Himachal Pradesh University
Shimla-171005 (INDIA)
University Institute of Technology (UIT)

E-TENDER

E-Tender Document for the purchase of various Equipments for Civil Engineering (CE) Laboratory in the University Institute of Technology, H. P. University, Shimla-05.

E-Tender No: 2-1/2020-HPU (UIT)-4

Through

Director

University Institute of Technology
Himachal Pradesh University
Shimla-171005 (INDIA)
(E-mail: uiitofficehpu@gmail.com)

(Web site: www.hptenders.gov.in, www.hpuniv.ac.in and www.uiit.ac.in)

HIMACHAL PRADESH UNIVERSITY
(NAAC Accredited 'A' Grade University)
University Institute of Technology (UIT)
Gyan Path, Summer Hill, Shimla-171005

E-TENDER NOTICE

E-tenders are invited from the original manufacturers/authorized dealers for the purchase of the items mentioned in the tables given in the **Section-IV of PART-I to PART-II** of the tender document for University Institute of Technology, Himachal Pradesh University, Shimla-5, so as to reach in this office on or up to 5:00 PM dated 02-06-2022. The form along with terms and conditions of the E-tender can be downloaded from **www.hptenders.gov.in**, **www.hpuniv.ac.in** and **www.uiit.ac.in** and EMD in the shape of TDR/FDR & E-tender Fee must be submitted either in person or by post by demand draft of Rs.1000/- (Rupees One Thousand Only) in favour of Director , UIT, Himachal Pradesh University, Shimla-5 as per time schedule given in the e-Tender summary.

SD/-
Director

E-TENDER SUMMARY

E-Tender No.	2-1/2020-HPU(UIT)-4
Description	E-Tender Document for the purchase of Various Equipments for Civil Engineering (CE) Laboratory in the University Institute of Technology, H.P. University, Shimla-05
Estimated Cost	Rs. 27 Lacs Only.
Earnest Money Deposit (EMD)	Rs. 54,000/- (Rupees Fifty-Four Thousand only) in the shape of Demand Draft/FDR from nationalized bank Payable at Shimla duly pledged in the name of Director, UIT, Himachal Pradesh University, Summer Hills, Shimla-171005. The Micro and Small Enterprises are exempted from payment of earnest money. However, they should attach MSEs certificate to substantiate their claim.
Cost of Tender Document	*Rs. 1000/- in the shape Demand Draft in favor of Director, UIT Payable at Shimla, Himachal Pradesh University, Summer Hill, Shimla-171005.
Date and Time of on-line Publication	**12-05-2022 (3:00 PM)**
Period for Downloading of E-tender Document	**12-05-2022 to 02-06-2022**
Bid submission start date	**13-05-2022 (10:00 AM)**
Physical submission of tender documents i.e. Tender form Cost & EMD.	**02-06-2022 by 5:00 PM** Venue: Director, University Institute of Technology, Himachal Pradesh University, Summer Hill Shimla-171005
Date and Time for opening of Technical Bid	**03-06-2022 at 11:30 AM** Venue: Director, University Institute of Technology, Himachal Pradesh University, Summer Hill Shimla-171005.
Date & Time for opening of Financial Bid	The date will be notified after the evaluation of the Technical Bid by Technical Committee.
Validity of the Tender	Six months from the date of opening of "Financial Bid".
Time period for the supply of ordered items	45 days from the date of issue of supply order.

- Bidder shall ensure that cost of E-Tender Document and Earnest Money Deposit be submitted in the Office or send by Post to Director, University Institute of Technology, Himachal Pradesh University, Summer Hill Shimla-171005 on or before the last date and time indicated above.
- If the date fixed for the opening of tender is declared a holiday, the tender shall be opened on the next working day at the same time as fixed for the original date for this purpose.

SECTION - I

INSTRUCTIONS FOR BIDDERS

The bidders are instructed to read the complete bid document carefully.

Director, University Institute of Technology, Himachal Pradesh University, Summer Hill Shimla-171005 invites E-Tenders on behalf of Registrar, Himachal Pradesh University, for the purchase of item (s) mentioned in the **Section-IV of Part-I to II** of the tender documents uploaded herewith. The tender document and other instructions can be downloaded or viewed from the portal **https://hptenders.gov.in**. Cost of tender document (nonrefundable) and Earnest Money Deposit as mentioned in the tender forms shall have to be deposited in the shape of FDR/Demand Draft in favor of Director, University Institute of Technology, Himachal Pradesh University, Summer Hill, Shimla-171005, payable at Shimla before the last date and time of submission of tender and proof thereof should be uploaded in Technical Bid of the tender document. Cost of tender document and Earnest Money Deposit in the shape of FDR and Demand Draft should be submitted in the envelope and should be sent to the Office of University Institute of Technology before the last date and time of submission of tender.

Instructions for E-bidding

i. The bidders should register on website https://hptenders.gov.in &obtain User-ID and Password before tendering. In case of any problem; you may contact office of the Director, University Institute of Technology, Himachal Pradesh University, Summer Hill, Shimla, on PhoneNo.0177-2832571.

ii. To participate in bidding process, bidders have to get "Digital Signature Certificate" (Class-II or Class-III) as per Information Technology Act-2000, to participate in online bidding. This certificate will be required for digitally signing the bid. Bidders can get above mentioned Digital Signature Certificates from any approved vendors. Bidders, who already possess valid Digital Signature Certificates, need not procure new Digital Signature Certificates.

iii. The bidders have to submit their bids online in electronic format with digital Signatures. The bids without digital signatures will not be accepted. No proposal will be accepted in physical form. The University Institute of Technology will not be responsible for delay in online submission due to any reasons. Bidders should get ready with the scanned copies of documents for cover information including cost of documents & EMD as specified in the tender documents. The original documents in respect of cost of tender form, EMD and additional documents if required shall be submitted in favour of Director, University Institute of Technology, Himachal Pradesh University, Summer Hill, Shimla-171005 before the date & time of opening of tenders. **The firms registered with MSME are exempted from EMD as per Govt. Notifications. However, they should submit certificate to this effect.**

iv. The tender documents shall be uploaded in two covers. Each cover shall contain separately the "TECHNICAL BID" and the "FINANCIAL BID". Cover -1 shall be "TECHNICAL BID" containing scanned copies of required documents as mentioned in the Terms & Conditions of tender. The "TECHNICAL BID" shall be

opened on the date of opening of tender(s). Cover-2 shall be "FINANCIAL BID" containing BOQ (Bill of Quantity)" of rates. After the evaluation and approval of the technical proposal, the "FINANCIAL BID" will be opened, of the technically qualified/accepted bids only. The financial bids found technically nonresponsive shall not be opened.

v. Before submission of online bids, bidders must ensure that scanned copies of all necessary documents shall have been uploaded with the bid.

vi. The process for e-tendering can be observed/practiced on demonstration site https://demoeproc.nic.in.

vii. Bidders are advised to check/see website https://hptenders.gov.in regularly to check for any amendment/corrigendum in the tender document. All subsequent notifications/amendments/notices shall be published only on the aforesaid website only.

viii. The bids shall be opened on the date and time mentioned in the E-Tender Summary in the presence of bidders who opt to be present. If the date fixed for the opening of the tender is declared a holiday, the tenders shall be opened on the next working day at the same time as fixed for the original date for this purpose.

ix. The University Institute of Technology, Himachal Pradesh University, Summer Hill, Shimla-171005 reserves the right to accept or reject any or all tenders in part or whole without assigning any reason, whatsoever.

The E-Tender Document shall be uploaded in two parts:

i. **Technical Bid**: It shall contain scanned copies of Form "A" and Form "B" and all requisite documents, certificates etc. as specified in Form "A" and Form "B" duly filled in and digitally signed. All the documents must be scanned and uploaded in PDF format with 100 dpi with black and white option.

ii. **Financial Bid**: It shall contain financial bid / BOQ uploaded in .xls format which will be available for bidders on website https://hptenders.gov.in .The financial bid / BOQ will not be accepted in physical form. At the time of opening of tenders only Technical Bid containing proof of deposit of Cost of Tender documents, Earnest money deposit, certificates and documents, information as required in Form "A" and Form "B" would be opened and Financial bid/BOQ will be opened only of those bidder who fulfill eligibility criteria. Financial bid of technically qualified bidder will be opened for which date will be notified after evaluation of the technical bid.

General Instructions:

i. The bid should be complete with all document duly signed by authorized person.

ii. The Bids without deposit of cost of tender document fee and earnest money deposit shall be rejected out rightly.

iii. At any time prior to the date of submission of the Bid, Tender Inviting Authority may either on its own initiative or in response to a clarification requested by a prospective Bidder, may modify any of the conditions in the Tender documents by issuing an amendment in writing. Such amendments will be binding on the bidders. The bidders should quote only for those products for which product permission meet the bids specifications.

iv. Firms intending to participate in the rate contract should first ensure that they fulfill all the eligibility criteria as prescribed under the terms and conditions; otherwise the tenders will be summarily rejected. Bidder should quote only for the items for which they fulfill all the eligibility criteria.

v. The Department Council/purchase committee, notified by the University, University Institute of Technology, Himachal Pradesh University, Summer Hill, Shimla-5, reserve the right to waive minor infirmity in a Bid. The decision of the Department Council/purchase committee, University Institute of Technology, Himachal Pradesh University, in this regard shall be final and binding on the bidders.

vi. Bids will be accepted only from the established, reputed and experienced manufacturers or their authorized dealers/representatives.

vii. Manufacturer/Direct Importer shall be responsible for any delay in execution of supplies by their authorized distributor, if any. The Authorized distributor, if any, shall also have to abide by the terms and conditions of the tender document and supply order.

viii. University Institute of Technology, Himachal Pradesh University, Shimla will not be responsible for any payment dispute between manufacturer and authorized distributor nominated by the manufacturer/Direct Importer.

ix. In case of supply through Authorized distributor, the authorized distributor shall have to sign the agreement jointly with the Manufacturer/Direct Importer.

x. It is mandatory upon the bidders to submit personally or send by post envelope containing demand draft/FDR towards Cost of tender document and Earnest Money Deposit duly superscripted **"Tender for supply of Equipment to be opened on 03-06-2022"** and marking complete postal address with mobile number of the bidder on the left hand side corner of the envelope in the Office of University Institute of Technology, Himachal Pradesh University, Shimla on or before last date and time for submission of the bid.

xi. Bidders are requested to complete the process of online bid submission well before the closing date and time for bid uploading, in order to safe guard their own interest. It will be the sole responsibility of the bidder to scan and upload clear and legible documents for assessment failing which the tender will be liable for rejection.

xii. **Quote rates in BOQ for the Equipment's exactly given in Annexure-G** e.g. the rates should be quoted strictly as per specifications mentioned in the financial bid/BOQ.

xiii. In case a bidder does not wish to quote rate of any particular item, the column of such item should be left blank.

SECTION – II

FORM-A

Terms and Conditions for Participation in the E-Tender

1. Eligibility Criteria

1.1 Bids are invited, by the Director, UIT, Himachal Pradesh University, Summer Hill, Shimla-5 from established, reputed and experienced manufacturers or their authorized dealers/representatives for purchase of Equipments in, University Institute of Technology, Himachal Pradesh University, Summer Hill, Shimla as per the enclosed Technical Specifications **(Section-IV of Part-I to II).** The bidders should attached the colored brochures of each items.

1.2 Bidders are requested to study the tender document and terms & conditions carefully. Submission of tender shall be deemed to have been done after careful study and examination of the tender document with full understanding of its implications.

