



राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम
NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM
(An Institution of National Importance, MHRD, Govt. of India)

Ref: 172/Purchase of Instruments for Transportation Engg. Lab/TEQIP-III/2019
Date: 22.06.2019

CORRIEGENDUM

It is hereby informed that the last date for submission of **Shopping Document No.: NITS/TEQIP-III/CE/04 (Instruments for Transportation Engineering Lab)** has been extended to 18th July 2018, it was noted that some specification of the equipments were not complete, hence re-uploaded after needful corrections.

The bidders are requested as per the updated Shopping Documents.

-Sd/-
Nodal Officer (Procurement)
TEQIP-III



INVITATION LETTER

Package Code: TEQIP-III/2019/ntst/108

Current Date: 20-June-2019

Package Name: NITS/TEQIP-III/CE/04

Method: Shopping Goods

Sub: INVITATION LETTER FOR NITS/TEQIP-III/CE/04

Dear Sir,

1. You are invited to submit your most competitive quotation for the following goods with item wise detailed specifications given at Annexure-I:

S. No.	Item Name	Quantity	Place of Delivery	Installation Requirement (if any)
1	Instruments for Transportation Engineering Laboratory	As per Annexure -I	NIT Sikkim	YES

2. Government of India has received a credit from the International Development Association (IDA) towards the cost of the **Technical Education Quality Improvement Programme [TEQIP] - Phase III** Project and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this invitation for quotations is issued.

3. **Qualification Criteria:**

The bidder/supplier should have:

- 3.1. **The bid should be accompanied with an EMD (Earnest Money Deposit) of Rs. 1,20,000/- (Rupees One Lakh Twenty Thousand only) in favour of The Director NIT Sikkim in the form of Demand Draft (DD) drawn on any commercial bank payable at Ravangla/Gangtok.**
- 3.2. A minimum of 3 years experience of supplying similar items, substantiated by relevant documents.
- 3.3. A turnover of Rs.50 Lakh in last three years.
- 3.4. Not been blacklisted by any Govt. Institution/Organization.

4. **Quotation:**

- 4.1. The contract shall be for the **full quantity** as described above.
- 4.2. The vendors are requested to quote lowest rate for the supply of all the items in the prescribed **Format for Quotation Submission**.
- 4.3. Corrections, if any, shall be made by crossing out, initialling, dating and re writing.

