**GENERAL INSTRUCTIONS**

(1) Sealed tenders are invited for the procurement of laboratory items of HBTI Kanpur. The tender documents can be bought from the Store Purchase Section, Harcourt Butler Technological Institute Kanpur. Interested tenderers may download the same from the website and submit their offer along with **Tender fee of `1000/- each** (In form of Crossed Demand Draft issued by any Nationalized Bank in favour of Director H.B.T.I., Kanpur). While submitting your offer mark Tender No. and due date on the envelope.

(2) Quotations received without Tender fee will not be considered.

(3) No request for the extension of the due Tender date will be considered.

(4) Each Tender consisted of various schedules and EMD for each schedule is mentioned separately. Tenderers may submit their proposals for **one or more schedules** along with the respective EMD (In form of Crossed Demand Draft issued by any Nationalized Bank in favour of Director H.B.T.I., Kanpur).

(5) The offer submitted for each schedule should be complete in all respect and price quoted for each schedule should be **FOR destination HBTI Kanpur**.

(6) Late/delayed offers will not be accepted.

(7) Tenders received before the deadline shall be opened in the presence of attending Tenderers/their authorized representatives on the same day at scheduled time and venue.

(8) Corrigendum, if issued any for the Tender, shall form part of the Tender document. Corrigendum will be posted only on HBTI Kanpur website (www.hbti.ac.in). Tenderes are requested to visit HBTI Kanpur website regularly and note the corrigendum/amendments to the tender without fail and submit the offer accordingly.

(9) All other terms and conditions are as per the Institute rule.

(9) The Director reserves the right to cancel any or all Tenders without assigning any reason.

**For HBTI Kanpur**

**Tender No.: 08/SPS/CE/2016 Dated: 14.03.2016 due on 04.04.2016 by 01:30 pm**

1. **HYDRAULICS LAB**

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| **Schedule No.** | **Item** | **Specifications** | **Quantity** | **EMD (`)** |
| 1. | Pipe Pressure test apparatus | 1. For PVC, GI, CC pipes.
2. Reservoir: Made up of M. S. Sheet,