1.3 The scope of work shall include Supply, Installation, Commissioning, & Satisfactory Demonstration. This will also include testing, packing, transportation, scheduling of transportation, transit insurance, delivery at sites, unloading, storage, job site storage, insurance, installation and any other services associated with the delivery of the equipment and materials providing warranty of services and operation and maintenance of other related equipment/items required for complete installation. The successful bidder will assume full responsibility of the complete system until final acceptance.

1.4 It will be imperative on each bidder to fully acquaint himself with all the local conditions and factors which would have any effect on the performance of the System. No request for the change of price, or time, schedule of delivery of stores shall be entertained after the purchase on account of any local condition or factor.

1.5 The bidders will not form a part of the cartel and put in supporting quotations for some other company. This will debar the company for participating in other tenders floated or to be floated in by the purchaser. The authorities can compare the prices of other Bidders L2, L3 etc. also with the prices quoted in other tenders for same products and in case of discrepancy suitable action will be initiated.

1.6 No Gratification Clause: The bidders will give an undertaking that they will not try to gratify any person or use any other unfair means involved in the purchase of the quoted equipment. This will also debar the company for participating in other tenders floated or to be floated in by the purchaser and suitable action will be initiated against such defaulters.

1.7 Non Blacklisting Certificate: All the bidders will give an undertaking on Non- Judicial Stamp paper duly attested by the competent authority that neither they nor their principals or the manufacturers have been blacklisted by any State / Central Government Departments/other organizations.

1.8 The bidders shall also be required to submit the copies of PAN and income tax returns for the last three years i.e. 2018-19, 2019-20 & 2020-21 along with the copy of TIN/ copy of registration of their firms with appropriate authority.

1.9 The bidders should have their service Centre at least one of the City i.e. Chandigarh/Delhi/Himachal Pradesh.

1.10 A penalty of Rupees One Thousand per day will be imposed if the complaint regarding the supplied equipment/instrument is not be repaired/replaced after 48 hours of booking the complaint through telephonically.

1.11 All the correspondences shall be addressed to the Director, University Institute of Technology, Himachal Pradesh University, Summer Hill, Shimla-171005.

1.12 The Bid Documents are not transferable and the cost of the documents is not refundable under any circumstances.

1.13 Information regarding installations in Government &Premier institutions in India and satisfactory service and maintenance may be forwarded with all the details for verification

1.14 Audited statement of Bidders showing average turnover of Rs. 7.5 Lac for three financial years, i.e. 2017-18, 2018-19 & 2019-20 duly signed by the Charted Accountant (CA).

2. Bid Security/Earnest Money (EMD)

2.1 Bid Security/EMD amount should be enclosed along with the Technical Bid for an amount mentioned in E-Tender Summary in the shape of FDR duly pledged in the name of "Director, University Institute of Technology, Himachal Pradesh University, Summer hill, Shimla-171005", failing which the tenders will be out rightly rejected. Bid Security/EMD, if already deposited against other tenders, shall not be adjusted against this tender.

2.2 Unsuccessful Bidders' Bid Security/EMD will be refunded as promptly as possible after completion of the tendering process and submission of PBG.

2.3 The successful Bidder' Bid/EMD Security will be discharged upon the Bidders executing the Contract Agreement and furnishing the **Performance Bank Security @ 5% of the awarded contract amount** in the form of FDR duly pledged in favour of the "**Director, University Institute of Technology, Himachal Pradesh University, Summer hill, Shimla-171005". This PBG shall be retained for period of 3 years or upto warranty period.**

2.4 The Bid Security/Earnest Money shall be forfeited; (a) If a Bidder withdraws his bid during the period of bid validity specified by the Bidder in the Bid; or (b) if, at any stage, any of the information/declaration is found false.

2.5 Bid Security/Earnest Money in respect of the finally selected Bidder(s) will be discharged upon the Bidder(s) after successful installation & training of the Equipment.

3. Bidder's Qualification

The "Bidder" as used in the tender document shall mean one who has signed the Bid Form. The Bidder may be the manufacturer of the equipment/machinery/material for which prices are quoted on the Price Schedule or his duly authorized representatives, in which case, he shall submit a certificate of authority as per **Annexure- B**.

4. Uploading of Documents

4.1 The bidder has to upload Documents such as Power of Attorney, Resolution of Board of Directors etc. Authorizing an officer of the bidder to transact the business with Tender inviting Authority in technical bid and Such authorized officer of the bidder should sign the tender documents. The signature of such person should be attested with photograph.

4.2 The bidder has to upload the Check list as Annexure-A.

4.3 The bidder has to accept and sign Form "A" and Form "B" of the tender and upload the same.

4.4 The bidder has to upload Manufacturer's Authorization Form (Annexure-B).

4.5 The bidder has to upload Forwarding letter (Annexure-C).

4.6 The bidder has to upload Bidders particulars (Annexure-D).

4.7 The bidder has to upload proof of Tender Fee.

4.8 The bidder has to upload proof of Earnest Money Deposit.

4.9 The bidder has to upload Performa of Guarantee for supply of spares during the post warranty period (Annexure-E).

4.10 The bidder has to upload Bidder's profile(Annexure-F).

4.11 The bidder has to upload Undertaking for No gratification as perclause1.6.

4.12 The bidder has to upload Non-blacklisting certificate as perClause1.7.

4.13 The bidder has to upload Undertaking on affidavit from the original manufacture as per Clause16.8.

4.14 The bidders has to upload the copies of PAN and income tax returns for the last three year along with the copy of TIN/ copy of registration of their firms with appropriate authority.

4.15 The bidder has to upload literature of equipment with detailed specifications.

4.16 The bidder has to upload any other certificates/undertaking as per checklist.

5. Period of Validity of Bids

Bids shall remain valid for at least six months from the date of bid opening (price bid) prescribed by the Purchaser unless otherwise prescribed in other terms and conditions of this tender document. The Purchaser may reject a bid valid for a shorter period.

6. Purchaser's Right to accept any Bid and to reject any or all bids

The Purchaser reserves the right to accept any bid and to annul the tender process and reject all bids at any time, without assigning any reason, 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.

7. Opening of Bids by Purchaser

7.1 The bids will be opened in the presence of Bidders/representatives who choose to attend on the scheduled date and time as mentioned. The Bidders/ representatives who are present shall sign a register evidencing their attendance. The Bidder's representatives shall furnish letter of authority from their principal to attend the bid opening. Financial bids of only those Bidders, whose bids are found technically suitable/qualified (after the presentation, demonstration etc., if any) will be opened. The decision of the Technical-Committee on technical

suitability shall be final and shall not be opened for discussion. The bidders who do not qualify the technical evaluation shall be informed separately and their EMD shall be returned after award of the contract.

8. Scrutiny of Bids

8.1 The Purchase committee will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required EMD has been furnished, whether the documents have been properly signed, and whether the bids are generally in order. The institute may waive any minor infirmity, nonconformity or irregularity in a bid that does not constitute a material deviation and that does not prejudice or affect the relative ranking of any Bidder as a result of the technical and financial evaluation.

8.2 Prior to the detailed evaluation, the Purchase Committee will determine whether each Bid is acceptable qualitatively, is generally complete and is substantially responsive to the Bid Documents. For the purposes of this determination, a substantially responsive Bid is one that conforms to all the terms, conditions and specifications of the Bid Documents without material deviations, objections, conditional ties or reservations. A material deviation, objection, conditionality or reservation is one (i) that affects in any substantial way the scope, quality of performance of the Contract; (ii) that limits in any substantial way and /or is inconsistent with the Bid Documents or the college's rights or the successful Bidder's obligations under the Contract; or (iii) whose rectification would unfairly affect the competitive position of other Bidder's who are presenting substantially responsive Bids.

8.3 Arithmetical errors, if any, will be rectified on the following basis: If there is a discrepancy between the unit price and the total unit price as declared in the Price Schedule the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between words and figures, the amount in words will prevail. If the supplier does not accept the correction of the errors, its bid will be rejected.

9. Prices Bid

The prices must be quoted in **INR** only. All prices mentioned should be FOR destination at University Institute of Technology, Himachal Pradesh University, Summer hill, Shimla-5. Prices shall be quoted separately for each equipment. The bidders are required to quote the following prices:

a) Cost of core equipment including accessories as detailed in the specifications with 3 years warranty;
b) Cost of turnkey job, if required in the technical specifications.
c) Cost of Consumables wherever applicable.

The price comparison shall be made on the basis of cost of equipment/material along with its accessories, cost of Turnkey job and buyback offer and cost of consumables, wherever applicable.

9.1 The bidder has to quote for all items in Part-A and Part-B in the BOQ. The lowest bidder could be calculated on the basis of grand total of Part-A and Part-B.

9.2 The bidder shall have to quote Basic Rate and GST % as per required as Financial Bid/BOQ. The price quoted must be net per unit and inclusive of Freight, Loading, Unloading, Insurance, Road permits, Handling, Packing, Clearing charges, if any. No other charges & taxes will be paid extra.

9.3 The prices of equipment quoted by the Bidder and accepted by University Institute of Technology, Himachal Pradesh University, Summer hill, Shimla shall hold good till the completion of the works or satisfactory installation of equipment and no additional claims will be admissible on account of any price variation or fluctuation in market rates.

9.4 Payments made consequent to any notified change in sales tax / GST and other statutory levies (both increase and decrease) shall be to the Purchaser's account. For such claims of variation, the Bidder shall produce the Government notification as documentary evidence. Price variation due to any other cause shall be on Bidder's account.

9.5 The finally selected Bidder will have to apply to the proper Government Authority for grant of requisite License for such items as required and the purchaser will only tender such assistance, as considered necessary.

9.6 The firm has to provide the break-up of expenditure of different quoted items as well as total expenditure clearly for the whole items.

9.7 Excise/Custom Duty, VAT, GST, Entry Tax and any other levy/surcharge in any shape or by whatever nomenclature may be included in the quoted amount as per the Department of Scientific and Industrial Research (DSIR) certificate, which shall be provided by the purchases.

9.8 The CMC charges per year shall be quoted in the BOQ and the amount shall be considered for evaluating the bidder as L-1.

9.9 The warranty charges shall not be quoted separately otherwise the offer shall be summarily rejected.

10. Purchaser's Right to Vary Quantities at the time of Award

The Purchaser reserves the right to vary the quantities and/or services.

11. Negotiation/Award of Contract

Prior to the expiry of the period of bid validity, the Purchaser will notify the finally selected Bidder(s) in writing by registered letter or by cable or telex or fax, to be confirmed in writing by registered letter or by Hand in person, that its bid has been accepted. If need for extension of the bid validity period arises, it should be extended by mutual agreement. Before the award of contract, the University Institute of Technology may hold negotiations with the bidder, whose bid has been determined to be substantially responsive to the bid documents and whose offers are lowest one. The aim is to reach agreement on all points and sign a contract.

12. Signing of Contract

12.1 At the same time as the Purchaser notifies the finally selected Bidder(s) that its bid has been accepted, the finally selected Bidder(s) shall collect the supply order, agreement/ Contract Performa from the office of the University Institute of Technology, Himachal Pradesh University, Summerhill,Shimla-171005

12.2 Without prejudice to any legal remedy, failure of the finally selected Bidder(s) to comply with the requirement of Clause 2.3 (a) or Clause 2.3 (b) shall constitute sufficient grounds for the annulment of the award and forfeiture of the EMD, in which event the Purchaser may make the award to the next lowest evaluated Bidder or call for fresh bids.

13. Payment

Payment of equipment will be released in one installment as under:-

-100% after the satisfactory installation & functioning of the Equipment/material in the Lab/department including training and receiving of certificate to that effect from the concerned Committee/Lab Incharge.

