2		1	
29	Audio Oscillator		1		2		
30	Anderson bridge	1	1		2		2
31	DC power supply						
32	Ballistic galvanometer				3		
33	Determination of Cauchy's constant			1			
34	Diffraction grating			2			
35	Function/ Signal generator (20 MHz)						
36	Function generator (10 MHz)			1			
37	GPS	1		1		2	
38	LCR meter (Handheld)				2		
39	Astronomical telescope						
40	Flame photometer			1			
41	Colorimeter						
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter						
44	Weighing balance (Digital- High precision)	2		1	3	2	
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		30	31	32	33	34	35
Item No.	Name of the Equipment						
		Nowgong College, Nagaon, Assam	Dimoria College, Khetri, Assam	Morigaon College, Morigaon, Assam	Rangia College, Rangia, Assam	Kokrajhar Govt. College, Kokrajhar, Assam	Pandu College, Guwahati, Assam
1	Digital Storage Oscilloscope (60 MHz)				1		
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)			1			
3	Dumpy level		1				
4	Diode and Zener diode characteristic Panel					2	
5	Energy Band gap experimental panel						
6	GM counter						
7	LCR series and parallel resonance						
8	Lloyd's mirror setup						
9	Melting point apparatus	1				1	2
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	1	1			2	
12	OPAMP						
13	Optical bench complete set						
14	Newton's ring apparatus		2			1	
15	Planck's Constant Apparatus	1					2
16	Platinum resistance thermometer	3				1	1
17	Post office box						
18	Digital potentiometer						
19	Spectrometer-Goniometer						
20	Refrigerator	1	1		1		
21	Spectrometer setup				2	1	
22	Spectrophotometer (UV-Vis)			1			
23	Spectrophotometer (UV-Vis)	1			1	1	
24	Spirometer						
25	Transistor characteristics					2	
26	Theodolite (Precision Vernier Transit)	1					
27	Telescope (Reflecting)						
28	Water and Soil Analysis Kit					1	1
29	Audio Oscillator						
30	Anderson bridge		2			1	
31	DC power supply						
32	Ballistic galvanometer						
33	Determination of Cauchy's constant						
34	Diffraction grating						
35	Function/ Signal generator (20 MHz)	1					
36	Function generator (10 MHz)		1				
37	GPS	2	1		1		
38	LCR meter (Handheld)						
39	Astronomical telescope			1			
40	Flame photometer						
41	Colorimeter				1	1	1
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter						
44	Weighing balance (Digital- High precision)	1	1		1	1	2
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		36	37	38	39	40	41
Item No.	Name of the Equipment						
		Madhab Choudhury College, Barpeta, Assam	Darrang College, Tezpur, Assam	Dakshin Kamrup College, Mirza, Assam	Nalbari College, Nalbari, Assam	Bajali College, Barpeta, Assam	Handique Girls' College, Guwahati, Assam
1	Digital Storage Oscilloscope (60 MHz)				1		
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)	1					
3	Dumpy level				1		
4	Diode and Zener diode characteristic Panel					2	
5	Energy Band gap experimental panel						
6	GM counter						
7	LCR series and parallel resonance						
8	Lloyd's mirror setup						
9	Melting point apparatus			1	1	2	2
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	1		1		1	2
12	OPAMP						
13	Optical bench complete set						
14	Newton's ring apparatus				2		
15	Planck's Constant Apparatus	1				1	
16	Platinum resistance thermometer				2		
17	Post office box						
18	Digital potentiometer						
19	Spectrometer-Goniometer						
20	Refrigerator						
21	Spectrometer setup	2	1	2		2	
22	Spectrophotometer (UV-Vis)						
23	Spectrophotometer (UV-Vis)	1	1			1	
24	Spirometer						
25	Transistor characteristics			2			
26	Theodolite (Precision Vernier Transit)						
27	Telescope (Reflecting)	1					
28	Water and Soil Analysis Kit	1		1		1	
29	Audio Oscillator						
30	Anderson bridge		1	1			
31	DC power supply						
32	Ballistic galvanometer						
33	Determination of Cauchy's constant						
34	Diffraction grating						
35	Function/ Signal generator (20 MHz)				1		1
36	Function generator (10 MHz)	1		1			
37	GPS						
38	LCR meter (Handheld)		1				
39	Astronomical telescope		1				1
40	Flame photometer	1	1				
41	Colorimeter		1			1	4
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter						
44	Weighing balance (Digital- High precision)	1	2	1	1	2	1
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		42	43	44	45	46
Item No.	Name of the Equipment					
		Lokanayak Omeo Kumar Das College, Sonitpur, Assam	Kaliabor College, Nagaon, Assam	Jawaharlal Nehru College, Pasighat, Arunachal Pradesh	Dera Natung Govt. College, Itanagar, Arunachal Pradesh	Pachhunga University College, Aizawl, Mizoram
1	Digital Storage Oscilloscope (60 MHz)					
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)					
3	Dumpy level					
4	Diode and Zener diode characteristic Panel			2		
5	Energy Band gap experimental panel					
6	GM counter					
7	LCR series and parallel resonance					
8	Lloyd's mirror setup					
9	Melting point apparatus					2
10	Michelson interferometer					
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)		5			1
12	OPAMP					
13	Optical bench complete set					
14	Newton's ring apparatus					
15	Planck's Constant Apparatus					
16	Platinum resistance thermometer					
17	Post office box			1		
18	Digital potentiometer					1
19	Spectrometer-Goniometer					
20	Refrigerator	2			1	
21	Spectrometer setup	1		1		
22	Spectrophotometer (UV-Vis)				1	
23	Spectrophotometer (UV-Vis)	1	1	1		1
24	Spirometer					
25	Transistor characteristics			2		
26	Theodolite (Precision Vernier Transit)	1				
27	Telescope (Reflecting)	1	1			
28	Water and Soil Analysis Kit			1		
29	Audio Oscillator			2		
30	Anderson bridge	2		1		
31	DC power supply					
32	Ballistic galvanometer					
33	Determination of Cauchy's constant					
34	Diffraction grating					
35	Function/ Signal generator (20 MHz)		1			
36	Function generator (10 MHz)		1			
37	GPS			1		3
38	LCR meter (Handheld)					
39	Astronomical telescope					
40	Flame photometer			1		
41	Colorimeter			1		
42	PHOENIX Hardware	1	1	1	1	1
43	Digital turbidity meter					
44	Weighing balance (Digital- High precision)	1	1	1		
45	LCD Projector	1	1	1	1	1
46	Laptop	1	1	1	1	1

PART A		47	48	49	50	51
Item No.	Name of the Equipment					
		Government Kolasib College, Kolasib, Mizoram	Govt. Champhai College, Champhai, Mizoram	Lunglei Govt. College, Lunglei, Mizoram	St. Edmund's College, Shillong, Meghalaya	Synod College, Shillong, Meghalaya
1	Digital Storage Oscilloscope (60 MHz)					
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)					
3	Dumpy level			1		
4	Diode and Zener diode characteristic Panel			1		
5	Energy Band gap experimental panel		1	1		
6	GM counter		1	1		1
7	LCR series and parallel resonance					
8	Lloyd's mirror setup					
9	Melting point apparatus					
10	Michelson interferometer		1	1		1
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)		2		2	1
12	OPAMP					
13	Optical bench complete set					
14	Newton's ring apparatus			1		
15	Planck's Constant Apparatus		1	1		1
16	Platinum resistance thermometer					
17	Post office box					
18	Digital potentiometer					
19	Spectrometer-Goniometer					
20	Refrigerator	2	1			
21	Spectrometer setup					
22	Spectrophotometer (UV-Vis)				1	1
23	Spectrophotometer (UV-Vis)		1	1		
24	Spirometer					
25	Transistor characteristics					
26	Theodolite (Precision Vernier Transit)					
27	Telescope (Reflecting)					
28	Water and Soil Analysis Kit	1		1		
29	Audio Oscillator					1
30	Anderson bridge					
31	DC power supply					
32	Ballistic galvanometer					
33	Determination of Cauchy's constant					
34	Diffraction grating					
35	Function/ Signal generator (20 MHz)				1	
36	Function generator (10 MHz)					
37	GPS		1		2	
38	LCR meter (Handheld)					
39	Astronomical telescope					
40	Flame photometer	1				
41	Colorimeter	1				
42	PHOENIX Hardware	1	1	1	1	1
43	Digital turbidity meter					
44	Weighing balance (Digital- High precision)	3	1	1		1
45	LCD Projector	1	1	1	1	1
46	Laptop	1	1	1	1	1

PART A		52	53	54	55	56
Item No.	Name of the Equipment					
		Union Christian College, Shillong, Meghalaya	Saint Mary's College, Shillong, Meghalaya	Shillong College, Shillong, Meghalaya	St Anthony's College, Shillong, Meghalaya	Patkai Christian College, Dimapur, Nagaland
1	Digital Storage Oscilloscope (60 MHz)					
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)					
3	Dumpy level		1			
4	Diode and Zener diode characteristic Panel					
5	Energy Band gap experimental panel			2		
6	GM counter		1		1	
7	LCR series and parallel resonance					
8	Lloyd's mirror setup					
9	Melting point apparatus				1	
10	Michelson interferometer					
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	2		2		
12	OPAMP					
13	Optical bench complete set					
14	Newton's ring apparatus					
15	Planck's Constant Apparatus			1		
16	Platinum resistance thermometer					
17	Post office box					
18	Digital potentiometer					
19	Spectrometer-Goniometer					
20	Refrigerator	1	1			
21	Spectrometer setup					
22	Spectrophotometer (UV-Vis)				1	
23	Spectrophotometer (UV-Vis)		1	2		1
24	Spirometer					
25	Transistor characteristics					
26	Theodolite (Precision Vernier Transit)					
27	Telescope (Reflecting)					
28	Water and Soil Analysis Kit					
29	Audio Oscillator					
30	Anderson bridge					
31	DC power supply					
32	Ballistic galvanometer					
33	Determination of Cauchy's constant					
34	Diffraction grating					
35	Function/ Signal generator (20 MHz)					
36	Function generator (10 MHz)					
37	GPS		1			
38	LCR meter (Handheld)					
39	Astronomical telescope					
40	Flame photometer					
41	Colorimeter		1			1
42	PHOENIX Hardware	1	1	1	1	1
43	Digital turbidity meter					
44	Weighing balance (Digital- High precision)	2	1	2		1
45	LCD Projector	1	1	1	1	1
46	Laptop	1	1	1	1	1