- 4.4. All duties and other levies payable by the supplier under the contract shall be included in the unit Price.
 - 4.5. Applicable taxes shall be quoted separately for all items. The Institute has DSIR certificate (applicable GST would be 5%).
 - 4.6. The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
 - 4.7. The Prices should be quoted in Indian Rupees only.
 - 4.8. The vendor should submit trade licence/certificate of Registration (as applicable) in the required business/field, GST registration number and photocopy of the GST registration certificate, the PAN of proprietor/firm/company with photocopy of the PAN card. Please attach a certificate that the quoted price is not more than that of any govt. organization/Intuition in India. This has to be mention in the offer letter clearly.**
 5. Each bidder shall submit only one quotation.
 6. Quotation shall remain valid for a period not less than **45** days after the last date of quotation submission.
 7. The quotation should include the following information:
 - 7.1. Authorization certificate from the OEM/Principal assuring full guarantee and warrantee obligations during the liability period, for the goods offered.**
 - 7.2. The list of clients (IITs, NITs/Central Universities and other reputed Institution) duly supported by copies of purchase order.**
 - 7.3. Details of service/supports centres located in India.**
 8. **Evaluation of Quotations:** The Purchaser will evaluate and compare the quotations determined to be Substantially responsive i.e. which:
 - 8.1. are properly signed; and
 - 8.2. Confirm to the terms and conditions, and specifications.
 - 8.3. The vendor should provide complete technical details (printed literature of the manufacturer along with model/make) and the same should be verifiable from the website of the vendor/OEM. Mere copying the technical specification provided in the Annexure-I may lead to cancellation of the bid.**
 - 8.4. The Institute reserves the right for pre-inspection of the goods/equipment quoted by the vendor.**
 9. The Quotations would be evaluated for all items together.
 10. **Award of Contract:** The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.
 - 10.1. Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of Contract.
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- 10.2. The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.
11. Performance Bank Guarantee: Performance Security has to be submitted by the successful bidder. A Bank guarantee issued by a Nationalized Bank in India towards PBG for an amount equal to 5% of total order value of purchase order and valid till the period of beyond the 2 months of completion of warranty period should be submitted in favour of **Director NIT Sikkim**. In case, the vendor fails to provide satisfactory service, the PBG is liable to be forfeited.
12. Payment shall be made in Indian Rupees as follows:
Satisfactory Delivery & Installation - 70% of total cost
Satisfactory Acceptance - 30% of total cost
13. Liquidated Damages will be applied as per the below:
Liquidated Damages per Day Min %: 0
Liquidated Damages Max %: 10
14. **All supplied items are under onsite warranty of 5 years from the date of successful acceptance of items and AMC/Others is NA.**
15. You are requested to provide your offer latest by **17:30** hours on **18-July-2019**.
16. Detailed specifications of the items are at **Annexure-I**.
17. Training Clause (if any) **YES**
18. Testing/Installation Clause (if any) **YES**
19. Performance Security shall be applicable: **5%**
20. Information brochures/ Product catalogue must be accompanied with the quotation clearly indicating the model quoted for.
21. **The vendors should submit the technical and financial bids in two separate sealed envelopes. Financial bids of only the technically responsive bidders will be evaluated.**
- Sealed quotation to be submitted/ delivered at the address mentioned below:
**The Nodal Office (Procurement),
TEQIP-III,
National Institute of Technology Sikkim,
Barfung Block, Ravangla, South Sikkim
Pin Code-737139.**
22. We look forward to receiving your quotation and thank you for your interest in this project.



Dr. Achintesh N. Biswas
Nodal Officer (Procurement)

Annexure-I

Sl. No.	Name of the Item	Quantity	Specification
1.	Los-Angeles Abrasion Testing Machine, with NABL Calibration Certificate	1	<p>Los Angeles Abrasion Testing Machine with Counter</p> <p>Ref. Standards: IS 10070</p> <p>Machine consisting of hollow steel cylinder arranged for rotating about its axis in a horizontal position closed at both ends, having an inside diameter of 700 mm and an inside length of 500 mm. Steel wall thickness: 12 mm thick, Filler plate thickness: 12 mm + thickness of gasket. Stud staff made of mild steel, cover for opening made of mild steel (240 × 6 mm). Shelf made of mild steel wide: 90 ± 2 mm, Thick: 25 ± 1 mm, 500 mm long, ball bearing heavy duty having 50 mm bore. Drive should be by means of a chain running over a sprocket on the stub shaft and a sprocket on the shaft of a gear box coupled to a motor (1 hp, 3 phase, 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.</p> <p>Frame Stiffness: Approx. 100 kN/mm</p> <p>Material of Construction: Special quality low carbon mild steel (Carbon - 16% – 17%)</p> <p>Paint quality: Powder coating 70–80 micron thick Counter sensor must be non-contact type.</p> <p>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 and a total of 12 numbers of spheres weighing 5000 ± 25 g shall be supplied.</p>
2.	Marshal Stability Testing Machine, with NABL Calibration Certificate	1	<p>Marshall Apparatus</p> <p>50kN Single speed, New Model for 4" dia. sample table top model</p> <p>Ref. Standards: ASTM D1559, BS:598-197, EN-12697-34</p> <p>Material of Construction: Special quality low carbon mild steel (Carbon - 16–17%)</p> <p>Frame Stiffness: Approx. 100 kN/mm</p> <p>Paint quality: Powder coating 70–80 micron thick.</p> <p>Maximum Vertical Clearance: 470 mm (Platen Down, Cross-head up)</p> <p>Minimum Vertical Clearance: 250 mm (Platen up, Cross-head down)</p> <p>Horizontal Clearance: 265 mm</p> <p>Platen Diameter: 133 mm with Hardness of material (platen) 60 RHC</p> <p>Platen Travel: 25 mm</p> <p>Platen Speed: 50.8 mm/min</p> <p>Rated Power: 375 W</p> <p>Dimension (I × w × h): 550 × 400 × 870 mm</p> <p>Weight: 60 kg</p> <p>Marshall Load Frame Cap.: 50 kN</p> <p>Speed: 50.8 mm/min 1 No.</p> <p>Breaking Head Stability Mould: 1 No.</p> <p>Compaction Mould Steel: cylindrical 6 Nos.</p>