14. Other Terms and Conditions of Tendering Firms

14.1 Printed terms and conditions to the Bidder will not be considered as forming part of their Bids. In case terms and conditions of the contract applicable to this invitation of tender are not acceptable to any Bidder, he should clearly specify deviation in his Bid.

15. Inspection and Tests

The Purchaser shall have the right to inspect and/or test the equipment for its conformity with the given Specifications.

15.1 In case any inspected or tested Equipments fail to conform to the specifications, the Purchaser may reject them and the supplier shall either replace the rejected Equipment or make all alterations necessary to meet specification requirements free of cost to the Purchaser.

15.2 The supplier shall provide installation and standard tests for the individual equipment before the delivery of the system at site.

15.3 The supplier shall test each individual equipment and the complete system after installation at site and prepare a test report. This shall be compared with the factory test report to ensure that there is no deterioration in the equipment parameters during storage, transportation and installation.

15.4 Leaflets and literature should invariably be attached for ready references along with complete documentation of all the measurements conducted during installation period which shall be submitted by the supplier for future reference.

15.5 The technical problems faced during installation, testing and commissioning period and their solutions shall be submitted by the supplier at the time of handing over the completed works.

15.6 For the purpose of taking over the equipment/system supplied pursuant to this contract, an acceptance test shall be carried out at the Purchaser/Consignees destination site. The equipment which meets the acceptance test shall only be accepted by the Purchaser.

15.7 (a) Acceptance Test at site shall be conducted of individual equipment and complete system to ensure that individual equipment and complete system meets the technical specifications and other operational and technical requirements of tender.

(b) The Purchaser shall have the right to reject any individual equipment or complete system, if in its opinion the same does not meet technical specifications, operational or technical requirements. The decision of the purchaser in this regard shall be final.

(c) The delivery, installation or commissioning shall not be deemed to have been completed unless all the equipments and systems are accepted by the purchaser.

16. Warranty/CMC (After Sales Services)

16.1 The equipment shall be quoted with 3 years warranty. The warranty shall also cover the accessories supplied with the main equipment. However, it shall be noted that the warranty charges shall not be quoted separately otherwise the offer shall be summarily rejected.

16.2 Incremental Cost (if any) for up-gradation, if required, should form part of the contract for the Warranty and Post Warranty period.

16.3 The Supplier (manufacturer) shall set-up a maintenance base to provide maintenance service, of the entire system being offered, at short notice during the warranty and post warranty period. The technical maintenance personnel of the supplier, responsible for supervision and maintenance, shall be available to reach the site(s) within 48 hours' notice. The supplier shall also provide the preventive maintenance after every 6 (six) months.

16.4 If the performance of any individual equipment or system is not satisfactory, the same shall be replaced by the supplier free of cost.

16.5 If it is found that to meet the performance criteria, any extra equipment is required the same will be provided free of cost by the supplier.

16.6 Any lacuna or lacunae noticed in the functioning of the installation as a result of any design feature shall be rectified by the supplier free of cost.

16.7 The Supplier shall fully associate the engineers and technicians of the Institute during installation, testing, commissioning, operation and maintenance period.

16.8 The bidder shall attach an undertaking on affidavit from the original manufacturer that the CMC after warranty period shall be provided by the manufacturer OR his sole All India distributor directly on the rates and terms finalized with the bidder. The manufacturer shall be liable for the aforesaid service in case the dealership is changed/back out.

17. Spare Parts

17.1 The Bidder will undertake that supplies of necessary maintenance equipment and spare parts will be made available for all items/Equipments and for the complete system for at least 10 years on a continuing basis. An undertaking in this regard should be made available from the original manufacturer. However, this does not relieve the supplier of any warranty obligations under the Contract.

17.2 The Bidder shall include in his tender, the details of essential spares, and their quantity and unit prices as per schedule of requirements.

17.3 In addition to the essential spares, Bidder shall indicate additional recommended quantities of spares for efficient maintenance of the equipment and the systems for a period of 10 years, after the completion of warranty period, to ensure that the quality and reliability objective is achieved. The details on which unit price and the total cost or recommended spares is based shall be included in the tender as an option. However, the cost of such recommended spares shall not be considered for tender evaluation.

18. Previous Installations

18.1 The names and address of the institutions where the supplier has already installed/supplied the equipment indicating the dates of installations may be given. He should also attach performance certificates to indicate his prompt after sales service.

18.2 On site functional assessment of the similar installation and equipment of the short listed Bidders will be undertaken, if necessary, by the Committee duly constituted by the Department Council.

19. Delivery, Installation and Commissioning

19.1 Delivery of the goods at the Institute premises shall be completed by the Supplier within 45 days from the date of Supply Order.

19.2 The installation, testing and commissioning of the proposed system shall be completed within days from the date of Supply Order, failing which necessary action as deemed fit under rules, will be taken against the defaulter.

20. Site Preparation

20.1 The site for installation of the equipment shall be provided by the purchaser as per the required specification and environmental conditions before the installation of System/equipment/machinery.

20.2 Any civil/electrical work or other related works if specified/detailed in the technical specification shall be prepared by the supplier keeping in view the actual condition of site.

21 Incidental Services

21.1 The supplier is required to provide at free of cost to purchaser all hardware and software up gradation from time to time, during warranty and CMC period.

21.2 Further, any bugs/shortcomings detected by the purchaser/user as well as the supplier himself shall be rectified at free of cost to purchaser even beyond warranty period.

22. Arbitration

Disputes, if any, shall be subjected to the sole arbitration of the Vice-Chancellor, Himachal Pradesh University, Shimla-171005, whose decision shall be final and binding on the parties.

23. Jurisdiction

The courts at Shimla will have the jurisdiction for trial of any matter, dispute or reference between the parties arising out of the contract. It is specifically provided that no court outside and other than Courts at Shimla shall have jurisdiction in the matter.

24. Force Majeure

Any failure of omission or commission to carry out the provisions of the contract by the supplier shall not give rise to any claim by either of the party to contract, if such failure of omission or commission arises from an act of God, which shall include all acts of natural calamities such as fire, flood, earthquake, hurricane or any pestilence or from civil strikes, compliance with any stature and/or regulation of the Government, lockouts and strikes, riots, embargo or from any political or other reasons beyond the supplier's own control including war (Whether declared or not) civil war or state or insurrection, provided that notice or the occurrence of any event by either party to the other shall be given within two weeks from the date of occurrence of such an event which could be attributed to Force Majeure conditions.

25. Termination for default

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 in part:

i) If the supplier fails to deliver or install system within the time period(s) specified in the contract, OR

ii) If the supplier fails to perform any other obligation(s) under the contract.

26. Termination for Insolvency

The purchaser may at any time terminate the contract by giving written notice to the supplier, without compensation to the suppliers, if the supplier becomes bankrupts or otherwise insolvent (which shall be a breach of the contract on the part of the supplier), provided such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

27. Termination for Convenience

The purchaser may by written notice sent to the supplier terminate the contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience.

28. Up time guarantee:

The firm should provide uptime guarantee of 95%.

29. Downtime penalty Clause

29.1 During the comprehensive warranty period, the guarantee uptime as prescribed in Tender document/technical specification shall have to be ensured otherwise the penalty as specified shall be enforced. No discount will be given on account of public holidays/Sundays. The vendor must undertake to supply all spares for optimal up keep of the equipment for at least Ten Years after handing over the unit to the Institute. If accessories/other attachment of the system are procured from the third party, in such case the responsibility to keep the items/equipment's in working condition shall be the sole responsibility of the vendor and the bidder itself will have to sign the CMC with the Institute if required.

29.2 The principals or their agents are required to submit a certificate that they have satisfactory service arrangements and fully trained staff available to support the up time guarantee.

30. Price Fall Clause

The offer of rates by the tender will be subject to the price fall clause i.e. if any item is offered at a lower rate by the tender in any other State/Place in India to any other person/Org./Institution, he shall forthwith notify such reduction or sale to the Director, University Institute of Technology, Himachal Pradesh University, Summer hill, Shimla and the price payable for the Stores supplied to University Institute of Technology, H.P. University, Shimla after the date of coming into force the such reduction or sale, shall stand correspondingly reduced even to University Institute of Technology, H.P. University, Shimla.

31. The supplier shall furnish the following certificate along with each bill for payment for supplies made against in Rate Contract Tender.

"I/We certify that the Stores of description identical to the Stores supplied to the Government under the contract against Tender herein have not been offered/sold by me/us to any other person/organization/Institution upto date of bill/the date of completion of supplies against all supply orders placed during the currency of the tender/rate contract at the price lower than that of prices offered to the institute Under This Contract/Against Tender". The bidders must attach copies of their existing rate contracts, if any, with GeM or any other State Government/Institution.

NOTE:-**Bidder must go through these terms and conditions very carefully and put his signature along with stamp in token of acceptance of these terms and conditions. It shall also be noted that any further change in the tender documents shall be intimated/published only through website of this institute**

-Sd-
Director,
University Institute of Technology
H.P. University, Smimla-5

Annexure-A

CHECK List duly filled in to be attached with the Technical Bid

S.N.	Particulars	
1.	Undertaking for No gratification as per clause 1.6	Yes/No
2.	Non-blacklisting certificate as per Clause 1.7	Yes/No
3.	Undertaking on affidavit from the original manufacture as per Clause 16.8	Yes/No
4.	Undertaking for the supply of spare part as per Clause 17.1	Yes/No
5.	Whether a list of institution/organizations where your firm has supplied this item recently is attached along with satisfactory performance certificate from those institution/organizations. As per Clause 18	Yes/No
6.	Certificate of having satisfactory service arrangement and fully trained staff as per Clause 29.2	Yes/No
7.	In case you are manufacturer, have you enclosed the certificate?	Yes/No
8.	Whether the prices has been quoted on the prescribed Performa.	Yes/No
9.	Whether all the undertaking as required in the tender document are enclosed.	Yes/No
10.	Whether EMD as asked has been attached.	Yes/No
11.	Whether Tender Document duly signed by the authorized signatory attached.	Yes/No
12.	Whether the technical specifications of the equipment are attached.	Yes/No
13.	PAN and copies of Income Tax Returns for the last three years and average turnover certificate as per clause 1.12	Yes/No
14.	Copies of TIN issued/certificate of registration.	Yes/No
15.	Undertaking for supply of spare part during the subsequent twelve years (form-E)	Yes/No
16.	Undertaking for providing preventive maintenance as per the Clause 16.3 (form-G)	Yes/No

Authorized Signatory:

Name of the firm/bidder:

To be enclosed with Technical Bid

Annexure-B

Performa for Authority from
Manufacturers

No……. Dated……

To
The Director University
Institute of Technology
Himachal Pradesh University, Shimla-5

Dear Sir,

Sub: Tender No……

We ……an established and reputed manufacturers of..... Having factories at ……and office at M/s……
(Name and Address of the Authorized representative) hereby authorize to represent us, to tender, negotiate and conclude the contract on our behalf with you against Tender no …….

Yours faithfully

Signature and seal
Name…….
For & on behalf of M/s
……..
(Name of Manufacturers)

To be enclosed with Technical Bid

Annexure-C

BID FORM

To

Dated:

Sir,

Having examined the Bidding Documents of Tender No…….undersigned offer to supply, install, commission, operate maintain……..and we undertake, if our bid is accepted, to complete delivery of all the items specified in the contract within..... weeks calculated from the date of receipt of your Notification of Award and to complete the installation, testing commissioning……. We also undertake to supply the CMC and consumables on the rates offered/negotiated (in case our bids accepted) for the entire period of .....years from the date of Satisfactory installation.