PART A		57	58
Item No.	Name of the Equipment		
		Kohima Science College, Jotsoma, Nagaland	Fazl Ali College, Mokokchung, Nagaland
1	Digital Storage Oscilloscope (60 MHz)		
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)		
3	Dumpy level		1
4	Diode and Zener diode characteristic Panel		
5	Energy Band gap experimental panel		
6	GM counter	1	
7	LCR series and parallel resonance		
8	Lloyd's mirror setup		
9	Melting point apparatus		
10	Michelson interferometer		
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	2	
12	OPAMP		
13	Optical bench complete set		
14	Newton's ring apparatus		
15	Planck's Constant Apparatus		
16	Platinum resistance thermometer		
17	Post office box		
18	Digital potentiometer	1	2
19	Spectrometer-Goniometer		
20	Refrigerator		
21	Spectrometer setup		
22	Spectrophotometer (UV-Vis)		
23	Spectrophotometer (UV-Vis)		
24	Spirometer		
25	Transistor characteristics		
26	Theodolite (Precision Vernier Transit)		1
27	Telescope (Reflecting)		
28	Water and Soil Analysis Kit		
29	Audio Oscillator		
30	Anderson bridge		
31	DC power supply		
32	Ballistic galvanometer		
33	Determination of Cauchy's constant		
34	Diffraction grating		1
35	Function/ Signal generator (20 MHz)	2	
36	Function generator (10 MHz)		1
37	GPS		1
38	LCR meter (Handheld)		1
39	Astronomical telescope		
40	Flame photometer		
41	Colorimeter		1
42	PHOENIX Hardware	1	1
43	Digital turbidity meter		
44	Weighing balance (Digital- High precision)	2	1
45	LCD Projector	1	1
46	Laptop	1	1

ANNEXURE III

PART B		1	2	3	4	5	6	
Item No.	Name of the Equipment	Total Quantity	Sikkim Govt College, Tadong, Gangtok	Maharaja Bir Bikram College, Agartala, Tripura	Women's College, Agartala, Tripura (West)	Belonia College, Belonia, Tripura	Ramkrishna Mahavidyalaya Kailashahar, North Tripura	D M College of Science, Imphal, Manipur
1	Bacteriological Incubator	7		1				
2	BOD incubator	22			1	1		
3	Centrifuge (General Purpose)	16	1					
4	Centifuge (High Speed)	18				1		
5	Dissolved oxygen meter (Portable model)	2						
6	Hot air oven	35		1	1		1	
7	Laminar air flow	16			1			
8	Lux meter	5			1			
9	Hot Plate with magnetic stirrer	34					8	
10	Muffle furnace	4						
11	Trinocular microscope with projection camera and Monitor	12				1		
12	Trinocular microscope with camera and imaging software	17	1	1	1			
13	Projection microscope	9						
14	Trinocular Stereozoom Microscope	11		1				
15	Monocular microscope	206	15	4				6
16	Inverted tissue culture research microscope	2						
17	Binocular microscope (Biological Type)	30		1				
18	Rotary Microtome Precision	21		1		1		1
19	Erma Japan type rotary microtome	2						
20	Paraffin bath	5		1				
21	Polarimeter (Laboratory type)	51		2			2	
22	Mechanical shaker (Rotary Flask Shaker)	12						
23	Rotary evaporator	4				1	1	
24	Soxlet extraction unit	5						
25	Autoclave (Vetrical)	9						
26	Water bath shaker	5						
27	Water bath (double walled) with PID controller	14					1	
28	Water distillation unit –Glass (Double stage)	24		1				
29	Water distillation unit- metal (table model)	11		1	1			
30	Distillation unit (Kjedehl)	4					1	
31	Conductivity meter (table model)	46						
32	Binocular	14	4					
33	Refrigerated centrifuge	4					1	
34	Deep freezer	2					1	
35	Gel electrophoresis apparatus (Vertical)	3						
36	Helium discharge tube	2						
37	Water De-ionizer with analog conductivity meter	4						
38	Digital pH meter (Laboratory type)	17						
39	Camera lucida (Mirror type)	2						2
40	Travelling microscope	32						
41	Phase contrast microscope	2						
42	Monocular Rock Polarizing Petrographic Microscope	4						
43	Trinocular Petrographic Polarizing Microscope	3						
44	Vortex mixer	3						
45	pH meter	66		1	5			
46	Benchtop pH/conductivity/TDS meter	3						1
47	Gel electrophoresis apparatus (Horizontal)	9		1		1		

PART B		7	8	9	10	11	12	13
Item No.	Name of the Equipment							
		Modern College, Porompat, Imphal East	GP Women's College, Imphal, Manipur	Manipur College, Imphal, Manipur	Gurucharan College, Silchar, Assam	Cachar College, Silchar, Assam	Karimganj College, Karimganj, Assam	Srikishan Sarda College, Hailakandi, Assam
1	Bacteriological Incubator					1		
2	BOD incubator					1	1	1
3	Centrifuge (General Purpose)	1			1	1		
4	Centifuge (High Speed)			1	2		1	
5	Dissolved oxygen meter (Portable model)					1		
6	Hot air oven	1						
7	Laminar air flow	1		1		1		1
8	Lux meter							
9	Hot Plate with magnetic stirrer	2			1		1	
10	Muffle furnace							
11	Trinocular microscope with projection camera and Monitor		1					
12	Trinocular microscope with camera and imaging software	1	1	2				
13	Projection microscope	1						
14	Trinocular Stereozoom Microscope	1						
15	Monocular microscope	15	5	1	4	1		
16	Inverted tissue culture research microscope					1		
17	Binocular microscope (Biological Type)					1	1	
18	Rotary Microtome Precision			1	1			
19	Erma Japan type rotary microtome					1		
20	Paraffin bath					1		
21	Polarimeter (Laboratory type)	4					2	2
22	Mechanical shaker (Rotary Flask Shaker)							
23	Rotary evaporator							
24	Soxlet extraction unit							
25	Autoclave (Vetrical)							1
26	Water bath shaker							
27	Water bath (double walled) with PID controller							
28	Water distillation unit –Glass (Double stage)							1
29	Water distillation unit- metal (table model)				1			
30	Distillation unit (Kjedehl)							
31	Conductivity meter (table model)		6		1	1	2	
32	Binocular							
33	Refrigerated centrifuge						1	1
34	Deep freezer						1	
35	Gel electrophoresis apparatus (Vertical)							
36	Helium discharge tube			2				
37	Water De-ionizer with analog conductivity meter			1				
38	Digital pH meter (Laboratory type)							
39	Camera lucida (Mirror type)							
40	Travelling microscope				2	3		
41	Phase contrast microscope							
42	Monocular Rock Polarizing Petrographic Microscope				1			
43	Trinocular Petrographic Polarizing Microscope				2			
44	Vortex mixer							
45	pH meter	4	3			3	5	
46	Benchtop pH/conductivity/TDS meter							
47	Gel electrophoresis apparatus (Horizontal)						1	

PART B		14	15	16	17	18	19	20
Item No.	Name of the Equipment							
		Diphu Govt. College, Diphu, Assam	Dibrugarh H S Kanoi College, Dibrugarh, Assam	Duliajan College, Assam	Jagannath Barooah College, Jorhat, Assam	Dergaon Kamal Dowerah College, Dergaon, Assam	Lakhimpur Girls' College, Lakhimpur, Assam	North Lakhimpur College, North Lakhimpur, Assam
1	Bacteriological Incubator	1	1	1			1	
2	BOD incubator			1				2
3	Centrifuge (General Purpose)			1	1		1	
4	Centifuge (High Speed)					1		
5	Dissolved oxygen meter (Portable model)							
6	Hot air oven	3	1	1		1	1	1
7	Laminar air flow				1	1	1	1
8	Lux meter				1		1	
9	Hot Plate with magnetic stirrer		2			2	1	1
10	Muffle furnace			1				1
11	Trinocular microscope with projection camera and Monitor					1		
12	Trinocular microscope with camera and imaging software			1				
13	Projection microscope							
14	Trinocular Stereozoom Microscope							
15	Monocular microscope	8		3		6		
16	Inverted tissue culture research microscope							
17	Binocular microscope (Biological Type)				1		1	
18	Rotary Microtome Precision		1	1			1	
19	Erma Japan type rotary microtome				1			
20	Paraffin bath							1
21	Polarimeter (Laboratory type)	2	2	3		1		4
22	Mechanical shaker (Rotary Flask Shaker)							
23	Rotary evaporator							
24	Soxlet extraction unit		2				1	
25	Autoclave (Vetrical)				1		1	
26	Water bath shaker				1			
27	Water bath (double walled) with PID controller			1				1
28	Water distillation unit –Glass (Double stage)	2	2			1		
29	Water distillation unit- metal (table model)			1	1			2
30	Distillation unit (Kjedehl)							1
31	Conductivity meter (table model)	1	2				2	
32	Binocular			1				
33	Refrigerated centrifuge				1			
34	Deep freezer							
35	Gel electrophoresis apparatus (Vertical)							
36	Helium discharge tube							
37	Water De-ionizer with analog conductivity meter					1		
38	Digital pH meter (Laboratory type)	2			1			
39	Camera lucida (Mirror type)							
40	Travelling microscope						1	
41	Phase contrast microscope							
42	Monocular Rock Polarizing Petrographic Microscope							
43	Trinocular Petrographic Polarizing Microscope							
44	Vortex mixer				1			
45	pH meter		2					1
46	Benchtop pH/conductivity/TDS meter							
47	Gel electrophoresis apparatus (Horizontal)							