Sl. No.	Name of the Item	Quantity	Specification
			<p>Base Plate: 6 Nos. Extension Collar: 6 Nos. Compaction Pedestal: 1 No. Manual Operation, comprising a Steel Plate capped on a wooden post. 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 4" dia Sample 1 No. Dial Gauge: 25 mm travel, 0.01 mm least count 1 No. Proving Ring: Capacity 25 kN. 1 No. Load cell 50kN Displacement Transducer LVDT 20mm Thermal insulation Gloves: 5 Nos. Filter Paper 4" dia.: 200 Nos. Digital Indicator 2 channel Data logger Universal Inputs i.e. Input channels should be software configurable and should be capable of accepting Volts, Current, Temperature inputs from T/C, RTD etc 3-slot main frame with 6½ digit (22 bit) internal DMM 0.004% basic 1-year dcV accuracy; 0.06% acV accuracy Unit must have 8 plug in modules with up to 120 single-ended(60 2-wire) channels. Programmable, Modular and expandable in nature. It should be able to work as a Standalone unit (if required) without the PC. Both LXI and USB (source and Device) should be available. Graphical web interface for monitoring should be available. Wide selection of different types of Multiplexer Units Window based Software for Data transfer to PC, Documentation etc. Measurement of different Parameters like Temperature with all types of thermocouples, RTDs, Thermistors, Voltages, Current, Frequency, Period. Direct Measurement of Parameters without any separate front end unit. Software functions like Mx+B Scaling, Alarm settings, X-T and X-Y recording of data, Basic math functions. Software capable of Transferring data to other user packages like EXCEL. No. of Input Channels : 20, optionally expandable. Scan rates up to 450 ch/s 1) Measurement range a) DC Volt : 100 mvolt to 300 Volt. b) Resistance : 100 ohm to 100 Mohm. c) Current : up to 1 Amp. d) Thermocouple : B, E, J, K, N, R, S, T Memory : 50,000 readings in Nonvolatile memory with time stamp. Storage should be available in USB Drive also Basic Measurement accuracy: 0.004 % in DCV. Single Channel Measurement rates Function Resolution Readings/Sec</p>