Signature and Seal

(In the capacity of)

Only Authorized to sign bid

For and on behalf

of……

To be enclosed with Technical Bid

Annexure-D

Bidder Particulars

Bidder Serial Number Allotted on Tender Document:…….

1. Name of the Bidder:
2. Address of the Bidder:
3. Name of the Manufacturer(s):
4. Address(es) of the Manufacturer:
5. Name and address of the person:

To whom all references shall be made regarding this tender inquiry.

Telephone:

Telex:

Fax:

e-mail address:

Witness:

Signature	Signature
Name	Name
Address	Designation
	Company
Date	Date
	Company Seal

To be enclosed with Technical Bid

Annexure-E

Performa of Guarantee for Supply of Spares during Post Warranty Period

To

Dear Sir,

In consideration of the (hereinafter referred to as "Purchaser" which expression shall unless repugnant to the context or meaning thereof include its successors, administrators and assignees) having awarded to M/s……..... with its Registered/Head office at ..... (herein after referred to as the "Supplier" which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assignees), a contract by issue of the Purchaser's letter of Award no……..... dated entering into a formal contract to that ..... effect with the ..... Purchaser on.....……..vide agreement dated… ..... (Herein after referred to as the contract).

We the supplier hereby give a guarantee for the supply of all necessary spares demanded for the routine and emergency maintenance of being supplied by us to for a period of not less than 10 years after the warranty period of 3 years and life time spares thereafter in case asked for by the purchaser.
We further clarify that for the first_____years i.e. warranty period of_____years; we are covered by the warranty clause as mentioned. For the remaining period of_____Years and thereafter for the life time, a detailed list of spares will be supplied to the purchaser for the purpose of enabling him to decide spares needed for routine and emergency maintenance.

Dated..... day of.....20.....

Witness:(Name of manufacturers)

Signature and Seal

(Signature)

Name:

For & on behalf of M/s

To be enclosed with Technical Bid

Annexure-F

Performa of Guarantee of preventive maintenance

To

Dear Sir,

We the supplier hereby give a guarantee for providing preventive maintenance after every six months of all equipments being supplied by us upto the warranty period i.e. three years.

Dated..... day of.....20.....

Witness:(Name of manufacturers)

Signature and Seal (Signature)

For & on behalf of M/s

Name:

For & on behalf of M/s

To be enclosed with Technical Bid **Annexure-G**

Bidder Profile A (General Information)

(i) Location of Corporate Headquarters

(ii) Date and Country of Incorporation

(iii) Manufacturing
facility(ies Location
Size
Capacity

(iv) No. of service Facilities in
india Location
Strength
Area covered

(v) Average yearly turnover for last three years
2016-17, 2017-18 & 2018-19 (Attach
copy of proof)

(vi) Geographical Distribution of the supplier
No. of offices
Locations
Staff Strength

(vii) Total No. of installations of the system offered

(viii) No. of employees
Total No. Manufacturing
R&D Hardware
Maintenance
Software Any Other (Pl. Specify)

(B) **Reference of Major installation with similar products (Attach documents in support, if available)**

Customer Name, Address, Product Description,

Telephone/Fax No. Signature

Name

Designation

Company

Date Company Seal

Annexure-H

COMPLIANCE REPORT OF ELIGIBILITY

(Fill in the fact sheets carefully and should be signed by authorized signatory)

Sr. No	Eligibility Claim	Comply? Yes/No	Page No.	Remarks
1.	Whether the bidder attached the colored brochures of each items as per the Eligibility Criteria 1.1 ?			
2.	Whether the bidder is ready to work as per the scope of work such as Supply, Installation, Commissioning, & Satisfactory Demonstration. This will also include testing, packing, transportation, scheduling of transportation, transit insurance, delivery at sites, unloading, storage, job site storage, insurance, installation and any other services associated with the delivery of the equipment and materials providing warranty of services and operation and maintenance of other related equipment/items required for complete installation. The successful bidder will assume full responsibility of the complete system until final acceptance as per the Eligibility Criteria 1.3?			
3.	Whether the bidder has fully acquainted himself with all the local conditions and factors which would have any effect on the performance of the System, because no request for the change of price, or time, schedule of delivery of stores shall be entertained after the purchase on account of any local condition or factor as per the Eligibility Criteria 1.4?			
4.	Whether the bidder is participating on its own behalf as per the Eligibility Criteria 1.5?			
5.	Whether the undertaking is attached regarding No Gratification Clause as per the Eligibility Criteria 1.6?			
6.	The bidder /agency should give an undertaking in the form of notarised affidavit of Rs. 50/- that it has not been blacklisted by any Government/Autonomous/PSU type organizations etc. as per the Eligibility Criteria 1.7.			
7.	The bidders must have submit the copies of valid PAN No., TIN No. & GST No. and income tax returns for the last three years i.e. 2018-19, 2019-20 & 2020-21 (Copy of the same should be attached)			
8.	Whether the bidders have their service Centre at least one of the City i.e. Chandigarh/Delhi/Himachal Pradesh?			

9.	Information regarding installations in Government &Premier institutions in India and satisfactory service and maintenance may be forwarded with all the details for verification. (Copy of the same should be attached).			
10.	Audited statement of Bidders showing average turnover of Rs. 7.5 Lac for three years i.e. 2018-19, 2019-20 & 2020-21duly signed by the Charted Accountant (CA). (Copy of the same should be attached).			
11.	Whether the bidder has attached the EMD/Bid security of Rs. 54,000/- (Rupees Fifty-Four Thousand only) in favour of **Director, UIT, HPU** in form of FDR.			
12.	The bidder has to give in writing on his letter head that the benefit of subsidized custom duty (as per **DSIR** certificate) will be passed to the University even if he has quoted the price in Indian rupees. Any other tax exemption, if valid for University may be passed to the University.			
13.	Proof of authorized signatory of the bidder on the stamp paper or resolution passed by the Board of Director (BoD) of company.			
14.	Detailed profile of the Company/firm.			
15.	Receipt of Rs. 1000/- (Rupees One Thousand only) towards the cost of the tender document in form of demand draft to be submitted in favour of **Director, UIT, HPU.**			
16.	Whether the bidder has registered with MSME are exempted from EMD as per Govt. Notifications. (Copy of the certificate should be attached)			
17.	The Bidder has to undertake that supplies of necessary maintenance equipment and spare parts will be made available for all items/Equipments and for the complete system for at least 10 years on a continuing basis. An undertaking in this regard should be made available from the original manufacturer. However, this does not relieve the supplier of any warranty obligations under the Contract.			
18.	Whether the Bidder has attached an undertaking for providing preventive maintenance of all the supplied equipments			

SECTION-III

FORM B

Format for Furnishing Information by the Bidder for the Supply of Tendered Items Etc. Tender to be opened on _____in the University Institute of Technology, Himachal Pradesh University,Shimla-5		
PART-I		
General		
1.	Name of the Bidder	
	Postal address	
	Country	
	State	
	City	
	Pin Code	
a	Telephone No. with STD Code	
b	Mobile No	
c	E-mail Id (Primary)	
d	Alternative E-mail Id	
e	Fax No. with STD Code	
f	Website	
g	GST No.	
h	PAN	
i	TIN No.	
j	License No.	
k	Supplier Status	
l	Turnover Last three Financial Year (in Lakhs)	
m	Type of Supplier (i) Manufacturer (ii)Direct Importer	
n	Account No. for e-banking	
o	Name of the bank in which on-line Bank Account is operating	
p	Bank Address	
q	IFSC Code No.	
r	MICR No.	
2.	Particulars of the Branch Office or Depot or Dump or C & F Agent or Authorized distributors of the tenderer who will raise the bill(s) and where supply orders are to be sent and correspondence to be undertaken with regard to supplies, Please tick (✓) mark the agency and give name & full postal address hereunder:-	

1.	Name of the Agency (Branch office/Depot/Dump/C&F Agent/Authorized Distributer	
	Postal address	
	Country	
	State	
	City	
	Pin Code	
a	Telephone No. with STD Code	
b	Mobile No	
c	E-mail Id (Primary)	
d	Alternative E-mail Id	
e	Fax No. with STD Code	
f	Website	
g	GST No.	
h	PAN	
i	TIN No.	
j	License No.	
k	Account No. for e-banking	
l	Name of the bank in which on-line Bank Account is operating	
m	Bank Address	
n	IFSC Code No.	
o	MICR No.	
3a	Cost of tender Document	a. Amount INR
		b. In figure Rs
		c. FDRNo……..dated……..
		d. Name of issuing bank…….
3b	Earnest Money Deposit	a. Station …….
		b. In figure Rs.
		c. FDRNo…….dated…….
		d. Name of issuing bank…….
PART-II		
Declaration		
I/We …….. Prop./Partner/Director etc. (Please specify) of M/S …… hereby declare that the information given in this form is true to the best of my knowledge and brief		

Signature of the Principle Officer of the Company/firm with seal/stamp
Name:
Designation:
Aadhar No.

SECTION-IV (PART-I)

GEOTECHNICAL ENGINEERING LAB

S. No.	Name of Equipment	Quantity
1	Non-corrodible air-tight container (50 mm diameter and height 50mm)	30
2	Density bottle of 50 ml with stopper having capillary hole	08
3	Spatula (LENGTH 150 mm) Spatula (LENGTH 200 mm) Spatula (LENGTH 300 mm)	04 04 06
4	Volumetric flask with stopper capacity 1000ml ("Borosil") Volumetric flask with stopper capacity 500ml ("Borosil")	05 05
5	Trowel	05
6	Seives a) 20 cm dia sieve Pan and cover b) 30cm dia sieve Pan and cover	2 set 02 2set 02
7	Pycnometer	5 each
8	Measuring graduated Cylinder	5 each
9	Electronic weighing machine (Digital) with NABL certificate.	2 each
10	Desiccator Vacuum	03
11	Electric Oven : Hot Air Oven	01
12	Motorised Sieve shaker	01
13	Digital Stop watch	05
14	Pipette analysis test apparatus	5 SET
15	Shrinkage Limit test apparatus	5 SET
16	Plastic Limit test apparatus	5 SET
17	Liquid Limit test apparatus	5 SET
18	Field density test by Sand replacement method	5 SET
19	Field density test by Core cutter method	5 SET
20	Permeability Apparatus	01

21	Compaction test apparatus(standard Proctor Test)	05
22	Compaction test apparatus(Modified Proctor Test)	05
23	Consolidation Apparatus	01
24	Direct Shear Apparatus	01
25	Laboratory vane shear test apparatus	01
26	Triaxial shear test and Unconfined compressive strength test apparatus	01
27	Universal soil sample extruder Electronic cum hand operated:	01
28	GI Tray (300x300) mm2 (450x600) mm2	5 each
29	APPARATUS FOR STANDARD PENETRATION TEST	01
30	APPARATUS FOR CONE PENETRATION TEST (CPT)	01
31	APPARATUS FOR SWELLING PRESSURE TEST	01
32	APPARATUS FOR SEDIMENTATION ANALYSIS USING PIPPETTE METHOD FOR CLAY AND SILT.	01
33	DISTURBED & UNDISTURBED SAMPLERS	01 each
34	APPARATUS FOR RELATIVE DENSITY	01
35	APPARATUS FOR AUGER BORING	01