 Size: - 500mm x 500mm x 500mm Ht.3. Hydraulic pressure pump motorized.4. Manifold to fix various size pipes.5. Stand with tray made out of thick with fiber lining M. S. Sheet.6. Safety Guard.7. Pressure Gauge.8. Sump tank with Pump and water bath (S.S. Material)9. Test Specimen Pipe of size:a) ½'' Dia Upto 12'' Dia (covering all in between standard sizes) | 01 | 10000 |
| 2. | Tilting Flume (5meters long- Close circuit type) | 1. A 76mm wide, 250mm high open channel.2. Clear acrylic sides to give visibility of the working section3. A jacking system permits the slope of the channel bed to be adjusted between -1% and +3%.4. Service module: Made from Acrylic5. Sump tank capacity: 250 litres (S. S.)6. Volumetric tank capacity: 40 litres (GRP)7. Inlet tank with flow stilling arrangement.(GRP)8. Include a Venturi flume, sharp and broad crested weirs, 2 vernier level gauges, adjustableundershot weir and crump weir.9. Pump: Submersible type10. Motor: 0.55kW split capacitor start with built in overload protection, Speed 2800rpm, Class Binsulation, Continuous duty.11. Flowmeter: Shunt orifice type range 0.5 to 2.5 litres/sec12. Vernier level:- 1 x 150mm resolution 0.1mm13. Gauges:- 2 x 300mm resolution 0.1mm14. Comprehensive instruction manual.15. Overall dimensions 5.4m (L) x 0.62m (W) x 1.46m (H) | 01 | 18000 |
| 3. | Orifice meter (Close circuit type) | 01. Storage tank Capacity: -72 lts. (approx.)PVCRotomoulded Size - 600 X400 X320mmApprox.02. Pump :½HP, 2500 LPH, 1”X1” suction/discharge03. Orificemeter : Diameter : 12.5mm04. Rotameter : 250 - 2500 LPH Capacity05) The unit also includes Control valves, Pressure tapings, 'U'Tube mercury Manometer, etc. | 01 | 500 |
| 4. | Venturimeter (Close circuit type)  | 01) StorageTank : Capacity - 72Lts. (Approx.)03) Venturi MeterDiameter : 12.5mm04) Rotameter :Having capacity 250 2500 LPH with calibration certificate.05) The unit also includes Control valves, Pressure tapings, 'U'Tube mercury Manometer, etc. | 01 | 400 |
| 5. | Digital Vernier Calipers | Size 8”, Least count  | 02 | 300 |
| 6. | Hydrostatic Pressure Apparatus | 1. Flotation tank with adjustable feet2. Accurately formed plastic quadrant3. Lever arm with counterbalance and weight hang.4. Quick release fitting for easy connection to hydraulics benchEducational software be provided offering a complete teaching package of setup. Thestudent manually enters data in the software, which can then be used for calculations, dataprocessing and graph plotting1. Distance between suspended mass and fulcrum: 275mm2. Cross-sectional area of quadrant (torroid): 7.5 x 10 -3 m23. Total depth of completely immersed quadrant: 160mm4. Height of fulcrum above quadrant: 100mm | 01 | 1000 |
| 7. | Darcy’s Apparatus | Requirements:a) Water Supplyb) Drainc) Electricity 0.5 KW, 220 V, Single Phased) Floor Area 1.5 Meter X 0.75 Metere) Close Circuit typeTECHNICAL DETAILS:-• Cylinder: Material Acrylic. Dia. 200 Mm ( Approx )• Height : 500 Mm Approx• Water Circulation: FHP Pump.• Flow Measurement : Using Rota Meter• Sump Tank : Made Of Stainless Steel, Compatible Capacity• Stop Watch : Mechanical Type, 0.2 Sec. Resolution• Control Panel Comprise Of: Speed Control Unit, Standard Make On/Off Starter, Mains Indicator, Fuse Etc.• Tank Will Be Made Up Of Stainless Steel.• The Whole Set- Up Is Well Design And Arranged In Good Quality Painted Structure. | 01 | 1000 |

**(B) SOIL MECHANICS LAB**

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| **Schedule No.** | **Item** | **Specifications** | **Quantity** | **EMD (`)** |
| 8. | Digital Electronic Balance | Sensitivity 0.001/0.01 gram, Max 300 gr, Min. 0.02/0.2 gr, with glass paneled box with slide opening  | 01 | 600 |

**(C) TRANSPORTATION ENGG. LAB**

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| **Schedule No.** | **Item** | **Specifications** | **Quantity** | **EMD (`)**  |
| 9. | Flash Point-Cleveland | As per IS:1448(Pt-69), Flash Cup Brass, with Insulated handle, Gas jet assembly pivoted from a cast cup platform fixed to a heating bath, Energy Regulator-220V, 50 Hz, I phase AC supply, Thermometer —60C-+1100C | 01 | 600 |
| 10. | Flash Point-Pensky-Martens | As per IS:1209,1448(Pt-21), Flash Pt. Closed, with Insulated handle, Gas jet assembly pivoted from a cast cup platform fixed to a heating bath, Energy Regulator-220V, 50 Hz, I phase AC supply, Thermometer —60C-+1100C | 01 | 600 |
| 11. | Universal Penetrometer | As per IS:1203,1448(Pt-60), with Penetration cone, complete kit, needle, copper dish, set of Al. sample container | 01 | 600 |
| 12. | Saybolt Viscometer | Cylindrical oil cup, Uni. Tip, Furol tip, mounted heater fitted bath, Dimmerstat, stirrer etc, Thermometer | 02 | 1200 |
| 13. | Digital Modified Marshall | 50 KN single speed, complete set | 01 | 2000 |
| 14. | Ductility Apparatus | Electrically operated, DigitalComplete set | 01 | 1000 |
| 15. | Benkelman Beam | With digital Dial Gauge 0.001x25mm travel | 01 | 1000 |
| 16. | Asphalt Mixer | Bowl Capacity 5 ltr.,mixing Cap-3-4 kg, Blade Rev/Rot-0-80/0-180 rpm,Heater-1kW | 01 | 1000 |
| 17. | Skid Resistance Tester | Spring loaded rubber slider mounted on a pendulum arm, adjusted vertically | 01 | 1000 |
| 18. | Asphalt Extraction Appt | Automatic-complete set | 01 | 1000 |

**(D) CONCRETE / STRUCTURES LAB**

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| **Schedule No.** | **Item** | **Specifications** | **Quantity** | **EMD (`)** |
| 19. | Aggregate impact value apparatus | I S standard – IS9377Supplied complete with:Cylindrical CupMetal Measure 75 mm ID x 50 mm deepTamping Rod Automatic Blow Counter | 01 | 800 |
| 20. | Aggregate crushing value apparatus | This apparatus is used for measuring resistance of an aggregate to crushing, as per IS: 2386, (Part 4).Made of mild steel, it comprises of: Cylindrical Cell Plunger Base PlateMetal Measure | 01 | 500 |
| 21. | Sieve shaker manual (for big size sieves) | 1. C.I. body with 8 nos. sieves of 350-400 mm dia with adjustable top clamping plate to hold the sieves2. Suitable for bench mounting with side to side movement through a cam and gear system alongwith tapping action | 02 | 800 |
| 22. | Sieve shaker motorised | 1. C.I body2. Can accommodate 7 nos. sieves of 200 mm dia3. Adjustable top clamping plate to hold the sieves4. Shaker must have inclined sieve table with a gyratory motion in addition to up & down jolting action.5. The operating gear assembly should be enclosed in an oil bath filled with a transparent oil level indicating window6. Suitable for operation on 220 V, 50 Hz, single phase supply.7. Time switch adjustable from 0-60 minutes | 01 | 1200 |
| 23.. | Sieve set | (A) 200 mm dia (spun brass frames) set, sizes – 2.36 mm, 1.18 mm, 600 micron, 300 micron, 150 micron, 90 micron and 75 micron.(B) 300 mm dia (GI sheet frames) set, sizes – 53.0 mm, 45.0 mm, 37.5 mm, 31.5 mm, 26.5 mm, 22.4 mm, 19.0 mm, 16.0 mm, 13.2 mm, 11.2 mm, 9.5 mm, 8.0 mm, 6.7 mm, 5.6 mm, 4.75 mm, 4.0 mm. | 01 | 1000 |
| 24. | Three hinged arch apparatus | As per standard test | 01 | 400 |
| 25. | Two hinged arch apparatus | As per standard test | 01 | 400 |
| 26. | Beam carry over factor apparatus | As per standard test | 01 | 400 |
| 27. | Deflection of truss apparatus | As per standard test | 01 | 400 |
| 28. | Cube moulds – 15 cm size | Made of cast iron as per IS: 10086-1982 | 24 | 1000 |
| Cube moulds – 7.06 cm size | Made of cast iron as per IS: 10080-1982 | 12 | 250 |
| 29. | Length comparator | As per IS: 4031-1968, IS: 9459-1980. Apparatus comprises-1. One frame consisting on one base plate, two pillars and a cross bar. The cross bar is adjustable up and down on pillars2. One dial gauge, least count 0.002 mm, travel 5 mm which can be fixed to the cross bar3. One reference bar of stainless steel with insulated handle. | 01 | 400 |
| 30. | Diamond Concrete Core Cutter with Stand  | Power input :- 2800 WNo-load speed - 700 rpmMax core drill dia - 200 mmNet weight - 25 kgwith over load protected. with water supply pipe.Drill stand for diamond core Cutter.DIAMOND WET CORE BIT52 X 45072 X 450112 X 450152 X 450 | 01 | 2000 |
| 31. | Rebound Concrete Test Hammer | Impact Energy: 2.207 NmAccuracy: Better than + 2 Rebound Numbers when tested on Calibration AnvilResolution: 2 Rebound Number(s)Range: 10 to 100 Rebound NumberConforms to BS 1881: Part 202.IS 13311 Part 1, ASTM C-805Weight: 1.5 kg.Travel Carry case | 01 | 1000 |