Sl. No.	Name of the Item	Quantity	Specification
			DC Voltage, 2 Wire resistance 6½ Digits (10plc) 6(5) 5½ Digits (10plc) 54(47) 4½ Digits (0.02plc) 500 Thermocouple 0.1°C (10 plc) 6(5) 0.1°C (1 plc) 54(47) (0.02plc) 280 RTD Thermistor 0 .01°C (10 plc) 6(5) 0.1°C (1 plc) 52(47) 1°C (0.02plc) 200 acV 6½ slow (10plc) 0.14 6½ Med (10plc) 1 6½ Fast (0.02plc) 8 6½ 100 Frequency & Period 6½ Digits (1 s gate) 1 5½ Digits (100ms) 9 4½ Digits (10ms) 70 Interface : Standard USB and LXI, Import/export instrument configuration files, save volatile readings and screen captures. Instrument should have LCD screen and soft buttons for easy configuration and measurements display in multiple formats (number, bar meter ,trend chart, histogram) Scan conditions : Programmable scan interval and conditions Two, Three & Four Wire configurable for measuring strain. The equipment must be analysing the result on board instrument as well as on PC/Lap using software. User Manual & Calibration Certificate : Required - Hand Gloves (heat resistant) -Whatman Filter No. 40/41/42 Dia. : 110 mm (box of100)-2 nos
3.	Thin Film Oven / Loss on Heating Oven	1	Thin Film Oven / Loss on heating Oven Ref. Standard: IS : 1212 Oven: A double-walled chamber, rectangular in form, interior dimensions not being less than 292 mm in height from the top of the heating element to the top of the chamber and not less than 298 mm in width and depth. Perforated Metal Shelf: A perforated metal shelf approximately 250 mm in diameter Thermometer: with temperature range 155 to 170°C Container: of metal or glass, cylindrical in shape with a flat bottom and with internal diameter 55 mm and internal depth 35 mm. Thermal Insulation Gloves: 2 Nos.
4.	Cannon Manning cum Cannon Fenske Viscometer Bath with Vacuum Pump, with NABL Calibration Certificate	1	Cannon Manning cum Cannon Fenske Viscometer Bath with Vacuum Pump Ref. Standard: IS : 1206 Cannon Manning cum Cannon Fenske Viscometer Bath with Vacuum Pump (with 12, 13 direct flow & 6, 7 Reverse flow Tubes), New Design ▪Constant Temperature Bath – A suitable bath for immersion of at least 6 vacuum capillary viscometer tubes with a digital

Sl. No.	Name of the Item	Quantity	Specification
			<p>temperature controller. The accuracy of the temperature in the bath should be $\pm 0.1^{\circ}\text{C}$ throughout the bath.</p> <p>Bath Specification: Cylindrical clear glass vessel 305mm in Diameter and 305mm high.</p> <ul style="list-style-type: none"> • A stainless steel baffle located in the centre of the bath provides a plain reflective background to aid in viewing instruments. • The Top cover contains 4 holes 51mm Dia. for insertion of viscometer holders, allowing up to 4nos viscosity measurements to make simultaneously. • Coves are supplied for capping unused holes • Two additional holes 10mm Dia. are provided for thermometers. • Glass vessel is guarded by 8mm thickness transparent perspex cover. • All wetted parts of the constant temp baths are made of SS, Glass • One stirrer provided within temp bath • Inbuilt temp controller and digital Stop watch must be there. • Spirit level and levelling screw provided for proper levelling of instrument. Vertical alignment also provided. <p>▪Silicone Bath Oil suitable up to 150°C,</p> <p>▪Vacuum System: Capable of maintaining a vacuum within ± 0.05 cm of the desired level up to and including 30 cm of mercury. The system shall consist of vacuum pump, moisture trap, vacuum regulator, manometer with electronic controller, bleed valve, all interconnecting tubing/piping, and any other accessories as needed to complete the vacuum system.</p> <p>Thermometer for Bath: Thermometer of IP-5C of a range from -2 to 300°C as per specification / Thermometer of IP-64C of a range from -20 to 102°C (0.2°C resolution)</p> <p>▪Timing Device: A stop watch or stop clock capable of reading up to $\frac{1}{2}$ second. (Inbuilt Digital System) Tubes:</p> <ol style="list-style-type: none"> 1) Cannon Manning Vacuum Viscometer Tube, Size 6, with Manufacturer Certificate (Reverse Flow) 2) Cannon Manning Vacuum Viscometer Tube, Size 7, with Manufacturer Certificate (Reverse Flow) 3) Cannon Manning Vacuum Viscometer Tube, Size 12, with Manufacturer Certificate (Direct flow) 4) Cannon Manning Vacuum Viscometer Tube, Size 13, with Manufacturer Certificate (Direct flow) 5) Cannon Fenske Routine Viscometer Tube, size 350, with Manufacturer Certificate (Direct Flow) 6) Cannon Fenske Routine Viscometer Tube, size 400, with Manufacturer Certificate (Direct Flow) 7) Canon Fenske Opaque, Reverse Flow Type Viscometer Tube, size 350, Manufacturer Certificate 8) Canon Fenske Opaque, Reverse Flow Type Viscometer Tube, size 400, Manufacturer Certificate.