SR.NO	Brief Specification of equipments
1.	Non-corrodible air-tight container (50 mm diameter and height 50mm)
2.	Density bottle of 50 ml with stopper having capillary hole
3.	Spatula (LENGTH 150 mm) Spatula (LENGTH 200 mm) Spatula (LENGTH 300 mm)
4.	Volumetric flask with stopper capacity 1000ml ("Borosil") Volumetric flask with stopper capacity 500ml ("Borosil")
5.	Trowel as per IS 10086: 1982
6.	**SEIVES** **(a) IS SEIVES: 20cm. dia. Sieves in Brass Frame with NABL Certificate**, S.S.Mesh:-Size:- 5.6 mm, 4.75mm, 3.35mm, 2.8mm, 2.36mm, 1.70mm, 1.18 mm, 850 micn., 600micn., 425micn., 300micn., 150 micn., 90micn., 75micn. With as per I.S 460-1962. Pan and cover for 20cm. dia Sieves made of brass. **(b) IS SIEVES: 30cm. dia. Sieves in G.I. Frame with NABL Certificate**, S.S.Mesh:-Size:- 80mm, 63mm, 50mm, 40mm, 37.5mm, 31.5mm, 26.5mm, 25mm, 22.4mm, 20mm, 16mm, 13.2mm, 12.5mm, 11.2mm, 10mm, 6.3mm, 4.75mm, 3.35mm, 2.36mm With as per I.S 460-1962. Pan and cover for 30cm. dia sieves made of G.I.
7.	**Pycnometer as per IS 2386 (Part III)- 1963** with Glass Cone. Capacity 900ml. approx. having a metal conical screw top with a 6-mm diameter hole at its apex. **Pycnometer as per IS 2386 (Part III)- 1963** with Brass Cone. Capacity 900ml. approx. having a metal conical screw top with a 6-mm diameter hole at its apex.
8.	**Measuring graduated Cylinder of 1000ml capacity (Borosil) as per IS 2386 (Part III)- 1963** **Measuring graduated Cylinder of 500ml capacity (Borosil) as per IS 2386 (Part III)- 1963** **Measuring graduated Cylinder of 250ml capacity (Borosil) as per IS 2386 (Part III)- 1963** **Measuring graduated Cylinder of 100ml capacity (Borosil) as per IS 2386 (Part III)- 1963**
9.	**Electronic weighing machine (Digital) with NABL certificate**. Capacity - 10kg L.C. – 0.1gm Capacity - 1kg L.C. – 0.01gm with Tare facility, In-built Battery Backup.
10.	**Desiccator Vacuum**. Plastic with transparent Top 300 mm
11.	**Electric Oven : Hot Air Oven**:

	Gravity convention type, thermostatically controlled double walled, inner made of Aluminium, outer of Mild Steel nicely hammerton spray-painted; in between wall heavily insulated with thick layer of glass wool, with double walled insulated door, temperature controlled by capillary type Thermostatic, temp. ranging from 50°C to 250°C . (can be set at 100 to 110°C). Fitted with motorized air circulation system & inner chamber of stainless steel with digital controller cum indicator. Inner chamber size should be of 600 mm x 600 mm x 900 mm.
12.	**Motorised Sieve shaker with Built-in-digital timer for 20cm dia. sieves which should be able to carry up to 8 sieves of 150 mm. or 200 mm. diameter. The shaker shall be driven by a ¼ h.p motor**.
13.	**Digital Stop watch** with least count 1/10 sec.
14.	**Pipette analysis test apparatus IS 2720 (Part 4)-1985:** Glass tube 50mm diameter, 350 mm long marked at 500 ml volume 1. Heavy brass funnel (diameter approx. 23 cm) on stand. 2. Small 50 μm or 63 μm sieve (diameter 8 cm). 3. 13 one litre glass sedimentation cylinders. 4. 13 one litre glass beakers & covering watch glasses. 5. Suction pump. 6. 13 one litre PVC bottles 7. Two splash bottles 8. Rubber policeman 3 cm 9. 20ml pipetting device, 10. 4x13 Stainless steel moisture tins and with all other necessary accessories.
15.	**Shrinkage Limit test apparatus[IS 2720 (part VI)-1972]** • Porcelain evaporating Dish • Shrinkage Dish • Glass Cup • Perspex plate with three metal prongs • Perspex plate, plain • Flexible Spatula • Glass Cylinder 25 ml x 0.5ml and with all other necessary accessories.
16.	**Plastic Limit test apparatus [IS 2720 (part V)-1985]** The complete set consists of: • Glass plate 20cm x 15cm having ground ends and one side frosted. • Brass or stainless steel rod 3 mm dia. x 150 mm long, • Flexible spatula. • Porcelain basin And with all other necessary accessories.
17.	**Liquid Limit test apparatus[IS 2720 (part V)-1985]** Casagrande's apparatus with all necessary accessories (like grooving tool, Mixing dishes, spatula etc.)
18.	**Field density test by Sand replacement method [IS 2720 (Part XXVIII)- 1974] :** Sand pouring cylinder of 3 litre capacity, mounted above a pouring cone and separated by a shutter cover plate. Cylindrical calibrating container with an

	internal diameter of 100 mm and an internal depth of 150 mm fitted with a flange 50 mm wide and about 5 mm surrounding the open end. Metal tray with 300 mm square and 40 mm deep with a 100 mm diameter hole in the centre.
19.	**Field density test by Core cutter method [IS 2720 (part XXIX)-1975]:** • Core cutter apparatus with dolley. • Rammer for above with handle.
20.	**Permeability Apparatus as per IS 2720 (P-XXXVI)-1987:** **For Determination of co- efficient of permeability by Constant head parameter & variable head parameter**. Consisting of gunmetal / brass mould 100mm dia. x 127.3mm height x 1000ml volume with collar and Drainage base plate, drainage cap, Metallic clamping ring, two porous stone for base and cap. Dummy plate, set of three glass stand pipes approx. 6mm×10mm, and 20mm dia. mounted on a wooden board, length of 3 meter rubber connection tube with pinch cock. And also with 100 litre water tank having with an inlet port at the top, six outlets at the bottom with cocks, air inlet and water filling tube at the top. An arrangement to indicate the water level is also provided. And inlet port on top and with all other necessary accessories.
21.	**Compaction test apparatus(standard Proctor Test) as per IS 2720 (Part VII)-1980-** Standard Proctor Compaction mould, 100mm dia x 127. 3 mm high x 1000 c.c. volume with collar and base plate. Light compaction, made of Mild Steel. With Rammer 2.6 Kg. x 31 cm. controlled drop.
22.	**Compaction test apparatus(Modified Proctor Test) as per IS 2720 (Part VIII)-1983-** Modified Proctor compaction mould, 150mm dia x 127.3mm high x 2250 c.c. volume with collar and base plate. For Heavy Compaction, made of Mild Steel. With Rammer 4.89 Kg. x 45 cm. controlled drop.
23.	**Consolidation Apparatus as per IS 2720 (Part XV)-1965**: **Single gang complete with gunmetal cell and Dial gauge 0.002 mm.** The standard outfit comprises of a fixed ring type of consolidometer cell for testing specimens of 60mm dia. x 20mm thick. Suitable for varying sizes from 50mm. dia.to100mm dia. specimens. SPECIFICATION : Loading unit of maximum capacity 20 kg/cm2 consisting of a loading yoke connected to a lever arm with a counter balancing adjustment and having a lever ratio of 1: 10, the whole assembly being mounted on a steel frame stand Fixed ring type of consolidometer (Oedometer) cell assembly for testing 60mm dia. × 20mm thick specimens comprising : 1. Fixed ring for specimens 60mm dia. × 20mm. thick with a guide ring. 2. Pair of porous stones for 60mm. dia. specimen. 3. Pressure pad, perforated. 4. Channelled base with water inlet. 5. Gasket. 6. Flanged water jacket. Set of weights to give a pressure of 10 kg/cm2 on 60 mm. dia. specimens consists of the following weights:- 0.05 kg / cm2 **– 7 Nos**., 0.1 kg / cm2 – **5 Nos**.,

	0.2 kg/cm2 – **6 Nos.,** 0.5 kg/cm2 – **6Nos**. and 1.0kg/cm2 – **5 Nos** . Water reservoir with plastic tube, T connection and 2 pinch cocks. Dial gauge 0.002 mm. x 5mm travel with 40 mm. long extension piece.
24.	**Direct Shear Apparatus, motorised 12 speeds ELECTRICALLY OPERATED as per IS 2720 (P-XIII)-1986.** Loading Unit : It consists of a load frame with V-strips on which shear box housing rests, load yoke with direct and lever system for applying normal load to capacity of 8kg/cm2 , fixture for proving ring, bracket for holding consolidation dial gauge and manually operated .lead screw for application of shear stress. Shear box assembly for square specimen, size 60mm. X 60mm. X 25mm. complete with- • Two halves of shear box with an adaptor fixed to the U-bracket of upper half of the box. • Plain gripper plates: 2Nos. • Perforated gripper plates: 2Nos. • Porous Stone: 2Nos. • Top loading Pad: 1No. • Base plate: 1No • Set of weight to give a normal stress of 3 kg/cm.sq. through lever as follows : To give kg/cm.sq Qty. 0.05 4 Nos 0.1 1 No 0.2 1 No 0.5 3 Nos 1.0 1 No • Specimen cutter for cutting 60mm. X 60mm. X 25mm. specimens •Proving Ring capacity 2.5 KN with NABL Certificate 1 No. •Dial Gauge 0-25 × 0.01mm 2 Nos and with all other necessary accessories.
25.	**Laboratory vane shear test apparatus motorised electrically operated rate of rotation is 1/ 60 r.p.m as per IS 2720 (Part XXX)-1980:** Consists of a torque head adjustable in height by means of a lead screw rotated by a drive wheel to enable the vane to be lowered into the specimen. Rotation of the vane is operates a worm gear arrangement turning the upper end of a calibrated torsion spring vane dia rod dia, vane size & vane height are as per IS specification. The vane shaft is attached through the hollow upper shaft to resettable pointer, which indicates the angle of torque on a dial graduated in degrees. The dial reading multiplied by spring factory gives the torque. A container for soil sample is also supplied, and a sampling tube of 38mm I.D. & 150 mm long can also be used as container. With set of four springs, one each of approx 2kg cm, 6kg cm, and 8kg cm. Complete as above in a wooden carrying case with all other necessary accessories.
26.	**Triaxial shear test and Unconfined compressive strength test apparatus electrically operated as per IS 2720 (Part XI)-1993 & IS 2720 (Part XII)-1981: Load Frame, Motorised, 30 speeds, 50 KN Triaxial Cell, Stationary Bushing, 38mm dia having Top loading pad, Perspex, 38 mm dia. 1 No.** •Plain Perspex disc 38mm dia x 6 mm thick 1 pair. •Porous Stone 38mm dia x 6 mm thick. 1 pair. •Sheath stretcher for 38 mm dia specimen 1 No. •Two way split former for 38 mm dia specimen 1 No. •Rubber sheath for 38 mm dia specimen 12 Nos. •Drainage tube (short), 38 mm 4 Nos. •Drainage tube (long), 38 mm 4 Nos.