PART B		21	22	23	24	25	26	27
Item No.	Name of the Equipment							
		Dhemaji College, Dhemaji, Assam	Dibru College, Dibrugarh, Assam	Tinsukia College, Tinsukia, Assam	Sibsagar College, Joysagar, Assam	Debraj Roy College, Golaghat, Assam	Moran College, Moranhat, Assam	Science College Jorhat, Assam
1	Bacteriological Incubator							
2	BOD incubator	1		1				
3	Centrifuge (General Purpose)	1			1		1	
4	Centifuge (High Speed)				1			
5	Dissolved oxygen meter (Portable model)							
6	Hot air oven	1	1			2	1	
7	Laminar air flow	1			1			
8	Lux meter					1		
9	Hot Plate with magnetic stirrer	1	2					
10	Muffle furnace	1						
11	Trinocular microscope with projection camera and Monitor				1	1		
12	Trinocular microscope with camera and imaging software	1						
13	Projection microscope							
14	Trinocular Stereozoom Microscope							
15	Monocular microscope		5				5	
16	Inverted tissue culture research microscope		1					
17	Binocular microscope (Biological Type)	1					2	
18	Rotary Microtome Precision	1	1			1	1	
19	Erma Japan type rotary microtome							
20	Paraffin bath							
21	Polarimeter (Laboratory type)	1	2			1	1	2
22	Mechanical shaker (Rotary Flask Shaker)	1	1		2			
23	Rotary evaporator					1		
24	Soxlet extraction unit	1						
25	Autoclave (Vetrical)		1		1			
26	Water bath shaker						1	
27	Water bath (double walled) with PID controller		1					
28	Water distillation unit –Glass (Double stage)		1					
29	Water distillation unit- metal (table model)		1					
30	Distillation unit (Kjedehl)	1						
31	Conductivity meter (table model)		1		1	1	1	1
32	Binocular				1			
33	Refrigerated centrifuge							
34	Deep freezer							
35	Gel electrophoresis apparatus (Vertical)							
36	Helium discharge tube							
37	Water De-ionizer with analog conductivity meter							
38	Digital pH meter (Laboratory type)				1			1
39	Camera lucida (Mirror type)							
40	Travelling microscope							3
41	Phase contrast microscope							
42	Monocular Rock Polarizing Petrographic Microscope							
43	Trinocular Petrographic Polarizing Microscope							
44	Vortex mixer							
45	pH meter	1					1	
46	Benchtop pH/conductivity/TDS meter							
47	Gel electrophoresis apparatus (Horizontal)			1		1	1	

PART B		28	29	30	31	32	33	34
Item No.	Name of the Equipment	Name of Colleges						
		Arya Vidyapeeth College, Guwahati, Assam	Goalpara College, Assam	Nowgong College, Nagaon, Assam	Dimoria College, Khetri, Assam	Morigaon College, Morigaon, Assam	Rangia College, Rangia, Assam	Kokrajhar Govt. College, Kokrajhar, Assam
1	Bacteriological Incubator							
2	BOD incubator						1	
3	Centrifuge (General Purpose)	1					1	1
4	Centifuge (High Speed)							
5	Dissolved oxygen meter (Portable model)							
6	Hot air oven		1	1	1		1	
7	Laminar air flow							
8	Lux meter							
9	Hot Plate with magnetic stirrer			1				
10	Muffle furnace							
11	Trinocular microscope with projection camera and Monitor				1			
12	Trinocular microscope with camera and imaging software			1	1			1
13	Projection microscope	2						
14	Trinocular Stereozoom Microscope	2	1					
15	Monocular microscope		8		3			
16	Inverted tissue culture research microscope							
17	Binocular microscope (Biological Type)						1	2
18	Rotary Microtome Precision						1	
19	Erma Japan type rotary microtome							
20	Paraffin bath			1				
21	Polarimeter (Laboratory type)	1	3	1	2			2
22	Mechanical shaker (Rotary Flask Shaker)		1		2			
23	Rotary evaporator							
24	Soxlet extraction unit							
25	Autoclave (Vetrical)							
26	Water bath shaker							
27	Water bath (double walled) with PID controller		1	1			1	
28	Water distillation unit –Glass (Double stage)				1		1	1
29	Water distillation unit- metal (table model)							
30	Distillation unit (Kjedehl)							
31	Conductivity meter (table model)		2	1			2	
32	Binocular		1		1			
33	Refrigerated centrifuge							
34	Deep freezer							
35	Gel electrophoresis apparatus (Vertical)	1		1				
36	Helium discharge tube							
37	Water De-ionizer with analog conductivity meter			1				
38	Digital pH meter (Laboratory type)							1
39	Camera lucida (Mirror type)							
40	Travelling microscope				2		2	2
41	Phase contrast microscope		1			1		
42	Monocular Rock Polarizing Petrographic Microscope	3						
43	Trinocular Petrographic Polarizing Microscope	1						
44	Vortex mixer				2			
45	pH meter				3		2	1
46	Benchtop pH/conductivity/TDS meter	1						
47	Gel electrophoresis apparatus (Horizontal)							1

PART B		35	36	37	38	39	40	41
Item No.	Name of the Equipment							
		Pandu College, Guwahati, Assam	Madhab Choudhury College, Barpeta, Assam	Darrang College, Tezpur, Assam	Dakshin Kamrup College, Mirza, Assam	Nalbari College, Nalbari, Assam	Bajali College, Barpeta, Assam	Handique Girls' College, Guwahati, Assam
1	Bacteriological Incubator				1			
2	BOD incubator					1		
3	Centrifuge (General Purpose)	2						1
4	Centifuge (High Speed)	1	1		1		1	
5	Dissolved oxygen meter (Portable model)							
6	Hot air oven	1			2	1		1
7	Laminar air flow							
8	Lux meter		1					
9	Hot Plate with magnetic stirrer			2				
10	Muffle furnace	1						
11	Trinocular microscope with projection camera and Monitor				1			
12	Trinocular microscope with camera and imaging software	1	1		1			
13	Projection microscope	1				3	1	
14	Trinocular Stereozoom Microscope						2	
15	Monocular microscope					8	12	8
16	Inverted tissue culture research microscope							
17	Binocular microscope (Biological Type)					1		
18	Rotary Microtome Precision				1		1	1
19	Erma Japan type rotary microtome							
20	Paraffin bath							
21	Polarimeter (Laboratory type)	3			2	1	1	
22	Mechanical shaker (Rotary Flask Shaker)				1		1	1
23	Rotary evaporator							
24	Soxlet extraction unit		1					
25	Autoclave (Vetrical)	1				1		
26	Water bath shaker	1						
27	Water bath (double walled) with PID controller		1		1			
28	Water distillation unit –Glass (Double stage)			1		2		1
29	Water distillation unit- metal (table model)	1						
30	Distillation unit (Kjedehl)							
31	Conductivity meter (table model)	1		2	3	1	1	
32	Binocular	1		1				
33	Refrigerated centrifuge							
34	Deep freezer							
35	Gel electrophoresis apparatus (Vertical)		1					
36	Helium discharge tube							
37	Water De-ionizer with analog conductivity meter		1					
38	Digital pH meter (Laboratory type)			2				
39	Camera lucida (Mirror type)							
40	Travelling microscope			1		3	3	
41	Phase contrast microscope							
42	Monocular Rock Polarizing Petrographic Microscope							
43	Trinocular Petrographic Polarizing Microscope							
44	Vortex mixer							
45	pH meter	2	3		1	2	1	1
46	Benchtop pH/conductivity/TDS meter							1
47	Gel electrophoresis apparatus (Horizontal)							

PART B		42	43	44	45	46	47
Item No.	Name of the Equipment						
		Lokanayak Omeo Kumar Das College, Sonitpur, Assam	Kaliabor College, Nagaon, Assam	Jawaharlal Nehru College, Pasighat, Arunachal Pradesh	Dera Natung Govt. College, Itanagar, Arunachal Pradesh	Pachhunga University College, Aizawl, Mizoram	Government Kolasib College, Kolasib, Mizoram
1	Bacteriological Incubator						
2	BOD incubator	1	1			1	
3	Centrifuge (General Purpose)						
4	Centifuge (High Speed)	1		1	1		1
5	Dissolved oxygen meter (Portable model)			1			
6	Hot air oven	1		1			1
7	Laminar air flow		1		1	1	
8	Lux meter						
9	Hot Plate with magnetic stirrer			2	3		3
10	Muffle furnace						
11	Trinocular microscope with projection camera and Monitor		1		1	1	1
12	Trinocular microscope with camera and imaging software						
13	Projection microscope						
14	Trinocular Stereozoom Microscope	1					
15	Monocular microscope	2		10	5		
16	Inverted tissue culture research microscope						
17	Binocular microscope (Biological Type)			3	1	4	
18	Rotary Microtome Precision		1			1	
19	Erma Japan type rotary microtome						
20	Paraffin bath				1		
21	Polarimeter (Laboratory type)	1			1		
22	Mechanical shaker (Rotary Flask Shaker)						
23	Rotary evaporator						
24	Soxlet extraction unit						
25	Autoclave (Vetrical)						
26	Water bath shaker					1	1
27	Water bath (double walled) with PID controller	1					
28	Water distillation unit –Glass (Double stage)	1	1				1
29	Water distillation unit- metal (table model)	1			1		
30	Distillation unit (Kjedehl)						1
31	Conductivity meter (table model)		1	1		1	3
32	Binocular	3					
33	Refrigerated centrifuge						
34	Deep freezer						
35	Gel electrophoresis apparatus (Vertical)						
36	Helium discharge tube						
37	Water De-ionizer with analog conductivity meter						
38	Digital pH meter (Laboratory type)			1			1
39	Camera lucida (Mirror type)						
40	Travelling microscope	1		3			
41	Phase contrast microscope						
42	Monocular Rock Polarizing Petrographic Microscope						
43	Trinocular Petrographic Polarizing Microscope						
44	Vortex mixer						
45	pH meter	2		2	4		1
46	Benchtop pH/conductivity/TDS meter						
47	Gel electrophoresis apparatus (Horizontal)				1		

PART B		48	49	50	51	52	53
Item No.	Name of the Equipment	Govt. Champhai College, Champhai, Mizoram	Lunglei Govt. College, Lunglei, Mizoram	St. Edmund's College, Shillong, Meghalaya	Synod College, Shillong, Meghalaya	Union Christian College, Shillong, Meghalaya	Saint Mary's College, Shillong, Meghalaya
1	Bacteriological Incubator						
2	BOD incubator	1	1			2	1
3	Centrifuge (General Purpose)						
4	Centifuge (High Speed)	1			1		
5	Dissolved oxygen meter (Portable model)						
6	Hot air oven			1	1		
7	Laminar air flow						1
8	Lux meter						
9	Hot Plate with magnetic stirrer			2			
10	Muffle furnace						
11	Trinocular microscope with projection camera and Monitor						
12	Trinocular microscope with camera and imaging software		1				1
13	Projection microscope						
14	Trinocular Stereozoom Microscope		1				
15	Monocular microscope	5	5		5		7
16	Inverted tissue culture research microscope						
17	Binocular microscope (Biological Type)						2
18	Rotary Microtome Precision	1			1		
19	Erma Japan type rotary microtome						
20	Paraffin bath						
21	Polarimeter (Laboratory type)						
22	Mechanical shaker (Rotary Flask Shaker)					2	
23	Rotary evaporator						
24	Soxlet extraction unit						
25	Autoclave (Vetrical)			1			
26	Water bath shaker						
27	Water bath (double walled) with PID controller	1				2	
28	Water distillation unit –Glass (Double stage)					1	1
29	Water distillation unit- metal (table model)						
30	Distillation unit (Kjedehl)						
31	Conductivity meter (table model)	1		2	1		1
32	Binocular	1					
33	Refrigerated centrifuge						
34	Deep freezer						
35	Gel electrophoresis apparatus (Vertical)						
36	Helium discharge tube						
37	Water De-ionizer with analog conductivity meter						
38	Digital pH meter (Laboratory type)			2		2	
39	Camera lucida (Mirror type)						
40	Travelling microscope				1		2
41	Phase contrast microscope						
42	Monocular Rock Polarizing Petrographic Microscope						
43	Trinocular Petrographic Polarizing Microscope						
44	Vortex mixer						
45	pH meter	2	5		1		4
46	Benchtop pH/conductivity/TDS meter						
47	Gel electrophoresis apparatus (Horizontal)						