Sl. No.	Name of the Item	Quantity	Specification
5.	Universal Penetrometer with Penetration Cone & Bitumen Penetration Kit, with NABL Calibration Certificate	3	<p>Universal Penetrometer with Penetration Cone & Bitumen Penetration Kit</p> <p>Ref. Standard: IS : 1203</p> <p>Universal Penetrometer with the unit is compact with in-built timer to control duration of penetration preset in factory to 5 seconds. The instrument is provided levelling screws. Consisting of Penetration Needle, Transfer Dish made of copper Aluminium Sample Containers, Set of two.</p> <p>Penetration Cone Bitumen Penetration Kit</p>
6.	Riffle Sample Divider, 14 Slots Riffle Sample Divider, 16 Slots	1	<p>Riffle Sample Divider, 14 Slots</p> <p>Slot width: ¾" (19 mm) Funnel: 7 × 14" (17 × 35 cm) Material: Stainless Steel</p> <p>Riffle Sample Divider, 16 Slots</p> <p>Slot width: 1" (25 mm) Funnel: 10 × 20" (25 × 50 cm) Material: Stainless Steel</p>
7.	Density Basket & Buoyancy Balance, with NABL Calibration Certificate	1	<p>Density Basket & Buoyancy Balance</p> <p>Density Basket Buoyancy Balance: Balance - A balance or scale of capacity not less than 3 kg (Balance: 15 kg × 0.5 g) Suitable for operation on 220 V, 50 Hz, Single phase, AC supply to 0–5 g and of such a type and shape as to permit the basket containing the sample to be suspended from the beam and weighed in water.</p>
8.	Flash Point (Closed) Pensky-Martens Apparatus (without NPL Certificate) Flash Point (Open) and Fire Point, Pensky-Martens Apparatus Thermometer IP 15C Range 5°C to +110°C Thermometer IP 16C Range 90°C to +370°C	2	<p>Flash Point (Closed) Pensky-Martens Apparatus (without NPL Certificate) Flash Point (Open) and Fire Point, Pensky-Martens Apparatus</p> <p>Thermometer IP 15C Range 5°C to +110°C Thermometer IP 16C Range 90°C to +370°C</p> <p>Ref. Standard: IS : 1209</p>
9.	Saybolt Viscometer with Various ASTM	1	<p>Saybolt Viscometer with Various ASTM Thermometer</p> <p>Saybolt Viscometer, new model with two cups-digital, Ref. Standards: ASTM D88, D244, AASHTO T 72</p>