	•'O' rings for 38mm dia specimen 4 Nos. •Split Mould, 38mm dia 1 No. •Top loading pad 38mm (plain) 1 No. •proving ring 2.5 kN capacity with NABL certificate **•Constant pressure system oil water type •Pore pressure apparatus having**:- Pressure Gauge Bourdon Tube type, Graduation : - 0.1 bar Divisions. (or -1 to +20 kg/cm2),Dia : 200 mm Manometer Glass U-Tube, measures low positive and negative pore pressure and helps to check zero error of pressure gauge. It is provided with a mercury trap. Null Indicator Perspex with mercury trap and a cursor to indicate the mercury level Burette, 50 ml for measurement of volume change in the soil specimen. **•Pressure Pump fitted with four Ball Valves.** •Copper Coil **•Water Reservoir** **•Dial Gauge 25 mm travel, 0.01 mm least count** **•Lateral Pressure Assembly capacity 10kg/cm2 (Pressure Chamber with foot pump).**
27.	**Universal soil sample extruder Electronic cum hand operated:** • Power pack with quick release couplings. • Manual operation possible on power failure. • Ejects soil from sampling tubes and moulds upto 60 cm inlength and 38 to 150 mm in diameter by a single operation. • Allows direct transfer of soil from field sampling tubes,Proctor and CBR moulds into 38 mm diameter tubeswith minimal disturbance. • 50kN pushing force. • Electrical-cum-hand operated. • Built-in safety valve to prevent loading beyond 50kN. • Portable, with facility for floor mounting. • Lever for selecting up/down movement of piston. • Top-plate for holding upto 6 sampling tubes of 38 mm dia. Suitable for operation on 220 V, 50 Hz, single phase, AC supply. Equipment consisting of :- Adapter rings/Disk kit - Adapter rings andejector discs for 38, 50, 75, 100 & 150 mm dia sampling tubes or moulds, included.Sampling Tube, Unrelieved, 38 mm dia x 200 mm long -3 Pair.
28.	**GI Tray** (300x300) mm2 **GI Tray** (450x600) mm2
29.	**SPT equipment consists of the followings and confirming to IS: 2131:1981, IS:9640:1980** 1) Spit Spoon Sampler- 50.8mm OD and 38mm ID confirming to IS 9640: 1980 2) Spit Spoon Sampler with Brass liner, 50.8mm OD and 35mm ID 3) Driving weight – cast iron, 63.5 kg, 78mm bore ID approximately 4) Guide pipe assembly- Bore 73mm OD approximately 5) Tripod with Pulley and built in ladder 6) 'A' type Drill Rods -10m long 7) Hoisting equipment-Lifting Bail, Tongs, Rope, Screw Jack, pulley, hook, axle, winch etc. 8) Manila Rope 19mm dia, 10m long 9) Mechanically operated driving mechanism * One set consist of all the above items
30.	Static Cone Penetrometer machine (capacity 200kN, **Engine driven**) with all its accessories complete set and **confirming to IS: 4968 (Part 3):1976** for 30m

	depth. Digital display for load and displacement. Major accessories are as given below. 1) Penetration cone (steel, 60º cone angle, 10 cm2 base area) 2) Friction jacket 3) Mantle Tube with sounding rod (1m working length) 4) Load cell with digital indicator 5)Hyd. Motorized Anchor driving Assembly 6) Driving mechanism 7) Sounding rod etc. 8) Anchors etc. * One set consist of all the above items
31.	Swell Test apparatus (Digital) consist of the followings**:** 1) Load frame capacity 5 kN 2) Mould-100mm dia X 127.3mm height (1000 ml volume) with base plate and collar 3) Load cell 5kNcapacity 4) LVDT 25mm 5)Battery operated data acquisition system 6) Perforated swell plate- 100mm dia X 16 mm thick 6) Spacer- 100mm dia X 12.7mm thick 7) Pair of porous stone- 100mm dia X 12.7mm thick 8) Load transfer Bar 9) Steel Ball 10) Soaking tank- 250mm dia X 210mm high * One set consist of all the above items
32.	Apparatus consist of the followings and Confirming to **IS: 2720 (Part 4)-1985** 1) Pippete (10 ml capacity, Anderson) with stand 2) Cylinder/jars(500,1000 ml capacity, glass) 3) Mechanical stirrer -(High speed>8000rpm) 4) Glass weighing bottles of 15 ml capacity fitted with ground glass stopper. 5) Digital Balance- (sensitivity 0.001gm.) of nearly 320g capacity 7) Thermometer (0 to 50°C) 8) Water bath - of 15lit to 20lit capacity
33.	(i)Open tube sampler and split tube sampler (ii)Thin walled tubes 50 to 125 mm (iii)Piston type sampler (iv)Samplers with special core retainers (v)Sand sampler Confirming to respective IS codes.
34.	Apparatus consists of the followings and confirms to **IS: 2720 (Part 14)-1983** Vibratory table of size 75cm x 75cm. Vibration rate should be 3600 VPM (3000 @ 50 Hz) vibratory table, minute under a 11.5kg load. Amplitude is variable in between 0.65mm in step of 0.05 to 0.25mm, 0.25 to 0.45 mm and 0.45 to 0.65mm. Suitable for operations on 415V, Three Phase supply. Cylindrical metal mould, 3000ml. Capacity. Guide sleeve with clamp assembly. Surcharges base plate for mould. Handle for surcharge base plate. Surcharge weight. Cylindrical metal mould 15000 ml. capacity. (Total weight together with the above mould & surcharge weight is equivalent to 140 kg./sq. cm) Dial gauge 0.01mm x 50mm travel. Extension piece 25mm for dial gauge.
35.	Auger (Spiral type) confirming to **IS: 10442:1983**. Nominal size-**100mm**, **150mm, 300mm** with extension rods, Couplers, T piece, handles and extension to handles etc. in complete for boring up to 10m.

PART-II

Transportation Engineering Lab

S.No.	Name of Equipment	Qty
1.	**Aggregate Impact Test Apparatus with Counter**	2
2.	**Thickness gauge and Length gauge**	2
3.	**Los Angeles Abrasion Testing Machine**	1
4.	**Ductility Testing Machine with Digital Temp Indicator**	1
5.	**Ring and Ball Apparatus**	2
6.	**IS Sieve (coarse) -45 cm diameter**	3 Sets
7.	**IS Sieve (Fine)**	3 Sets
8.	**California Bearing Ratio (CBR) Test apparatus Laboratory Type**	1
9.	**California Bearing Ratio (CBR) moulds**	2
10.	**Standard Tar Viscometer, 10mm cup and ball valve**	2
11.	**Standard Tar Viscometer, 4mm cup and ball valve**	2
12.	**Standard penetrometer**	2
13.	**Aggregate Crushing Value Test Apparatus**	2
14.	**Sieve shaker**	1
15.	**Electrical operated Oven**	2
16.	**Vernier caliper**	4
17.	**Stopwatch**	4
18.	**Rice plate small**	5
19.	**Compactor For Light &Heavy Compaction As Well As For CBR**	1
20.	**Water Bath For Controlling The Temperature Of Bitumen**	1
21.	**Centrifugal Extractor**	1
22.	**Automatic Bituminous Compactor(Electrically Operated)**	1
23.	**Dorry Abrasion Testing Machine**	1
24.	**Deval Attrition Testing Machine**	1
25.	**Flash and fire point test Apparatus/ Pensky Martens Apparatus**	2
26.	**Bump Integrator**	1
27.	**Tamping rod**	10
28.	**Mortar Mixing Tray**	10

29.	**Trolley**	3
30.	**Hot Plate**	2
31	**Radar speed gun**	2
32.	**Weighing Machine**	4
33.	**Film Stripping Device**	1
34.	**Surcharge weight**	10
35.	**PROVING RING 30 kN**	1
36.	**PROVING RING 50KG**	1
37.	**PROVING RING 100KN**	1
38.	**Compressive testing machine**	1
39.	**Benkelman Beam with Digital Dial Gauge**	1
40.	**Digital Marshall Apparatus**	1
41.	**Density Basket & Buoyancy Balance,**	1
42.	**Specific Gravity Bottle for Aggregates**	3
43.	**Specific Gravity Bottle for Bitumen**	3
44.	**Dial Gauge with Stand**	4
45.	**Bucket**	10
46.	**Triple Beam Balance**	1
47.	**Compaction Mould**	5
48.	**Cylindrical Metal Measure**	3 Sets
49.	**Crow Bar**	5
50.	**Scabbling Hammer**	5
51.	**Straight Edge**	5
52.	**Mason Square**	5
53.	**Spirit Level**	5
54.	**Pick Axe**	5
55.	**Plas/Plier**	5
56.	**Construction Tasla**	10

Detailed Specification of Equipments

S.No.	Name of Equipment
1.	**Aggregate Impact Test Apparatus with Counter** **Specifications:-** • As per IS 9377 (1979) • The instrument consists of a circular base with two vertical guides. • The hammer weight is 13.75 ±0.25 kg which can be raised to fall freely down through vertical guides. • The height of the fall can be adjusted to 380 ± 5mm. • The hammer is provided with a locking arrangement. • Metal measures of 75mm Dia x 50mm high (for specimen preparation) • 1 No. Tamping rod 230mm long x 10mm Dia.
2.	**Thickness gauge and Length gauge** **Specifications**:- As per IS:2386 (Part I)-1963
3.	**Los Angeles Abrasion Testing Machine** Specifications:- • As per IS: 2386 (Part IV) – 1963, BS:812, ASTM C-131, C535, D2, AASHTO T96 • The machine shall consist of a hollow steel cylinder, closed at both ends, having an inside diameter of 700 mm and an inside length of 500 mm. The cylinder shall be mounted on stub shafts attached to the ends of the cylinders but not entering it and shall be mounted in such a manner that it may be rotated about its axis in a horizontal positioning opening in the cylinder shall be provided for the introduction of the test sample. • The opening shall be dust-tight with a removable cover bolted in place. The cover shall be so designed as to maintain the cylindrical contour of the interior surface unless the shelf is so located that the charge will not fall on the cover, or come in contact with it during the test. • A removable steel shelf, projecting radially 88 mm into the cylinder and extending its full length, shall be mounted along with one element of the interior surface of the cylinder. The shelf shall be of such thickness and so mounted, by bolts or other approved means, as to be firm and rigid. • The position of the shelf shall be such that the distance from the shelf to the opening, measured along the circumference of the cylinder in the direction of rotation, shall be not less than 1250 mm.

	• Removable Cover – A removable cover plate240x 6mm shall be provided to close the opening on the cylinder dust-tight and this shall be bolted in place. The removable cover shall be made of steel and shall be formed to maintain the cylindrical contour of the interior surface having a gasket thickness of 12mm Shelf- The shelf shall be of mild steel.(Angle shelf :- 200x100x12mm,Steel Shelf:-88x25x500mm) • Frame – The frame shall be of welded structural steel construction. A channel carrying the motor and gearbox shall be fixed rigidly to the frame. • Drive – The drive should be using a belt running over a sprocket on the stub shaft and a sprocket on the shaft of a gearbox coupled to a motor (1 hp, 3 phase, and 1440 rpm). • A clutch shall be provided. A revolution counter shall be provided to indicate the number of revolutions. The rate of rotation of the cylinder shall be 30-33 rpm. • Tray – A tray with lifting handles shall be provided. Reduction gear with electric motor Digital controller box with START and Emergency STOP switches fitted in a box Abrasive charge. • The abrasive charge shall consist of 12 cast iron spheres 48 ± 2 mm in diameter and each weighing between 390 and 455 g.
4.	**Ductility Testing Machine with Digital Temp Indicator** **(with NABL Certificate)** **Specification:-** • Ref. Standards IS:1208, ASTM D113, AASHTO T 51 • Ductility Testing Assembly consisting of one SS frame, one non-ferrous water bath, one motor and gearbox with speed selector for Two rates of travel 5cm/min(Temp 27 + 0.5° C) & 1cm/min(Testing temp at 4±0.5 ° C). are incorporated, two brackets, one lead screw, one clutch handle, one immersion element, one Digital head with Temperature Indicator and one water pump with switches. - 1Set. Ductility Moulds with base plates fitted on the brackets. - 3Nos. Copy of Operating Instructions with General Assembly Drawing. - 1No. • Mould -AIM 56501 Ductility Mould, with Base Plate ...3Nos (Made of brass with the shape, it will form a briquette specimen having the following dimensions: Total length 75.0 ± 0.5 mm • Distance between clips 30.0 ± 0.3 mm Width at the mouth of clip 20.0 ± 0.2 mm Width at minimum cross-section 10.0 ± 0.1 mm (halfway between clips) Thickness throughout 10.0 ± 0.1 mm • Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply
5.	**Ring and Ball Apparatus**