PART B		54	55	56	57	58
Item No.	Name of the Equipment	Shillong College, Shillong, Meghalaya	St Anthony's College, Shillong, Meghalaya	Patkai Christian College, Dimapur, Nagaland	Kohima Science College, Jotsoma, Nagaland	Fazl Ali College, Mokokchung, Nagaland
1	Bacteriological Incubator					
2	BOD incubator		1	1		
3	Centrifuge (General Purpose)					
4	Centifuge (High Speed)			1		
5	Dissolved oxygen meter (Portable model)					
6	Hot air oven			1	2	1
7	Laminar air flow				1	
8	Lux meter					
9	Hot Plate with magnetic stirrer					
10	Muffle furnace					
11	Trinocular microscope with projection camera and Monitor		1			
12	Trinocular microscope with camera and imaging software					
13	Projection microscope		1			
14	Trinocular Stereozoom Microscope	1	1			
15	Monocular microscope	20		10	20	
16	Inverted tissue culture research microscope					
17	Binocular microscope (Biological Type)			1		7
18	Rotary Microtome Precision			1		
19	Erma Japan type rotary microtome					
20	Paraffin bath					
21	Polarimeter (Laboratory type)	2				
22	Mechanical shaker (Rotary Flask Shaker)					
23	Rotary evaporator			1		
24	Soxlet extraction unit					
25	Autoclave (Vetrical)			1		
26	Water bath shaker					
27	Water bath (double walled) with PID controller				1	
28	Water distillation unit –Glass (Double stage)		1			3
29	Water distillation unit- metal (table model)					
30	Distillation unit (Kjedehl)					
31	Conductivity meter (table model)			1	1	
32	Binocular					
33	Refrigerated centrifuge					
34	Deep freezer					
35	Gel electrophoresis apparatus (Vertical)					
36	Helium discharge tube					
37	Water De-ionizer with analog conductivity meter					
38	Digital pH meter (Laboratory type)	1				2
39	Camera lucida (Mirror type)					
40	Travelling microscope	3				
41	Phase contrast microscope					
42	Monocular Rock Polarizing Petrographic Microscope					
43	Trinocular Petrographic Polarizing Microscope					
44	Vortex mixer					
45	pH meter				3	
46	Benchtop pH/conductivity/TDS meter					
47	Gel electrophoresis apparatus (Horizontal)			1		

ANNEXURE I

PART A			
Item No.	Name of the Equipment	Warranty	Total Quantity
1	Digital Storage Oscilloscope (60 MHz)	Five Years	3
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)	Five Years	5
3	Dumpy level	Five Years	11
4	Diode and Zener diode characteristic Panel	Standard	18
5	Energy Band gap experimental panel	Standard	4
6	GM counter	Five Years	8
7	LCR series and parallel resonance	Standard	5
8	Lloyd's mirror setup	Standard	3
9	Melting point apparatus	Five Years	26
10	Michelson interferometer	Five Years	3
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	Five Years	48
12	OPAMP	Standard	11
13	Optical bench complete set	Standard	13
14	Newton's ring apparatus	Five Years	21
15	Planck's Constant Apparatus	Five Years	21
16	Platinum resistance thermometer	Standard	16
17	Post office box	Standard	6
18	Digital potentiometer	Five Years	7
19	Spectrometer-Goniometer	Five Years	3
20	Refrigerator	Standard	18
21	Spectrometer setup	Standard	36
22	Spectrophotometer (UV-Vis)	Five Years	8
23	Spectrophotometer (UV-Vis)	Five Years	34
24	Spirometer	Five Years	2
25	Transistor characteristics	Standard	10
26	Theodolite (Precision Vernier Transit)	Five Years	8
27	Telescope (Reflecting)	Five Years	7
28	Water and Soil Analysis Kit	Standard	16
29	Audio Oscillator	Five Years	6
30	Anderson bridge	Standard	27
31	DC power supply	Five Years	6
32	Ballistic galvanometer	Five Years	9
33	Determination of Cauchy's constant	Standard	3
34	Diffraction grating	Standard	4
35	Function/ Signal generator (20 MHz)	Five Years	8
36	Function generator (10 MHz)	Five Years	16
37	GPS	Five Years	22
38	LCR meter (Handheld)	Five Years	7
39	Astronomical telescope	Five Years	5
40	Flame photometer	Five Years	6
41	Colorimeter	Five Years	19
42	PHOENIX Hardware	Standard	58
43	Digital turbidity meter	Five Years	2
44	Weighing balance (Digital- High precision)	Five Years	64
45	LCD Projector	Five Years	58
46	Laptop	Five Years	58

PART B			
Item No.	Name of the Equipment	Warranty	Total Quantity
1	Bacteriological Incubator	Five Years	7
2	BOD incubator	Five Years	22
3	Centrifuge (General Purpose)	Five Years	16
4	Centifuge (High Speed)	Five Years	18
5	Dissolved oxygen meter (Portable model)	Five Years	2
6	Hot air oven	Five Years	35
7	Laminar air flow	Five Years	16
8	Lux meter	Five Years	5
9	Hot Plate with magnetic stirrer	Five Years	34
10	Muffle furnace	Five Years	4
11	Trinocular microscope with projection camera and Monitor	Five Years	12
12	Trinocular microscope with camera and imaging software	Five Years	17
13	Projection microscope	Five Years	9
14	Trinocular Stereozoom Microscope	Five Years	11
15	Monocular microscope	Standard	206
16	Inverted tissue culture research microscope	Five Years	2
17	Binocular microscope (Biological Type)	Standard	30
18	Rotary Microtome Precision	Five Years	21
19	Erma Japan type rotary microtome	Five Years	2
20	Paraffin bath	Standard	5
21	Polarimeter (Laboratory type)	Five Years	51
22	Mechanical shaker (Rotary Flask Shaker)	Five Years	12
23	Rotary evaporator	Five Years	4
24	Soxlet extraction unit	Five Years	5
25	Autoclave (Vetrical)	Five Years	9
26	Water bath shaker	Five Years	5
27	Water bath (double walled) with PID controller	Five Years	14
28	Water distillation unit –Glass (Double stage)	Five Years	24
29	Water distillation unit- metal (table model)	Five Years	11
30	Distillation unit (Kjedehl)	Five Years	4
31	Conductivity meter (table model)	Five Years	46
32	Binocular	Standard	14
33	Refrigerated centrifuge	Five Years	4
34	Deep freezer	Five Years	2
35	Gel electrophoresis apparatus (Vertical)	Five Years	3
36	Helium discharge tube	Standard	2
37	Water De-ionizer with analog conductivity meter	Five Years	4
38	Digital pH meter (Laboratory type)	Five Years	17
39	Camera lucida (Mirror type)	Standard	2
40	Travelling microscope	Standard	32
41	Phase contrast microscope	Five Years	2
42	Monocular Rock Polarizing Petrographic Microscope	Five Years	4
43	Trinocular Petrographic Polarizing Microscope	Five Years	3
44	Vortex mixer	Five Years	3
45	pH meter	Standard	66
46	Benchttop pH/conductivity/TDS meter	Five Years	3
47	Gel electrophoresis apparatus (Horizontal)	Five Years	9

ANNEXURE II

PART A			1	2	3	4	5
Item No.	Name of the Equipment						
		Total Quantity	Sikkim Govt College, Tadong, Gangtok	Maharaja Bir Bikram College, Agartala, Tripura	Women's College, Agartala, Tripura (West)	Belonia College, Belonia, Tripura	Ramkrishna Mahavidyalaya Kailashahar, North Tripura
1	Digital Storage Oscilloscope (60 MHz)	3		1			
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)	5					
3	Dumpy level	11			2		
4	Diode and Zener diode characteristic Panel	18					
5	Energy Band gap experimental panel	4					
6	GM counter	8					
7	LCR series and parallel resonance	5		2			
8	Lloyd's mirror setup	3					
9	Melting point apparatus	26					2
10	Michelson interferometer	3					
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	48				2	1
12	OPAMP	11	2				
13	Optical bench complete set	13	4			1	1
14	Newton's ring apparatus	21					
15	Planck's Constant Apparatus	21					
16	Platinum resistance thermometer	16					1
17	Post office box	6					
18	Digital potentiometer	7					
19	Spectrometer-Goniometer	3					
20	Refrigerator	18	1				
21	Spectrometer setup	36		1		1	3
22	Spectrophotometer (UV-Vis)	8					
23	Spectrophotometer (UV-Vis)	34	1	1	1	1	
24	Spirometer	2			1	1	
25	Transistor characteristics	10					
26	Theodolite (Precision Vernier Transit)	8			2		
27	Telescope (Reflecting)	7					
28	Water and Soil Analysis Kit	16					
29	Audio Oscillator	6					
30	Anderson bridge	27	1				
31	DC power supply	6	2				
32	Ballistic galvanometer	9	4				
33	Determination of Cauchy's constant	3					
34	Diffraction grating	4	1				
35	Function/ Signal generator (20 MHz)	8	1				
36	Function generator (10 MHz)	16	1	1		1	1
37	GPS	22					
38	LCR meter (Handheld)	7					1
39	Astronomical telescope	5					
40	Flame photometer	6					
41	Colorimeter	19			1		
42	PHOENIX Hardware	58	1	1	1	1	1
43	Digital turbidity meter	2					
44	Weighing balance (Digital- High precision)	64	2	1	2	1	1
45	LCD Projector	58	1	1	1	1	1
46	Laptop	58	1	1	1	1	1