Sl. No.	Name of the Item	Quantity	Specification
	Thermometer, with NABL Calibration Certificate		For the empirical measurement of Saybolt Viscosity of petroleum products at specified temperatures between 70°F and 210°F. This is also used for determining the Saybolt Furol viscosity of bituminous materials at temperatures of 250, 275, 300, 350, 400 and 450°F. It comprises one each of Cylindrical Oil Cup, Universal Tip, Furol Tip, Bath fitted with immersion heater mounted on a stand, Dimmerstat for temperature control, Stirrer with shield. Apparatus is supplied complete with insulated handle and thermometer support, receiving flask, withdrawal tube, filter funnel, thermometer support for cup and circular spirit level. Suitable for operation on 220 V, 50 Hz, Single Phase ASTM Thermometer Type 17F, Range 66°F to 80°F ASTM Thermometer Type 18F, Range 94°F to 108°F ASTM Thermometer Type 19F, Range 120°F to 134°F ASTM Thermometer Type 20F, Range 134°F to 148°F ASTM Thermometer Type 21F, Range 174°F to 188°F ASTM Thermometer Type 22F, Range 204°F to 218°F ASTM Thermometer Type 77F, Range 245°F to 265°F ASTM Thermometer Type 78F, Range 295°F to 315°F ASTM Thermometer Type 80F, Range 395° F to 415°F ASTM Thermometer Type 81F, Range 445° F to 465°F
10.	Standard Tar Viscometer, 10mm cup and ball valve with various Thermometer, with NABL Calibration Certificate	1	Standard Tar Viscometer, 10mm cup and ball valve with various Thermometer Ref. Standards: IS : 1206 Standard Tar Viscometer, 10 mm cup and ball valve with Thermometer IP 8C, Range 0°C to 45°C and Thermometer IP 9C, Range 40°C to 85°C with Electrical Heating with Immersion Heating Elements and Dimmerstat for controlling the temperature. Complete with 10 mm Cup and Valve. 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
11.	Standard Tar Viscometer, 4mm cup and ball valve with various Thermometer, with NABL Calibration Certificate	1	Standard Tar Viscometer, 4mm cup and ball valve with various Thermometer Ref. Standards: IS : 1206 Standard Tar Viscometer, 4 mm cup and ball valve with Thermometer IP 8C, Range 0°C to 45°C and Thermometer IP 9C, Range 40°C to 85°C with Electrical Heating with Immersion Heating Elements and Dimmerstat for controlling the temperature. Complete with 4 mm Cup and Valve. 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.	Marsh Cone Viscometer SS with Stand, Plastic Measuring Cup, 1000 ml, Thermometer 0-50°C, Stopwatch	1	Marsh Cone Viscometer SS with Stand, Plastic Measuring Cup, 1000 ml, Thermometer 0–50°C, Stopwatch

Sl. No.	Name of the Item	Quantity	Specification
13.	Ring and Ball Apparatus with Thermometer IP 60C & Thermometer IP 61C	3	<p>Ring and Ball Apparatus with Thermometer IP 60C & Thermometer IP 61C</p> <p>Ref. Standards: IS:1205 Should have a magnetic stirrer with heating facility and digital display of temperature Should consist of Steel Balls of 9.5 mm dia., Tapered Rings, Ring Holder and Electric Heater (Hot Plate) It should have Heat adjustment knob Suitable for operation on 220 V, 50 Hz, Single Phase, AC Supply Thermometer IP 60C Thermometer IP 61C</p>
14.	Centrifuge Extractor, Capacity 1500g Electrically Operated with Filter Paper Discs, Set of 25 numbers	1	<p>Centrifuge Extractor, Capacity 1500g Electrically Operated with Filter Paper Discs, Set of 25 numbers</p> <p>The asphalt centrifuge extractor conforms to the explosion-proof standards for the safety of operating personnel.</p> <p>Required features: a removable aluminum bowl assembly, which quickly lifts out of the sealed housing for efficient specimen handling; a simple control knob adjusts bowl speed up to 3600 rpm; an electric brake to stop the centrifuge in seconds when extraction is complete; a heavy cast-aluminum bowl cover latch for secure placing with an integral solvent dispensing cup for easy pouring of the solvent into the bowl.</p> <p>Power: 1/8 hp DC motor.</p> <p>Extractors are supplied complete with 25 filter discs. Replacement filter discs (100-packs).</p> <p>Dimensions: 1500 g unit: 12" × 20" × 22" (305 × 508 × 559 mm)</p>
15.	Ductility Testing Machine with Digital Temp Indicator, with NABL Calibration Certificate	1	<p>Ductility Testing Machine with Digital Temp Indicator</p> <p>Ref. Standards: IS:1208</p> <p>Ductility Testing Machine with Digital Temp Indicator, Designed to test three specimens simultaneously. The machine consists of a carriage moving over a lead screw. An electric motor driven reduction gear unit ensures smooth constant speed and continuous operation. The entire assembly is mounted with water bath completely encased in metal bound hardwood. It is equipped with an electric pump circulator and heater. The temperature is controlled by digital temperature controller. Two rates of travel i.e. 5 cm/min and 1 cm/min are provided. Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply. Ductility Mould, with Base Plate 3 Nos.</p>
16.	Benkelman Beam with Digital Dial Gauge in Wooden	2	<p>Benkelman Beam with Digital Dial Gauge in Wooden Carrying Case (as per IRC:81)</p> <p>Benkelman Beam with Digital Dial Gauge in Wooden Carrying Case (as per IRC:81)</p>