	Specification:- • As per IS: 1205/D 36-95 • Rings—Two square-shouldered brass rings. • Pouring Plate—A flat, smooth, brass plate approximately 50 by 75 mm • Balls—Two steel balls, 9.5 mm (3⁄8 in.) in diameter, each having a mass of 3.50g • Ball-Centering Guides for centring the steel balls • Bath—A glass vessel, capable of being heated, not less than 85 mm in inside diameter and not less than 120 mm in-depth from the bottom of the flare. • Ring Holder and Assembly—A brass holder designed to support the two rings in a horizontal position • A Low Softening Point Thermometer, having a range from – 2 to + 80°C, and conforming to electrical heating + a heater and energy regulator, Hear resistant glass with all accessories such as tapered rings, ring holder, steel balls; 220 V, 50 Hz) • Additional accessories: tapered rings, ring holder, steel balls
6.	**IS Sieve (coarse) -45 cm diameter** **Specification:-** • GI sheet frame with steel sheet with square holes. • Aperture sizes (in mm) 125, 108 ,100, 90, 75, 63, 53, 50, 45, 40, 37.5 ,31.5 ,26.5, 25 ,22.4, 20 ,16, 13.2 ,12.5, 11.2, 10.8, 6.7, 6.3 , 5.6 and 4.75 complete with pan and cover
7.	**IS Sieve (Fine) -20 Cm Dia** **Specification:-** • Brass frame sieves per IS 469-1972 –Aperture sizes : 4.75, 2.36 ,2.00 ,1.70 ,1.18 and 1.00 mm, and of following sizes in microns : 600, 425 ,300, 150 , 75 • Pan and cover for 45cm. dia sieves made of G.I.
8.	**California Bearing Ratio (CBR) Test apparatus Laboratory Type With 2 Moulds each as per required** **Specification:-** • Motorized with all accessories as per IS:2720-Part 17 For testing cohesive soils with standard accessories including the swell test. • The apparatus shall include the following:- • Mould 150 mm ID x 175 mm high Gun Metal • Mould 150 mm ID x 175 mm high M. steel • Metal Tripod for Dial Gauge • Penetration Piston 50 mm face dia

	• Circular Metal Spacer Disc with detachable handle, 148 mm dia x 47.7 mm height • Perforated Plate 148 mm dia, with adjustable Stem and Lock Nut • Soaking Tank for six CBR moulds • Extension Collar 150 mm ID x 50 mm high • Annular Metal Weight 2.5 kg, 147 mm dia with 53 mm dia central hole • Slotted Metal Weight, 2.5 kg, 147 mm dia, with 53 mm dia slot • Swell Plate • Cutting Collar
9.	**California Bearing Ratio (CBR) moulds** Specification:- As per IS 9669 (1980) (150 mm ID x 175mm)-Brass make
10.	**Standard Tar Viscometer, 10mm cup and ball valve** **(with NABL Certificate)** **Specification** Ref. Standards - IS: 1206, IP 72, STPTC.RT 2, RT 3, BS: 2000, (Part 72) operation on 220V, 50 Hz, single phase, AC supply. • Tar Viscometer- consists essentially of a cup having a specified orifice and valve; a water bath mounted on three legs having a suitable sleeve for the cup, a stirrer, a shield and a receiver. • Cup: - known as the 10mm cup, is constructed of a hard brass tube, fitted with an external brass collar at the upper (open) end of the cylinder to support the cup in the sleeve of the water bath. • The bottom of the cup consists of a circular phosphor-bronze plate screwed into the cylinder -and made conical to facilitate drainage of the tar after use. • Phosphor-bronze (90/10 cast) • 10mm circular orifice. • The dimensions of the orifice and jet shall be as follows: The diameter of the orifice 10± 0.025 mm Length of the jet 5± 0.025 mm. • Valve:- It serves to close the orifice of the 10mm cup and is a phosphor-bronze sphere attached to a metal rod. The rod is provided with a levelling peg and at the upper end a hemisphere by which the valve is held in the valve support. • Water bath - made of copper sheet, is cylindrical, about 160 mm in diameter and 105 mm in depth, and heated electrically. • The water bath is mounted on three equidistant legs which arc riveted to the cylindrical wall of the bath and are of sufficient length to permit a 100ml cylinder to be placed below the orifice of the cup. • Sleeve - to receive the cup and to hold it in position with an easy sliding fit. It is a stout brass tube, 105 mm in height and 42 mm internal diameter, which is bronzed or soldered into a central hole cut in the bottom of the bath. Accessories for above as per:- •Thermometer IP 8 C Range 0°C to 45°C •Thermometer IP 9 C Range 40°C to 85°C

	• Thermometer IP 10 C Range 76°C to 122°C
11.	**Standard Tar Viscometer, 4mm cup and ball valve (with NABL Certificate)** **Specification:-** • Ref. Standards - IS:1206, IP 72, STPTC.RT 2, RT 3, BS:2000, (Part 72) For determining the viscosity of cut back bitumen Tar Viscometer- consists essentially of a cup having a specified orifice and valve; a water bath mounted on three legs having a suitable sleeve for the cup, a stirrer, a shield and a receiver • Suitable for operation on 220V, 50 Hz, single-phase, AC supply. Cup: - known as the 4mm cup, is constructed of a hard brass tube, fitted with an external brass collar at the upper (open) end of the cylinder to support the cup in the sleeve of the water bath. The bottom of the cup consists of a circular phosphor-bronze plate screwed into the cylinder -and made conical to facilitate drainage of the tar after use. It is provided centrally with a perfectly cylindrical, phosphor-bronze (90/10 cast) extension The extension is drilled and polished internally to give a 4mm circular orifice. The upper rim of the orifice shall be perfectly circular to provide seating for the valve. The dimensions of the orifice and jet shall be as follows: Diameter of the orifice 4±0.025 mm Length of the jet 5± 0.025 mm. Valve: - It serves to close the orifice of the 4mm cup and is a phosphor-bronze sphere attached to a metal rod. The rod is provided with a levelling peg and at the upper end a hemisphere by which the valve is held in the valve support. Water bath - made of copper sheet, is cylindrical, about 160 mm in diameter and 105 mm in depth. It may be heated electrically, care being taken that local heating is avoided. The water bath is mounted on three equidistant legs which arc riveted to the cylindrical wall of the bath and are of sufficient length to permit a 100ml cylinder to be placed below the orifice of the cup. • Sleeve - to receive the cup and to hold it in position with an easy sliding fit. It is a stout brass tube, 105 mm in height and 42 mm internal diameter, which is bronzed or soldered into a central hole cut in the bottom of the bath. • Thermometer IP 8C, Range 0°C to 45°C • Thermometer IP 9C, Range 40°C to 85°C • Thermometer IP 10C, Range 76°C to 122°C
12.	**Standard penetrometer** **Specification:-** • As per IS 1201 to 1220 (1978), I S: 1203-1978 • It consists of a vertical pillar mounted on a base provided with levelling screws. The head, together with the dial plunger rod and cone (or needle) slides on a pillar and can be clamped at any desired height. • A rack and pinion and pointer assemble provide fine adjustment of needle or cone tip to sample • The clutch mechanism which makes the reading of penetration and

	subsequent resetting a simple and accurate operation • The dial graduated to 400 1/10 and the millimetre subdivisions and the needle pointer against figures make easy reading. Supplied with a bitumen penetration needle, ring weight one each 50gms, and two sample containers.
13.	**Aggregate Crushing Value Test Apparatus** **Specifications:-** • as per IS: 9376, IS:2386 (part IV • Shall consists of M.S. Cylindrical container 150 mm plus-minus 0.5 mm dia x 130mm to 140 mm high with the base plate 200 to 230 mm/sqr x 6 mm thick. A plunger of 148±0.5 mm dia x 100 to 115 mm high. Shall be supplied complete with a tamping rod; 16 mm dia x 600 mm long, one end rounded, and all other necessary accessories
14.	**Sieve shaker** **Specification:-** • Having an inclined sieve table capable of accommodating sieves of 150 or 200 mm diameter with a timer • Standard gyratory action should produce inclination from the vertical axis and the direction of inclination should change progressively in the clockwise direction. The sieve table shall rotate in a 45-degree direction, The whole gear mechanism must be inside an oil bath. • It should accommodate (a) 8 or more sieves of up to 8" (200mm) dia x 2" (50mm) . Fitted with Upper Lid and Bottom Receiver
15.	**Electrical operated Oven** **Specification:-** • Laboratory Electric Oven with Digital Indicator cum Controller with Safety Alarm, range 50ºC to 300ºC +/- with Air Circulating fan, S.S. Inside size 600X600X600 mm
16.	**Vernier calliper** **Specification:-** Measuring Range (mm) : 0-200 mm Resolution (mm) : 0.01 mm Material: Aluminium

17.	**Stopwatch** **Specification**: • 1/100 second precision • 60 lap/split memory. • Digital clock with 12/24 selection • water-resistance
18.	**Rice plate small** **Specifications:-** • Diameter: 11.6 cms • Stainless Steel
19.	**Compactor For Light &Heavy Compaction** **Specifications:-** • **As per IS-2720-Part-7-1980 and IS 2720 (Part VIII)-1983** • Standard Proctor Compaction mould, 100mm dia x 127. 3 mm high x 1000 c.c. volume with collar and base plate. Light compaction, made of Mild Steel. With Rammer 2.6 Kg. x 31 cm. controlled drop • Modified Proctor compaction mould, 150mm dia x 127.3mm high x 2250 c.c. volume with collar and base plate. For Heavy Compaction, made of Mild Steel. With Rammer 4.89 Kg. x 45 cm. controlled drop.
20.	**Water Bath For Controlling The Temperature Of Bitumen** **Specifications:-** Product Specification • Double-walled with an inner chamber made up of S.S. Sheet and outside of M.S. duly powder coated. The gap between the walls is fitted with special-grade glass wool to avoid thermal losses. • The inner chamber fitted with an immersion-type heating element to be covered with a perforated removable diffuser tray. • Temperature from ambient to 100 DegreeC is controlled by a Hydraulic capillary type thermostat with an accuracy of + 1 Degree C. Workable on 220V AC 50Hz Single Phase. Inner Chamber Sizes are available •375x300x175 mm •Microprocessor PID digital temp. Indicator cum controller. •Stirrer with 1/20 Hp motor with S.S. rod blade. •Auto cut off the device when the water level is low.