PART A		6	7	8	9	10	11
Item No.	Name of the Equipment						
		D M College of Science, Imphal, Manipur	Modern College, Porompat, Imphal East	GP Women's College, Imphal, Manipur	Manipur College, Imphal, Manipur	Gurucharan College, Silchar, Assam	Cachar College, Silchar, Assam
1	Digital Storage Oscilloscope (60 MHz)						
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)					1	
3	Dumpy level						
4	Diode and Zener diode characteristic Panel	4					3
5	Energy Band gap experimental panel						
6	GM counter		1				
7	LCR series and parallel resonance						
8	Lloyd's mirror setup						
9	Melting point apparatus		2		1		1
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	2	2	6			
12	OPAMP						
13	Optical bench complete set		2				1
14	Newton's ring apparatus						1
15	Planck's Constant Apparatus	1			1		
16	Platinum resistance thermometer						1
17	Post office box						5
18	Digital potentiometer						1
19	Spectrometer-Goniometer				3		
20	Refrigerator						
21	Spectrometer setup					2	1
22	Spectrophotometer (UV-Vis)	1					
23	Spectrophotometer (UV-Vis)	1			1	1	1
24	Spirometer						
25	Transistor characteristics						
26	Theodolite (Precision Vernier Transit)						
27	Telescope (Reflecting)						
28	Water and Soil Analysis Kit						1
29	Audio Oscillator						
30	Anderson bridge						
31	DC power supply			4			
32	Ballistic galvanometer						1
33	Determination of Cauchy's constant						
34	Diffraction grating						
35	Function/ Signal generator (20 MHz)						
36	Function generator (10 MHz)			2			
37	GPS	1		1			
38	LCR meter (Handheld)						
39	Astronomical telescope						
40	Flame photometer						
41	Colorimeter			2			1
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter						
44	Weighing balance (Digital- High precision)		1	2	1	1	1
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		12	13	14	15	16	17
Item No.	Name of the Equipment						
		Karimganj College, Karimganj, Assam	Srikishan Sarda College, Hailakandi, Assam	Diphu Govt. College, Diphu, Assam	Dibrugarh H S Kanoi College, Dibrugarh, Assam	Duliajan College, Duliajan, Assam	Jagannath Barooah College, Jorhat, Assam
1	Digital Storage Oscilloscope (60 MHz)						
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)						
3	Dumpy level				1		
4	Diode and Zener diode characteristic Panel			4			
5	Energy Band gap experimental panel						
6	GM counter	1					
7	LCR series and parallel resonance						
8	Lloyd's mirror setup						
9	Melting point apparatus			2	1		
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)		2				
12	OPAMP	2			4		
13	Optical bench complete set						
14	Newton's ring apparatus	1	1	3	2	1	
15	Planck's Constant Apparatus				2		
16	Platinum resistance thermometer						
17	Post office box						
18	Digital potentiometer			2			
19	Spectrometer-Goniometer						
20	Refrigerator						1
21	Spectrometer setup	2	2			2	
22	Spectrophotometer (UV-Vis)						1
23	Spectrophotometer (UV-Vis)	1	1		1		
24	Spirometer						
25	Transistor characteristics	2					
26	Theodolite (Precision Vernier Transit)						
27	Telescope (Reflecting)						
28	Water and Soil Analysis Kit				1		
29	Audio Oscillator						
30	Anderson bridge				4	1	
31	DC power supply						
32	Ballistic galvanometer						
33	Determination of Cauchy's constant					2	
34	Diffraction grating						
35	Function/ Signal generator (20 MHz)						
36	Function generator (10 MHz)		1		1		
37	GPS		1				
38	LCR meter (Handheld)						
39	Astronomical telescope		1				
40	Flame photometer						
41	Colorimeter						
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter			1		1	
44	Weighing balance (Digital- High precision)	1	1		1	1	
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		18	19	20	21	22	23
Item No.	Name of the Equipment						
		Dergaon Kamal Dowerah College, Dergaon, Assam	Lakhimpur Girls' College, Lakhimpur, Assam	North Lakhimpur College, North Lakhimpur, Assam	Dhemaji College, Dhemaji, Assam	Dibru College, Dibrugarh, Assam	Tinsukia College, Tinsukia, Assam
1	Digital Storage Oscilloscope (60 MHz)						
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)						
3	Dumpy level	3					
4	Diode and Zener diode characteristic Panel						
5	Energy Band gap experimental panel						
6	GM counter						
7	LCR series and parallel resonance					2	
8	Lloyd's mirror setup	1				2	
9	Melting point apparatus				1	1	
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	1	1		1	1	
12	OPAMP					3	
13	Optical bench complete set		1				
14	Newton's ring apparatus		1	1	1		
15	Planck's Constant Apparatus	1	1	1			
16	Platinum resistance thermometer				1	5	
17	Post office box						
18	Digital potentiometer						
19	Spectrometer-Goniometer						
20	Refrigerator		1	1	1		1
21	Spectrometer setup		1	1	1	2	
22	Spectrophotometer (UV-Vis)						1
23	Spectrophotometer (UV-Vis)	1	1				
24	Spirometer						
25	Transistor characteristics		1				
26	Theodolite (Precision Vernier Transit)	2					1
27	Telescope (Reflecting)	2					
28	Water and Soil Analysis Kit		1	1			
29	Audio Oscillator						
30	Anderson bridge		1	2	1	3	
31	DC power supply						
32	Ballistic galvanometer				1		
33	Determination of Cauchy's constant						
34	Diffraction grating						
35	Function/ Signal generator (20 MHz)						
36	Function generator (10 MHz)	1	1				
37	GPS		1	1			
38	LCR meter (Handheld)		1	1			
39	Astronomical telescope						1
40	Flame photometer				1		
41	Colorimeter	1					
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter						
44	Weighing balance (Digital- High precision)	1	1		1	2	2
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		24	25	26	27	28	29
Item No.	Name of the Equipment						
		Sibsagar College, Joysagar, Assam	Debraj Roy College, Golaghat, Assam	Moran College, Moranhat, Assam	Science College Jorhat, Assam	Arya Vidyapeeth College, Guwahati, Assam	Goalpara College, Goalpara, Assam
1	Digital Storage Oscilloscope (60 MHz)						
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)						2
3	Dumpy level						
4	Diode and Zener diode characteristic Panel						
5	Energy Band gap experimental panel						
6	GM counter						
7	LCR series and parallel resonance	1					
8	Lloyd's mirror setup						
9	Melting point apparatus		1				1
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)		1	1	1		
12	OPAMP						
13	Optical bench complete set		1	1	1		
14	Newton's ring apparatus				3		
15	Planck's Constant Apparatus	2		1	2		
16	Platinum resistance thermometer	1					
17	Post office box						
18	Digital potentiometer						
19	Spectrometer-Goniometer						
20	Refrigerator			1			
21	Spectrometer setup		1	1	1	2	
22	Spectrophotometer (UV-Vis)						
23	Spectrophotometer (UV-Vis)	1	2	1	1		
24	Spirometer						
25	Transistor characteristics			1			
26	Theodolite (Precision Vernier Transit)						
27	Telescope (Reflecting)						2
28	Water and Soil Analysis Kit		1	2		1	
29	Audio Oscillator		1		2		
30	Anderson bridge	1	1		2		2
31	DC power supply						
32	Ballistic galvanometer				3		
33	Determination of Cauchy's constant			1			
34	Diffraction grating			2			
35	Function/ Signal generator (20 MHz)						
36	Function generator (10 MHz)			1			
37	GPS	1		1		2	
38	LCR meter (Handheld)				2		
39	Astronomical telescope						
40	Flame photometer			1			
41	Colorimeter						
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter						
44	Weighing balance (Digital- High precision)	2		1	3	2	
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		30	31	32	33	34	35
Item No.	Name of the Equipment						
		Nowgong College, Nagaon, Assam	Dimoria College, Khetri, Assam	Morigaon College, Morigaon, Assam	Rangia College, Rangia, Assam	Kokrajhar Govt. College, Kokrajhar, Assam	Pandu College, Guwahati, Assam
1	Digital Storage Oscilloscope (60 MHz)				1		
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)			1			
3	Dumpy level		1				
4	Diode and Zener diode characteristic Panel					2	
5	Energy Band gap experimental panel						
6	GM counter						
7	LCR series and parallel resonance						
8	Lloyd's mirror setup						
9	Melting point apparatus	1				1	2
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	1	1			2	
12	OPAMP						
13	Optical bench complete set						
14	Newton's ring apparatus		2			1	
15	Planck's Constant Apparatus	1					2
16	Platinum resistance thermometer	3				1	1
17	Post office box						
18	Digital potentiometer						
19	Spectrometer-Goniometer						
20	Refrigerator	1	1		1		
21	Spectrometer setup				2	1	
22	Spectrophotometer (UV-Vis)			1			
23	Spectrophotometer (UV-Vis)	1			1	1	
24	Spirometer						
25	Transistor characteristics					2	
26	Theodolite (Precision Vernier Transit)	1					
27	Telescope (Reflecting)						
28	Water and Soil Analysis Kit					1	1
29	Audio Oscillator						
30	Anderson bridge		2			1	
31	DC power supply						
32	Ballistic galvanometer						
33	Determination of Cauchy's constant						
34	Diffraction grating						
35	Function/ Signal generator (20 MHz)	1					
36	Function generator (10 MHz)		1				
37	GPS	2	1		1		
38	LCR meter (Handheld)						
39	Astronomical telescope			1			
40	Flame photometer						
41	Colorimeter				1	1	1
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter						
44	Weighing balance (Digital- High precision)	1	1		1	1	2
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		36	37	38	39	40	41
Item No.	Name of the Equipment						
		Madhab Choudhury College, Barpeta, Assam	Darrang College, Tezpur, Assam	Dakshin Kamrup College, Mirza, Assam	Nalbari College, Nalbari, Assam	Bajali College, Barpeta, Assam	Handique Girls' College, Guwahati, Assam
1	Digital Storage Oscilloscope (60 MHz)				1		
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)	1					
3	Dumpy level				1		
4	Diode and Zener diode characteristic Panel					2	
5	Energy Band gap experimental panel						
6	GM counter						
7	LCR series and parallel resonance						
8	Lloyd's mirror setup						
9	Melting point apparatus			1	1	2	2
10	Michelson interferometer						
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	1		1		1	2
12	OPAMP						
13	Optical bench complete set						
14	Newton's ring apparatus				2		
15	Planck's Constant Apparatus	1				1	
16	Platinum resistance thermometer				2		
17	Post office box						
18	Digital potentiometer						
19	Spectrometer-Goniometer						
20	Refrigerator						
21	Spectrometer setup	2	1	2		2	
22	Spectrophotometer (UV-Vis)						
23	Spectrophotometer (UV-Vis)	1	1			1	
24	Spirometer						
25	Transistor characteristics			2			
26	Theodolite (Precision Vernier Transit)						
27	Telescope (Reflecting)	1					
28	Water and Soil Analysis Kit	1		1		1	
29	Audio Oscillator						
30	Anderson bridge		1	1			
31	DC power supply						
32	Ballistic galvanometer						
33	Determination of Cauchy's constant						
34	Diffraction grating						
35	Function/ Signal generator (20 MHz)				1		1
36	Function generator (10 MHz)	1		1			
37	GPS						
38	LCR meter (Handheld)		1				
39	Astronomical telescope		1				1
40	Flame photometer	1	1				
41	Colorimeter		1			1	4
42	PHOENIX Hardware	1	1	1	1	1	1
43	Digital turbidity meter						
44	Weighing balance (Digital- High precision)	1	2	1	1	2	1
45	LCD Projector	1	1	1	1	1	1
46	Laptop	1	1	1	1	1	1

PART A		42	43	44	45	46
Item No.	Name of the Equipment					
		Lokanayak Omeo Kumar Das College, Sonitpur, Assam	Kaliabor College, Nagaon, Assam	Jawaharlal Nehru College, Pasighat, Arunachal Pradesh	Dera Natung Govt. College, Itanagar, Arunachal Pradesh	Pachhunga University College, Aizawl, Mizoram
1	Digital Storage Oscilloscope (60 MHz)					
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)					
3	Dumpy level					
4	Diode and Zener diode characteristic Panel			2		
5	Energy Band gap experimental panel					
6	GM counter					
7	LCR series and parallel resonance					
8	Lloyd's mirror setup					
9	Melting point apparatus					2
10	Michelson interferometer					
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)		5			1
12	OPAMP					
13	Optical bench complete set					
14	Newton's ring apparatus					
15	Planck's Constant Apparatus					
16	Platinum resistance thermometer					
17	Post office box			1		
18	Digital potentiometer					1
19	Spectrometer-Goniometer					
20	Refrigerator	2			1	
21	Spectrometer setup	1		1		
22	Spectrophotometer (UV-Vis)				1	
23	Spectrophotometer (UV-Vis)	1	1	1		1
24	Spirometer					
25	Transistor characteristics			2		
26	Theodolite (Precision Vernier Transit)	1				
27	Telescope (Reflecting)	1	1			
28	Water and Soil Analysis Kit			1		
29	Audio Oscillator			2		
30	Anderson bridge	2		1		
31	DC power supply					
32	Ballistic galvanometer					
33	Determination of Cauchy's constant					
34	Diffraction grating					
35	Function/ Signal generator (20 MHz)		1			
36	Function generator (10 MHz)		1			
37	GPS			1		3
38	LCR meter (Handheld)					
39	Astronomical telescope					
40	Flame photometer			1		
41	Colorimeter			1		
42	PHOENIX Hardware	1	1	1	1	1
43	Digital turbidity meter					
44	Weighing balance (Digital- High precision)	1	1	1		
45	LCD Projector	1	1	1	1	1
46	Laptop	1	1	1	1	1

PART A		47	48	49	50	51
Item No.	Name of the Equipment					
		Government Kolasib College, Kolasib, Mizoram	Govt. Champhai College, Champhai, Mizoram	Lunglei Govt. College, Lunglei, Mizoram	St. Edmund's College, Shillong, Meghalaya	Synod College, Shillong, Meghalaya
1	Digital Storage Oscilloscope (60 MHz)					
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)					
3	Dumpy level			1		
4	Diode and Zener diode characteristic Panel			1		
5	Energy Band gap experimental panel		1	1		
6	GM counter		1	1		1
7	LCR series and parallel resonance					
8	Lloyd's mirror setup					
9	Melting point apparatus					
10	Michelson interferometer		1	1		1
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)		2		2	1
12	OPAMP					
13	Optical bench complete set					
14	Newton's ring apparatus			1		
15	Planck's Constant Apparatus		1	1		1
16	Platinum resistance thermometer					
17	Post office box					
18	Digital potentiometer					
19	Spectrometer-Goniometer					
20	Refrigerator	2	1			
21	Spectrometer setup					
22	Spectrophotometer (UV-Vis)				1	1
23	Spectrophotometer (UV-Vis)		1	1		
24	Spirometer					
25	Transistor characteristics					
26	Theodolite (Precision Vernier Transit)					
27	Telescope (Reflecting)					
28	Water and Soil Analysis Kit	1		1		
29	Audio Oscillator					1
30	Anderson bridge					
31	DC power supply					
32	Ballistic galvanometer					
33	Determination of Cauchy's constant					
34	Diffraction grating					
35	Function/ Signal generator (20 MHz)				1	
36	Function generator (10 MHz)					
37	GPS		1		2	
38	LCR meter (Handheld)					
39	Astronomical telescope					
40	Flame photometer	1				
41	Colorimeter	1				
42	PHOENIX Hardware	1	1	1	1	1
43	Digital turbidity meter					
44	Weighing balance (Digital- High precision)	3	1	1		1
45	LCD Projector	1	1	1	1	1
46	Laptop	1	1	1	1	1

PART A		52	53	54	55	56
Item No.	Name of the Equipment					
		Union Christian College, Shillong, Meghalaya	Saint Mary's College, Shillong, Meghalaya	Shillong College, Shillong, Meghalaya	St Anthony's College, Shillong, Meghalaya	Patkai Christian College, Dimapur, Nagaland
1	Digital Storage Oscilloscope (60 MHz)					
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)					
3	Dumpy level		1			
4	Diode and Zener diode characteristic Panel					
5	Energy Band gap experimental panel			2		
6	GM counter		1		1	
7	LCR series and parallel resonance					
8	Lloyd's mirror setup					
9	Melting point apparatus				1	
10	Michelson interferometer					
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	2		2		
12	OPAMP					
13	Optical bench complete set					
14	Newton's ring apparatus					
15	Planck's Constant Apparatus			1		
16	Platinum resistance thermometer					
17	Post office box					
18	Digital potentiometer					
19	Spectrometer-Goniometer					
20	Refrigerator	1	1			
21	Spectrometer setup					
22	Spectrophotometer (UV-Vis)				1	
23	Spectrophotometer (UV-Vis)		1	2		1
24	Spirometer					
25	Transistor characteristics					
26	Theodolite (Precision Vernier Transit)					
27	Telescope (Reflecting)					
28	Water and Soil Analysis Kit					
29	Audio Oscillator					
30	Anderson bridge					
31	DC power supply					
32	Ballistic galvanometer					
33	Determination of Cauchy's constant					
34	Diffraction grating					
35	Function/ Signal generator (20 MHz)					
36	Function generator (10 MHz)					
37	GPS		1			
38	LCR meter (Handheld)					
39	Astronomical telescope					
40	Flame photometer					
41	Colorimeter		1			1
42	PHOENIX Hardware	1	1	1	1	1
43	Digital turbidity meter					
44	Weighing balance (Digital- High precision)	2	1	2		1
45	LCD Projector	1	1	1	1	1
46	Laptop	1	1	1	1	1

PART A		57	58
Item No.	Name of the Equipment		
		Kohima Science College, Jotsoma, Nagaland	Fazl Ali College, Mokokchung, Nagaland
1	Digital Storage Oscilloscope (60 MHz)		
2	Digital Storage Oscilloscope Oscilloscope (100 MHz)		
3	Dumpy level		1
4	Diode and Zener diode characteristic Panel		
5	Energy Band gap experimental panel		
6	GM counter	1	
7	LCR series and parallel resonance		
8	Lloyd's mirror setup		
9	Melting point apparatus		
10	Michelson interferometer		
11	Oscilloscope (30MHz 2 CHANNEL 4 TRACE)	2	
12	OPAMP		
13	Optical bench complete set		
14	Newton's ring apparatus		
15	Planck's Constant Apparatus		
16	Platinum resistance thermometer		
17	Post office box		
18	Digital potentiometer	1	2
19	Spectrometer-Goniometer		
20	Refrigerator		
21	Spectrometer setup		
22	Spectrophotometer (UV-Vis)		
23	Spectrophotometer (UV-Vis)		
24	Spirometer		
25	Transistor characteristics		
26	Theodolite (Precision Vernier Transit)		1
27	Telescope (Reflecting)		
28	Water and Soil Analysis Kit		
29	Audio Oscillator		
30	Anderson bridge		
31	DC power supply		
32	Ballistic galvanometer		
33	Determination of Cauchy's constant		
34	Diffraction grating		1
35	Function/ Signal generator (20 MHz)	2	
36	Function generator (10 MHz)		1
37	GPS		1
38	LCR meter (Handheld)		1
39	Astronomical telescope		
40	Flame photometer		
41	Colorimeter		1
42	PHOENIX Hardware	1	1
43	Digital turbidity meter		
44	Weighing balance (Digital- High precision)	2	1
45	LCD Projector	1	1
46	Laptop	1	1

ANNEXURE III

PART B		1	2	3	4	5	6	
Item No.	Name of the Equipment	Total Quantity	Sikkim Govt College, Tadong, Gangtok	Maharaja Bir Bikram College, Agartala, Tripura	Women's College, Agartala, Tripura (West)	Belonia College, Belonia, Tripura	Ramkrishna Mahavidyalaya Kailashahar, North Tripura	D M College of Science, Imphal, Manipur
1	Bacteriological Incubator	7		1				
2	BOD incubator	22			1	1		
3	Centrifuge (General Purpose)	16	1					
4	Centifuge (High Speed)	18				1		
5	Dissolved oxygen meter (Portable model)	2						
6	Hot air oven	35		1	1		1	
7	Laminar air flow	16			1			
8	Lux meter	5			1			
9	Hot Plate with magnetic stirrer	34					8	
10	Muffle furnace	4						
11	Trinocular microscope with projection camera and Monitor	12				1		
12	Trinocular microscope with camera and imaging software	17	1	1	1			
13	Projection microscope	9						
14	Trinocular Stereozoom Microscope	11		1				
15	Monocular microscope	206	15	4				6
16	Inverted tissue culture research microscope	2						
17	Binocular microscope (Biological Type)	30		1				
18	Rotary Microtome Precision	21		1		1		1
19	Erma Japan type rotary microtome	2						
20	Paraffin bath	5		1				
21	Polarimeter (Laboratory type)	51		2			2	
22	Mechanical shaker (Rotary Flask Shaker)	12						
23	Rotary evaporator	4				1	1	
24	Soxlet extraction unit	5						
25	Autoclave (Vetrical)	9						
26	Water bath shaker	5						
27	Water bath (double walled) with PID controller	14					1	
28	Water distillation unit –Glass (Double stage)	24		1				
29	Water distillation unit- metal (table model)	11		1	1			
30	Distillation unit (Kjedehl)	4					1	
31	Conductivity meter (table model)	46						
32	Binocular	14	4					
33	Refrigerated centrifuge	4					1	
34	Deep freezer	2					1	
35	Gel electrophoresis apparatus (Vertical)	3						
36	Helium discharge tube	2						
37	Water De-ionizer with analog conductivity meter	4						
38	Digital pH meter (Laboratory type)	17						
39	Camera lucida (Mirror type)	2						2
40	Travelling microscope	32						
41	Phase contrast microscope	2						
42	Monocular Rock Polarizing Petrographic Microscope	4						
43	Trinocular Petrographic Polarizing Microscope	3						
44	Vortex mixer	3						
45	pH meter	66		1	5			
46	Benchtop pH/conductivity/TDS meter	3						1
47	Gel electrophoresis apparatus (Horizontal)	9		1		1		

PART B		7	8	9	10	11	12	13
Item No.	Name of the Equipment							
		Modern College, Porompat, Imphal East	GP Women's College, Imphal, Manipur	Manipur College, Imphal, Manipur	Gurucharan College, Silchar, Assam	Cachar College, Silchar, Assam	Karimganj College, Karimganj, Assam	Srikishan Sarda College, Hailakandi, Assam
1	Bacteriological Incubator					1		
2	BOD incubator					1	1	1
3	Centrifuge (General Purpose)	1			1	1		
4	Centifuge (High Speed)			1	2		1	
5	Dissolved oxygen meter (Portable model)					1		
6	Hot air oven	1						
7	Laminar air flow	1		1		1		1
8	Lux meter							
9	Hot Plate with magnetic stirrer	2			1		1	
10	Muffle furnace							
11	Trinocular microscope with projection camera and Monitor		1					
12	Trinocular microscope with camera and imaging software	1	1	2				
13	Projection microscope	1						
14	Trinocular Stereozoom Microscope	1						
15	Monocular microscope	15	5	1	4	1		
16	Inverted tissue culture research microscope					1		
17	Binocular microscope (Biological Type)					1	1	
18	Rotary Microtome Precision			1	1			
19	Erma Japan type rotary microtome					1		
20	Paraffin bath					1		
21	Polarimeter (Laboratory type)	4					2	2
22	Mechanical shaker (Rotary Flask Shaker)							
23	Rotary evaporator							
24	Soxlet extraction unit							
25	Autoclave (Vetrical)							1
26	Water bath shaker							
27	Water bath (double walled) with PID controller							
28	Water distillation unit –Glass (Double stage)							1
29	Water distillation unit- metal (table model)				1			
30	Distillation unit (Kjedehl)							
31	Conductivity meter (table model)		6		1	1	2	
32	Binocular							
33	Refrigerated centrifuge						1	1
34	Deep freezer						1	
35	Gel electrophoresis apparatus (Vertical)							
36	Helium discharge tube			2				
37	Water De-ionizer with analog conductivity meter			1				
38	Digital pH meter (Laboratory type)							
39	Camera lucida (Mirror type)							
40	Travelling microscope				2	3		
41	Phase contrast microscope							
42	Monocular Rock Polarizing Petrographic Microscope				1			
43	Trinocular Petrographic Polarizing Microscope				2			
44	Vortex mixer							
45	pH meter	4	3			3	5	
46	Benchtop pH/conductivity/TDS meter							
47	Gel electrophoresis apparatus (Horizontal)						1	

PART B		14	15	16	17	18	19	20
Item No.	Name of the Equipment							
		Diphu Govt. College, Diphu, Assam	Dibrugarh H S Kanoi College, Dibrugarh, Assam	Duliajan College, Assam	Jagannath Barooah College, Jorhat, Assam	Dergaon Kamal Dowerah College, Dergaon, Assam	Lakhimpur Girls' College, Lakhimpur, Assam	North Lakhimpur College, North Lakhimpur, Assam
1	Bacteriological Incubator	1	1	1			1	
2	BOD incubator			1				2
3	Centrifuge (General Purpose)			1	1		1	
4	Centifuge (High Speed)					1		
5	Dissolved oxygen meter (Portable model)							
6	Hot air oven	3	1	1		1	1	1
7	Laminar air flow				1	1	1	1
8	Lux meter				1		1	
9	Hot Plate with magnetic stirrer		2			2	1	1
10	Muffle furnace			1				1
11	Trinocular microscope with projection camera and Monitor					1		
12	Trinocular microscope with camera and imaging software			1				
13	Projection microscope							
14	Trinocular Stereozoom Microscope							
15	Monocular microscope	8		3		6		
16	Inverted tissue culture research microscope							
17	Binocular microscope (Biological Type)				1		1	
18	Rotary Microtome Precision		1	1			1	
19	Erma Japan type rotary microtome				1			
20	Paraffin bath							1
21	Polarimeter (Laboratory type)	2	2	3		1		4
22	Mechanical shaker (Rotary Flask Shaker)							
23	Rotary evaporator							
24	Soxlet extraction unit		2				1	
25	Autoclave (Vetrical)				1		1	
26	Water bath shaker				1			
27	Water bath (double walled) with PID controller			1				1
28	Water distillation unit –Glass (Double stage)	2	2			1		
29	Water distillation unit- metal (table model)			1	1			2
30	Distillation unit (Kjedehl)							1
31	Conductivity meter (table model)	1	2				2	
32	Binocular			1				
33	Refrigerated centrifuge				1			
34	Deep freezer							
35	Gel electrophoresis apparatus (Vertical)							
36	Helium discharge tube							
37	Water De-ionizer with analog conductivity meter					1		
38	Digital pH meter (Laboratory type)	2			1			
39	Camera lucida (Mirror type)							
40	Travelling microscope						1	
41	Phase contrast microscope							
42	Monocular Rock Polarizing Petrographic Microscope							
43	Trinocular Petrographic Polarizing Microscope							
44	Vortex mixer				1			
45	pH meter		2					1
46	Benchtop pH/conductivity/TDS meter							
47	Gel electrophoresis apparatus (Horizontal)							

PART B		21	22	23	24	25	26	27
Item No.	Name of the Equipment							
		Dhemaji College, Dhemaji, Assam	Dibru College, Dibrugarh, Assam	Tinsukia College, Tinsukia, Assam	Sibsagar College, Joysagar, Assam	Debraj Roy College, Golaghat, Assam	Moran College, Moranhat, Assam	Science College Jorhat, Assam
1	Bacteriological Incubator							
2	BOD incubator	1		1				
3	Centrifuge (General Purpose)	1			1		1	
4	Centifuge (High Speed)				1			
5	Dissolved oxygen meter (Portable model)							
6	Hot air oven	1	1			2	1	
7	Laminar air flow	1			1			
8	Lux meter					1		
9	Hot Plate with magnetic stirrer	1	2					
10	Muffle furnace	1						
11	Trinocular microscope with projection camera and Monitor				1	1		
12	Trinocular microscope with camera and imaging software	1						
13	Projection microscope							
14	Trinocular Stereozoom Microscope							
15	Monocular microscope		5				5	
16	Inverted tissue culture research microscope		1					
17	Binocular microscope (Biological Type)	1					2	
18	Rotary Microtome Precision	1	1			1	1	
19	Erma Japan type rotary microtome							
20	Paraffin bath							
21	Polarimeter (Laboratory type)	1	2			1	1	2
22	Mechanical shaker (Rotary Flask Shaker)	1	1		2			
23	Rotary evaporator					1		
24	Soxlet extraction unit	1						
25	Autoclave (Vetrical)		1		1			
26	Water bath shaker						1	
27	Water bath (double walled) with PID controller		1					
28	Water distillation unit –Glass (Double stage)		1					
29	Water distillation unit- metal (table model)		1					
30	Distillation unit (Kjedehl)	1						
31	Conductivity meter (table model)		1		1	1	1	1
32	Binocular				1			
33	Refrigerated centrifuge							
34	Deep freezer							
35	Gel electrophoresis apparatus (Vertical)							
36	Helium discharge tube							
37	Water De-ionizer with analog conductivity meter							
38	Digital pH meter (Laboratory type)				1			1
39	Camera lucida (Mirror type)							
40	Travelling microscope							3
41	Phase contrast microscope							
42	Monocular Rock Polarizing Petrographic Microscope							
43	Trinocular Petrographic Polarizing Microscope							
44	Vortex mixer							
45	pH meter	1					1	
46	Benchtop pH/conductivity/TDS meter							
47	Gel electrophoresis apparatus (Horizontal)			1		1	1	

PART B		28	29	30	31	32	33	34
Item No.	Name of the Equipment	Name of Colleges						
		Arya Vidyapeeth College, Guwahati, Assam	Goalpara College, Assam	Nowgong College, Nagaon, Assam	Dimoria College, Khetri, Assam	Morigaon College, Morigaon, Assam	Rangia College, Rangia, Assam	Kokrajhar Govt. College, Kokrajhar, Assam
1	Bacteriological Incubator							
2	BOD incubator						1	
3	Centrifuge (General Purpose)	1					1	1
4	Centifuge (High Speed)							
5	Dissolved oxygen meter (Portable model)							
6	Hot air oven		1	1	1		1	
7	Laminar air flow							
8	Lux meter							
9	Hot Plate with magnetic stirrer			1				
10	Muffle furnace							
11	Trinocular microscope with projection camera and Monitor				1			
12	Trinocular microscope with camera and imaging software			1	1			1
13	Projection microscope	2						
14	Trinocular Stereozoom Microscope	2	1					
15	Monocular microscope		8		3			
16	Inverted tissue culture research microscope							
17	Binocular microscope (Biological Type)						1	2
18	Rotary Microtome Precision						1	
19	Erma Japan type rotary microtome							
20	Paraffin bath			1				
21	Polarimeter (Laboratory type)	1	3	1	2			2
22	Mechanical shaker (Rotary Flask Shaker)		1		2			
23	Rotary evaporator							
24	Soxlet extraction unit							
25	Autoclave (Vetrical)							
26	Water bath shaker							
27	Water bath (double walled) with PID controller		1	1			1	
28	Water distillation unit –Glass (Double stage)				1		1	1
29	Water distillation unit- metal (table model)							
30	Distillation unit (Kjedehl)							
31	Conductivity meter (table model)		2	1			2	
32	Binocular		1		1			
33	Refrigerated centrifuge							
34	Deep freezer							
35	Gel electrophoresis apparatus (Vertical)	1		1				
36	Helium discharge tube							
37	Water De-ionizer with analog conductivity meter			1				
38	Digital pH meter (Laboratory type)							1
39	Camera lucida (Mirror type)							
40	Travelling microscope				2		2	2
41	Phase contrast microscope		1			1		
42	Monocular Rock Polarizing Petrographic Microscope	3						
43	Trinocular Petrographic Polarizing Microscope	1						
44	Vortex mixer				2			
45	pH meter				3		2	1
46	Benchtop pH/conductivity/TDS meter	1						
47	Gel electrophoresis apparatus (Horizontal)							1