Sl. No.	Name of the Item	Quantity	Specification
	Carrying Case (as per IRC:81), with NABL Calibration Certificate		Lightweight aluminum construction, Unique Telescopic Design and Simplified field setup, Compact Design Balanced beam Arrangement to measure road flexure, Capable of measuring the deflection of flexible pavements under moving wheel loads accurately, Should consist of a reference beam, two-part probe beam and rear zero adjust and should operate on a simple lever arm principle, Complete with the digital dial gauge 0.001×25 mm Travel
17.	Pavement Dynamic Cone Penetrometer	2	Pavement Dynamic Cone Penetrometer Capacity (kg): 8 kg drop weight Material: Mild Steel Cone: 60 degree Diameter: 20 mm
18.	Asphalt Mixer, 5 Lt	2	Asphalt Mixer, 5 Lt Mixer Bowl capacity: 5 l, Mixing Capacity: 3–4 kg, Temp Range: Room temp to $140^{\circ} \pm 5^{\circ}\text{C}$, Speed of Blade Revolution: 0–80 rpm, Speed of Blade Rotation: 0–180 rpm, Heater capacity: 1 kW, Testing Environment: $10\text{--}40^{\circ}\text{C}$ & 80% RH, Power Supply 220 V, Single phase, AC supply
19.	Skid Resistance Tester, with NABL Calibration Certificate	1	Skid Resistance Tester Ref. Standard: ASTM E303-93 & BS EN 13036-4:2011 Power: Hydraulic Pendulum Weight: $1500 \text{ g} \pm 30 \text{ g}$ Sliding Length on the Road Surface: $126 \text{ mm} \pm 1 \text{ mm}$
20.	Film Stripping Device	2	Film Stripping Device Film Stripping Device is used to measure the resistance of bituminous mixtures to stripping of asphalt from aggregate particles. It is generally used to evaluate mineral aggregates and to judge the adhesion of the bituminous materials. The device consists of a circular tray on which 4 bottles of approx. 400 ml are mounted at an angle of 90° to each other with their mouth towards centre of the tray. The tray rotates at a speed of approx. 100 rpm. The sample, usually the aggregate fraction which passes a 9.525 mm sieve but is retained on a No. 8 sieve, is placed in the bottles and agitated for 15 minutes. The percentage of aggregate stripped can be visually estimated. The device should be provided with a preset counter. Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply.
21.	Asphalt Mixer Theoretical Density Meter	1	Asphalt Mixer Theoretical Density Meter Ref. Standard: ASTM D2041-03 This machine is used for determination of theoretical density of asphalt mixer by vacuum method for applications such as asphalt mixer design, road condition investigation, calculation of