21.	**Centrifugal Extractor** **Specifications:-** • Ref. Standard-ASTM D2172, Capacity 1500g, Electric operated, single phase, AC supply • **Speed control up to 3600 rpm regardless of the frequency (50 or 60 Hz) and electrical breaking. The centrifuge can be set for the automatic speed ramp up to 3600 rpm and will stop in 10-15 seconds.** •
22.	**Automatic Bituminous Compactor(Electrically Operated)** **Specifications:-** • 220 V, 50 Hz, single-phase supply. • as specified in ASTM D-1559/Ref. EN 12697-10-30 • The drive mechanism lifts the weight of 4.5 kg and drops it through a height of 457 mm.
23.	**Dorry Abrasion Testing Machine** **Specifications:-** • As per BS: 812-1967 • Consists of a disc rotating about a shaft connected to a reeducation gearbox occupied by a motor. • The disc rotates at 20-30 rpm. Under the rotating disc is a tray with an outlet to facilitate the removal of sand
24.	**Deval Attrition Testing Machine** **Specifications:-** • As per IS: 2386 (part IV) – 1963
25.	**Flash and fire point test Apparatus/** **Specifications:-** • Ref. Standards - IS:1448 (Part 69), ASTM D 92, IP 36, BS:4689, ISO 2592 Single Phase, AC Supply • Which can determine the flashpoint and the fire point of asphaltic bitumen and fluxed native asphalt, cutback bitumen, and blown type bitumen
26.	**Bump Integrator** Specifications:- Bump integrator – vehicle (rear axle) mounted (Class 3 or better) • Capability to collect data at lower speed limits (15 km/hr or below) at a constant speed of 32 kmph under standard tyre pressure of 2.1 kg/cm2 along the designated wheel path

	•Resolution:1 cm or less The quotation should include all accessories (Data collection software and analysis package, calibration equipment, etc.) • With Digital Display
27	**Tamping rod** Specifications:- • 16 mm ± 0.5 mm diameter and 600 ± 2 mm, shall be made of mild steel with a round working end.
28.	**Mortar Mixing Tray** Specifications:- Material – GI Steel 6×4 feet (2 No.) (with handle) 4×4 feet (3 No.), (with handle) 9×6 inches (5 No.)(with handle)
29.	**Trolley** **Specifications:-** • **Trolley For Lifting Heavy Weight, 300 Kg Capacity, 5" wheel** • **Load Carrying area dimensions 60cm x 90cm**
30.	**Hot Plate** Specification:- • Hot Plate, Rectangular, with Energy Regulator, 300x450x180mm, 2.0kw and Continues Heating up to 350 Degree Celcius
31.	**Radar speed gun** Specification: • Speed Accuracy ± 2 km/h / ± 1 mph • Speed Range 0- 320 km/h • Temperature Range - Operating: -10°C to +60° C / Charging: 0°C to +45°C / Storage: -20° C to +60°C , 6-8 hours continous working
32.	**Weighing Machine** Specifications:- • **1.Platform Scale 300 Kg 24 x 24 Inch and Accuracy 20 gms - 2 Quantity** • 2.Platform Scale 240x290 mm Weighing Capacity: 30 Kg and Least Count 5 gms-2 Quantity
33.	**Film Stripping Device** Specifications:- • The device consists of a disk on which 4 bottles are mounted of approximately 400cc on the circular tray at an angle of 90 Degree to each other with their mouth towards the centre of the tray. • The disc rotates at a speed of approx. 100 rpm. The sample, usually the

<table>
<tr><td></td><td>aggregate fraction which passes a 9.525 mm sieve but is retained on a No. 8 sieves, is placed in the bottles & agitated for 15 minutes.
• The device is provided with a preset counter
• Suitable for operation on 220 V, 50Hz, Single Phase, AC supply</td></tr>
<tr><td>34.</td><td>Surcharge weight

Specification:
• Annular Surcharge Weight- of 1Kg ,2 kg,3,kg,4kg, 5,kg, 8,kg, 10 kg which can also be used in CBR Testing
• Material:- Metal
• Diameter- 5.9 in (149mm)</td></tr>
<tr><td>35.</td><td>PROVING RING 30KN
Specification:<table><tr><td>Uncertainty</td><td>0.075% of capacity (75 lbf per 1000 lbf)</td></tr><tr><td>Readability</td><td>1/10 division (0.024% of full scale)</td></tr><tr><td>Sensitivity</td><td>1/20 division (0.012% of full scale)</td></tr><tr><td>Capacity Load Deflection</td><td>Approx. 400 major divisions</td></tr><tr><td>Calibration</td><td>By Morehouse Force Calibration Laboratory to ASTM E-74 Standard</td></tr></table></td></tr>
<tr><td>36.</td><td>PROVING RING 50KN
Specification:<table><tr><td>Uncertainty</td><td>0.075% of capacity (75 lbf per 1000 lbf)</td></tr><tr><td>Readability</td><td>1/10 division (0.024% of full scale)</td></tr><tr><td>Sensitivity</td><td>1/20 division (0.012% of full scale)</td></tr><tr><td>Capacity Load Deflection</td><td>Approx. 400 major divisions</td></tr><tr><td>Calibration</td><td>By Morehouse Force Calibration Laboratory to ASTM E-74 Standard</td></tr></table></td></tr>
<tr><td>37.</td><td>PROVING RING 100KN
Specification:<table><tr><td>Uncertainty</td><td>0.075% of capacity (75 lbf per 1000 lbf)</td></tr><tr><td>Readability</td><td>1/10 division (0.024% of full scale)</td></tr><tr><td>Sensitivity</td><td>1/20 division (0.012% of full</td></tr></table></td></tr>
</table>

	scale)	
Capacity Load Deflection	Approx. 400 major divisions	
Calibration	By Morehouse Force Calibration Laboratory to ASTM E-74 Standard	

38. **Compressive testing machine**

Specifications:-

- As per IS 14858:2000
- Display Type –Digital

39. **Benkelman Beam with Digital Dial Gauge in Wooden Carrying Case**
Specifications:-

- as per IRC:81 (with NABL Certificate)
- Lightweight aluminium construction. 25 mm travel & 0.001 mm least count
- Wooden carrying box, Digital dial Gauge

40. **Digi Marshall Apparatus, 50 kN, Single Speed, New Model for 4" dia sample,- Complete set with 6 moulds (with NABL Certificate)**
Ref. Standards - ASTMD1559 BS: 598-197, EN-12697-34

- Aggregate up to 25.4 mm maximum size can be used.
- Suitable for operation on 220V, 50 Hz, single-phase, AC supply.
- Single Speed, Benchtop load frame

• Max. loading capacity, 50 KN

- Geared Screw jack and Motor Drive,
- Limit Switch Protection for both upward and downward travel

The equipment consists of the following replaceable parts: -

- Marshall Load Frame Cap 50kN speed-50.8mm/min:- 1 No. The equipment comprises a benchtop loading frame with a screw-driven adjustable crosshead on columns attached to a sturdy base shall produce a uniform vertical movement of 50.8mm/min Maximum Vertical Clearance = 470mm (Platen Down, Cross-head up)
- Minimum Vertical Clearance = 250mm (Platen up, Cross-head down)
- Horizontal Clearance = 265mm
- Platen Diameter = 133mm
- Platen Travel = 25mm
- Platen Speed = 50.8mm/min Rated Power = 375W Breaking Head Stability shall consisting of an upper and lower cylindrical segment having an inside radius of curvature of 50.8mm accurately machines Mould 1 No. Compaction Mould Steel, cylindrical (101.6mm Dia x 76.2mm) 3 Nos. Base Plate 3 Nos. Extension Collar 3 Nos. Compaction Pedestal, 1 No. Manual Operation, comprising a Steel Plate (304.8 x 304.8 x25.4mm) capped on a wooden post of 203.2 x 203.2 x 457.2mm in dimension and having an average dry weight of 0.67 to 0.77kg/cm3.

	• A Mould Clamp is fitted to the top of the plate. Compaction Hammer 2 Nos. for use with Compaction Pedestal and Mould, weight 4.5 kg with a free fall of 457 mm Load Transfer Bar 1 No. Sample Eject for 100mm dia 12.7 mm thick Sample 1 No. Digital Indicator ---- 1 No. Load Cell,50kN---- 1 No. LVDT, 20mm ---- 1 No. Adaptors for Load Cell ---- 2 Nos. Tommy Pin 1 No. Steel Ball 1 No. Spanners 3 Nos. Power cable 2 Nos. Calibration certificates 2 Nos. Operating Instructions with General 1 No. Data Logger 3 slot Mainframe with multiplexer & built-in 6½ digit DMM Measures and converts 12 different input signals: a. Temperature with thermocouples b. RTDs and thermistors c. DC/AC volts d. 2 and 4 wire resistance e. Frequency and period f. DC/AC and capacitance LAN and USB for easy connectivity to PC must be available USB flash drive support to copy/log data in standalone applications Graphical Web interface for point and click monitor and control Virtual front panel control via a Web interface Built-in signal conditioning must be available No of Channel : 20Voltage + 2 Current Measurement Speed: ≥80 Ch/Sec Max Volts: ≥300V Max Current: ≥1A Communication: LAN must be available System Must be supplied with Test Automation software over LAN Hand Gloves (heat resistant),5 Nos • Whatman Filter No. 40/41/42 Dia: 110 mm (box of 100)- 2 nos
41.	**Density Basket & Buoyancy Balance,** **(with NABL Certificate)** Specification: • Density Basket wire basket of not more than 6.3 mm mesh or a perforated container of convenient size, preferably chromium plated and polished, with wire hangers not thicker than one millimetre for suspending it from the balance. (Stainless steel wire mesh 6.3 mm size ruggedly constructed, approximately 20 cm dia. × 20 cm high) • Buoyancy Balance consisting of a balance or scale of capacity not less than 3 kg, readable and accurate to 0.5 g and such a type and shape as to permit the basket containing the sample to be suspended from the beam and weighed in water. Buoyancy Balance—15 kg x 0.5g (with NABL calibration certificate) Suitable for operation on 220 V, 50 Hz, Single phase, AC supply. A sample of not less than 2000 g of the aggregate shall be tested.' The Buoyancy Balance consists of a rigid support frame, incorporating a Water Tank, mounted on a platform. A mechanical lifting device (jolted 25 times during test) is used to raise the Water Tank thru the Frame height immersing the specimen suspended below the balance. The balance supplied may also be used as a standard weighing system in the laboratory. • Note: (The three size ranges used aggregate larger than 10 mm, 40 mm and smaller than 10 mm. The specific gravity of aggregates normally used in road

	construction ranges from about 2.5 to 3.0 with an average of about 2.68) Water absorption shall not be more than 2% per unit by weight. • As per IS: 2386 (Part- III)-1963
42.	**Specific Gravity Bottle for Aggregates** Specifications:- • As per IS:2386 (Part 3):1963
43.	**Specific Gravity Bottle for Bitumen** **Specifications:-** • Able to determine the specific gravity of materials like semi-solid bitumen road tars, creosote, and anthracene oil • as per IS:1202–1978.
44.	**Dial Gauge with Stand** **Specification:** Accuracy ±0.008 mm Maximum Dial Indicator Measurement 10mm Or Maximum Measuring Length (Adjustment Range) (mm)- 6 ~ 20, Error Return (µm) =5
45.	**Bucket** 10 Liter capacity Made of Plastic with handle
46.	**Triple Beam Balance** **Specifications:-** • That can weigh up to 2610 gm. • Reading error is 0.05 gram • Readability 0.1 g • Repeatability 0.2 g • Pan Size -152mm Dia
47.	**Compaction Mould** **Specifications:-** As Per IS 2720-8 (1983) Material: Mild Steel Country of Origin: Made in India Weight: 5-10 Kg Height: 177.8mm Finishing: Color Coated Shape: Cylindrical Base Plate Thickness: 10 mm
48.	**Cylindrical Metal Measure**

	Specifications:-	
	Application	Laboratory
	Material	Stainless Steel
	Colour	Blue
	Capacity	3, 15, 30 Ltr
	Type	Measurement Equipment
49.	**Crow Bar** **300 mm length**	
50.	**Scabbling Hammer**	
51.	**Straight Edge**	
52.	**Mason Square**	
53.	**Spirit Level**	
54.	**Pick Axe**	
55.	**Plas/Plier**	
56.	**Construction Tasla**	**Capacity: 4.5 ltr** **Size: 30cm** **Type: Stainless Steel**