PART B		35	36	37	38	39	40	41
Item No.	Name of the Equipment							
		Pandu College, Guwahati, Assam	Madhab Choudhury College, Barpeta, Assam	Darrang College, Tezpur, Assam	Dakshin Kamrup College, Mirza, Assam	Nalbari College, Nalbari, Assam	Bajali College, Barpeta, Assam	Handique Girls' College, Guwahati, Assam
1	Bacteriological Incubator				1			
2	BOD incubator					1		
3	Centrifuge (General Purpose)	2						1
4	Centifuge (High Speed)	1	1		1		1	
5	Dissolved oxygen meter (Portable model)							
6	Hot air oven	1			2	1		1
7	Laminar air flow							
8	Lux meter		1					
9	Hot Plate with magnetic stirrer			2				
10	Muffle furnace	1						
11	Trinocular microscope with projection camera and Monitor				1			
12	Trinocular microscope with camera and imaging software	1	1		1			
13	Projection microscope	1				3	1	
14	Trinocular Stereozoom Microscope						2	
15	Monocular microscope					8	12	8
16	Inverted tissue culture research microscope							
17	Binocular microscope (Biological Type)					1		
18	Rotary Microtome Precision				1		1	1
19	Erma Japan type rotary microtome							
20	Paraffin bath							
21	Polarimeter (Laboratory type)	3			2	1	1	
22	Mechanical shaker (Rotary Flask Shaker)				1		1	1
23	Rotary evaporator							
24	Soxlet extraction unit		1					
25	Autoclave (Vetrical)	1				1		
26	Water bath shaker	1						
27	Water bath (double walled) with PID controller		1		1			
28	Water distillation unit –Glass (Double stage)			1		2		1
29	Water distillation unit- metal (table model)	1						
30	Distillation unit (Kjedehl)							
31	Conductivity meter (table model)	1		2	3	1	1	
32	Binocular	1		1				
33	Refrigerated centrifuge							
34	Deep freezer							
35	Gel electrophoresis apparatus (Vertical)		1					
36	Helium discharge tube							
37	Water De-ionizer with analog conductivity meter		1					
38	Digital pH meter (Laboratory type)			2				
39	Camera lucida (Mirror type)							
40	Travelling microscope			1		3	3	
41	Phase contrast microscope							
42	Monocular Rock Polarizing Petrographic Microscope							
43	Trinocular Petrographic Polarizing Microscope							
44	Vortex mixer							
45	pH meter	2	3		1	2	1	1
46	Benchtop pH/conductivity/TDS meter							1
47	Gel electrophoresis apparatus (Horizontal)							

PART B		42	43	44	45	46	47
Item No.	Name of the Equipment						
		Lokanayak Omeo Kumar Das College, Sonitpur, Assam	Kaliabor College, Nagaon, Assam	Jawaharlal Nehru College, Pasighat, Arunachal Pradesh	Dera Natung Govt. College, Itanagar, Arunachal Pradesh	Pachhunga University College, Aizawl, Mizoram	Government Kolasib College, Kolasib, Mizoram
1	Bacteriological Incubator						
2	BOD incubator	1	1			1	
3	Centrifuge (General Purpose)						
4	Centifuge (High Speed)	1		1	1		1
5	Dissolved oxygen meter (Portable model)			1			
6	Hot air oven	1		1			1
7	Laminar air flow		1		1	1	
8	Lux meter						
9	Hot Plate with magnetic stirrer			2	3		3
10	Muffle furnace						
11	Trinocular microscope with projection camera and Monitor		1		1	1	1
12	Trinocular microscope with camera and imaging software						
13	Projection microscope						
14	Trinocular Stereozoom Microscope	1					
15	Monocular microscope	2		10	5		
16	Inverted tissue culture research microscope						
17	Binocular microscope (Biological Type)			3	1	4	
18	Rotary Microtome Precision		1			1	
19	Erma Japan type rotary microtome						
20	Paraffin bath				1		
21	Polarimeter (Laboratory type)	1			1		
22	Mechanical shaker (Rotary Flask Shaker)						
23	Rotary evaporator						
24	Soxlet extraction unit						
25	Autoclave (Vetrical)						
26	Water bath shaker					1	1
27	Water bath (double walled) with PID controller	1					
28	Water distillation unit –Glass (Double stage)	1	1				1
29	Water distillation unit- metal (table model)	1			1		
30	Distillation unit (Kjedehl)						1
31	Conductivity meter (table model)		1	1		1	3
32	Binocular	3					
33	Refrigerated centrifuge						
34	Deep freezer						
35	Gel electrophoresis apparatus (Vertical)						
36	Helium discharge tube						
37	Water De-ionizer with analog conductivity meter						
38	Digital pH meter (Laboratory type)			1			1
39	Camera lucida (Mirror type)						
40	Travelling microscope	1		3			
41	Phase contrast microscope						
42	Monocular Rock Polarizing Petrographic Microscope						
43	Trinocular Petrographic Polarizing Microscope						
44	Vortex mixer						
45	pH meter	2		2	4		1
46	Benchtop pH/conductivity/TDS meter						
47	Gel electrophoresis apparatus (Horizontal)				1		

PART B		48	49	50	51	52	53
Item No.	Name of the Equipment	Govt. Champhai College, Champhai, Mizoram	Lunglei Govt. College, Lunglei, Mizoram	St. Edmund's College, Shillong, Meghalaya	Synod College, Shillong, Meghalaya	Union Christian College, Shillong, Meghalaya	Saint Mary's College, Shillong, Meghalaya
1	Bacteriological Incubator						
2	BOD incubator	1	1			2	1
3	Centrifuge (General Purpose)						
4	Centifuge (High Speed)	1			1		
5	Dissolved oxygen meter (Portable model)						
6	Hot air oven			1	1		
7	Laminar air flow						1
8	Lux meter						
9	Hot Plate with magnetic stirrer			2			
10	Muffle furnace						
11	Trinocular microscope with projection camera and Monitor						
12	Trinocular microscope with camera and imaging software		1				1
13	Projection microscope						
14	Trinocular Stereozoom Microscope		1				
15	Monocular microscope	5	5		5		7
16	Inverted tissue culture research microscope						
17	Binocular microscope (Biological Type)						2
18	Rotary Microtome Precision	1			1		
19	Erma Japan type rotary microtome						
20	Paraffin bath						
21	Polarimeter (Laboratory type)						
22	Mechanical shaker (Rotary Flask Shaker)					2	
23	Rotary evaporator						
24	Soxlet extraction unit						
25	Autoclave (Vetrical)			1			
26	Water bath shaker						
27	Water bath (double walled) with PID controller	1				2	
28	Water distillation unit –Glass (Double stage)					1	1
29	Water distillation unit- metal (table model)						
30	Distillation unit (Kjedehl)						
31	Conductivity meter (table model)	1		2	1		1
32	Binocular	1					
33	Refrigerated centrifuge						
34	Deep freezer						
35	Gel electrophoresis apparatus (Vertical)						
36	Helium discharge tube						
37	Water De-ionizer with analog conductivity meter						
38	Digital pH meter (Laboratory type)			2		2	
39	Camera lucida (Mirror type)						
40	Travelling microscope				1		2
41	Phase contrast microscope						
42	Monocular Rock Polarizing Petrographic Microscope						
43	Trinocular Petrographic Polarizing Microscope						
44	Vortex mixer						
45	pH meter	2	5		1		4
46	Benchtop pH/conductivity/TDS meter						
47	Gel electrophoresis apparatus (Horizontal)						

PART B		54	55	56	57	58
Item No.	Name of the Equipment	Shillong College, Shillong, Meghalaya	St Anthony's College, Shillong, Meghalaya	Patkai Christian College, Dimapur, Nagaland	Kohima Science College, Jotsoma, Nagaland	Fazl Ali College, Mokokchung, Nagaland
1	Bacteriological Incubator					
2	BOD incubator		1	1		
3	Centrifuge (General Purpose)					
4	Centifuge (High Speed)			1		
5	Dissolved oxygen meter (Portable model)					
6	Hot air oven			1	2	1
7	Laminar air flow				1	
8	Lux meter					
9	Hot Plate with magnetic stirrer					
10	Muffle furnace					
11	Trinocular microscope with projection camera and Monitor		1			
12	Trinocular microscope with camera and imaging software					
13	Projection microscope		1			
14	Trinocular Stereozoom Microscope	1	1			
15	Monocular microscope	20		10	20	
16	Inverted tissue culture research microscope					
17	Binocular microscope (Biological Type)			1		7
18	Rotary Microtome Precision			1		
19	Erma Japan type rotary microtome					
20	Paraffin bath					
21	Polarimeter (Laboratory type)	2				
22	Mechanical shaker (Rotary Flask Shaker)					
23	Rotary evaporator			1		
24	Soxlet extraction unit					
25	Autoclave (Vetrical)			1		
26	Water bath shaker					
27	Water bath (double walled) with PID controller				1	
28	Water distillation unit –Glass (Double stage)		1			3
29	Water distillation unit- metal (table model)					
30	Distillation unit (Kjedehl)					
31	Conductivity meter (table model)			1	1	
32	Binocular					
33	Refrigerated centrifuge					
34	Deep freezer					
35	Gel electrophoresis apparatus (Vertical)					
36	Helium discharge tube					
37	Water De-ionizer with analog conductivity meter					
38	Digital pH meter (Laboratory type)	1				2
39	Camera lucida (Mirror type)					
40	Travelling microscope	3				
41	Phase contrast microscope					
42	Monocular Rock Polarizing Petrographic Microscope					
43	Trinocular Petrographic Polarizing Microscope					
44	Vortex mixer					
45	pH meter				3	
46	Benchtop pH/conductivity/TDS meter					
47	Gel electrophoresis apparatus (Horizontal)			1		