Sl. No.	Name of the Item	Quantity	Specification
			<p>porosity and compactness in the road construction quality management.</p> <p>The equipment has a main body fitted with vacuum gauge, two vacuum containers, vibratory table and control panel.</p> <p>The vibratory table operates on manual and automatic mode to release the entrapped air from the asphalt sample. Suitable for operation on 220 V, 50 Hz, 1 phase, AC supply.</p> <p>Vacuum range: 0–100 kPa</p> <p>Vibration loading: 10 kg</p> <p>No. of sample: Two</p>
22.	Mastic Asphalt Tester	1	<p>Mastic Asphalt Tester</p> <p>Ref. Standard: BS 5284 & IS 1195</p> <p>Water Bath: 440 × 350 × 180 mm</p> <p>Mould Size: 150 mm dia. × 25 mm depth</p> <p>Heating Power: 1 kW</p> <p>Temperature Range: Room temp to 85 ± 0.1°C</p> <p>Accuracy of Penetration: 0.01 mm</p>
23.	Marshall Test Water-bath	1	<p>Marshall Test Water-bath</p> <p>A water-bath with microprocessor-based digital controller for precise temperature control throughout their temperature range up to 82°C with at an accuracy of ± 0.1% of input span. Dual digital display for showing the set point and process temperature. It must be fully insulated to help maintain constant temperatures. The capacity should be such that it can accommodate 16 Nos. of 4" diameter or 9 Nos. of 6" diameter Marshall Specimens at a time. Volume is 29.40 Ltrs. and dimensions are 19.5" W × 11.5" D × 8" H (495.3 × 292.1 × 203.2 mm). It must include a stainless steel shelf which supports specimens while allowing 2" of free circulating water above and below specimens. A magnetic stirring bar to induce water flow within the bath and ensure a uniform temperature is maintained. All exposed areas should be stainless steel and the front control panel must be both water and corrosion resistant. The dual digital display shows the set point and the process temperature at a glance.</p>
24.	Laboratory Hot Air Oven	1	<p>Laboratory Hot Air Oven</p> <p>Hot Air Oven Electrically Operated and Digitally Controlled, Stainless Steel internal chamber and External Body made of Mild Steel Sheet (Powder Coated Paint) or Stainless Steel Sheet with glass-wool insulation between the chambers. Temperature Controlled by Digital Temperature Controller from ambient to 250°C maintaining a sensitivity of 1°C having automatic cut off.</p> <p>Size of Internal Chamber (in mm): 450 × 600 × 900;</p> <p>Capacity: 243 Ltrs.</p> <p>Heater Wattage: 2.5 kW</p> <p>No. of Shelves: 3</p> <p>Thermal Insulation Gloves: 5 Nos.</p>

Sl. No.	Name of the Item	Quantity	Specification
25.	Laboratory Hot Plate	3	<p>Laboratory Hot Plate</p> <p>Heating Plate: Cast Iron; Controller: Energy Regulator; Power Supply: 220 / 230 V, 50 Hz; Temperature: up to 250°C; Size (Dimension): 6 × 6" and 8.5 × 8.5". Optional: Overhead stirrer, PID Controller, Stainless steel heating plate, Digital temperature display, Support stand.</p>
26.	Electronic Weighing Machine (Digital) with NABL Calibration Certificate. (10 kg)	3	<p>Electronic Weighing Machine (Digital) with NABL Certificate.</p> <p>Capacity: 10 kg, L.C.: 0.1 g with Tare facility, In-built battery backup.</p>
27.	Electronic Weighing Machine (Digital) with NABL Calibration Certificate. (1 kg)	3	<p>Electronic Weighing Machine (Digital) with NABL Certificate.</p> <p>Capacity: 1 kg, L.C.: 0.01 g with Tare facility, In-built battery backup.</p>
28.	Density Bottle (50 ml Capacity)	10	<p>Density Bottle (50 ml Capacity)</p> <p>Closed type, made of glass and of a size and type suitable for use with tar, bitumen etc.</p>

FORMAT FOR QUOTATION SUBMISSION

(In letterhead of the supplier with seal)

Date:

To,

.....

Sl.No.	Description of goods\ (with full Specifications)	Qty.	Unit	Quoted Unit rate in Rs. (Including Ex-Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments)	Total Price (A)	Sales tax and other taxes payable	
						In %	In figures (B)
Total Cost							

Gross Total Cost (A+B): Rs.

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. (Amount in figures) (Rupees amount in words) within the period specified in the Invitation for Quotations.

We confirm that the normal commercial warranty/ guarantee of months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier

Name:

Address:

Contact No.: