TENDER A: GEOTECHNICAL LABRATORY

| Sr. No. | Item | Qty | Specification |
| --- | --- | --- | --- |
|  | Relative Density Set | 01 | Relative density of cohesion less soil test set.  ASTM Std. D4253 and D4254, 220V. with mandatory accessories according to ASTM D4253 along with A 500KN loading system, confirming to ASTMD1194, ASTM D1195. Complete with suitable accessories (datum bar, load plates (6 to 30inch), dial gauges etc.) with a wooden carrying case. |
|  | Plate Load Test Apparatus | 01 | Plate Load Test Apparatus ASTM D1194  Hydraulic jack, 100KN Complete with hand pump, rubber pipe. Set of extension of different length, digital pressure gauges 0-100KN. Load plate 300mm diameter, device for center dial gauge measurement, datum bar assembly, aluminum with, with plumb and spirit level. Dial gauge 25mm, 0.01mm. |
|  | **Local Items** |  |  |
|  | Standard Penetration Test (SPT) | 01 | Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils (ASTM-D1586): equipment including drilling equipment, bits, augurs, sampling rods, spilt barrel sampler. Drive weight assembly, hammer drop system, ground water level measuring device, sample container , tri-pod etc. |
|  | Mortar and Pestle Porcelain | 15 Nos. | Mortar and Pestle Porcelain, stainless steel, 135mm diameter |
|  | Sieve wire Brushes | 10 Nos. | Sieve wire Brushes |
|  | Fiber brushes | 10 Nos. | Fiber brushes |
|  | Calcium Carbide | 5 kg or 2 packets | Calcium Carbide (Packed in Capsule or Unpacked) |
|  | Plastic Wash bottles | 10 each | Plastic Wash bottles (250ml, 500ml) |
|  | Plastic Graduated Cylinders | 15 each | Plastic Graduated Cylinders  (20ml, 50ml, 100ml, 500ml, 1000ml) |
|  | Spatula | 10 each | Spatula (100mm, 200mm) |
|  | Galvanized Sample | 15 No. Each | Galvanized Sample Trays Gauge 16  (12" x12" x 3"); (12" x18" x3 "); (24" x24" x3") |
|  | Electronic Vernier Caliper | 01 | Electronic Vernier Caliper 300mm |
|  | Density Bottle | 01 | Density Bottle |
|  | Temping Rod | 05 each | Temping Rod (steel, wooden) |
|  | Beaker | 10 each | Beaker (100ml, 350ml, 500ml, 1000ml) |
|  | Mixing Bowls | 30 each | Mixing Bowls (8" and 10" dia.) |
|  | Scoop small | 20 | Scoop small |
|  | Atterberg Apparatus motorized | 01 | Atterberg Apparatus motorized |
|  | Stopwatch digital | 10 | Stopwatch digital |
|  | Aluminum Containers | 60 | Aluminum Containers with closefitting lids shall be used for testing specimens having a mass ofless than about 200 g |
|  | Straight edge | 20 | Straight edge |
|  | Sieve Sets | 5  Each. | Sieve Sets  (#4, #10, #16, #30, #35, #40, #50, #100, #200) |
|  | Tools | 2 Set | Tools for excavating holes for Sand density cone apparatus including steel hammer, chisel and rubber hammer etc. |
|  | Total Estimated Cost |  | 4.6M |

Note:

* 1. AllitemsmustbeofUSA,Japan,Germany,UK,France,Italy,Spain,Belgium,Netherland,Finland, Switzerland & Sweden’smanufacturer.
  2. Quoted hardware must be compatible with lab power supplies and other equipment as perrequirement.
  3. Equipment shall be delivered with all necessary supplies and accessories required for installations andstart-up.
  4. Thevendorshalldemonstrateanddocumentuponinstallationthatthesystemmeatsallperformance specifications.
  5. Comprehensive documentation including Safety/Installation Guidelines and Operation/Experiment Manuals should accompany the product, both in Hard and Soft/CD/eBook formats for allitems.
  6. Items (1-2) of this lab. will be technically &financially evaluated as group. Moreover, Local Items (1-21) of this lab. will be technically &financially evaluated as group.

TENDER B: ENGINEERING MECHANICS LABORATORY

| Sr. No | Item | Qty. | Specifications |
| --- | --- | --- | --- |
|  | Fly wheel apparatus | 01 | Determine the mass moment of inertia by experiment. The experimental unit comprises of a flywheel with shaft, a cable, and a set of weights. |
|  | Plastic Deflection of Beams | 01 | Study a beam until plastic deformation.1 set of beams,1 load application device, 2 supports and necessary accessories. |
|  | Torsion testing  Machine | 01 | Determination of torsion of bars with open and closed cross sections with all accessories and specimens (Capacity 30Nm) |
|  | Thick and thin cylinder machine | 01 | Stresses in thin and thick wall cylinders |
|  | Izod Charpy Impact Testing machine | 01 | To perform the Izod Impact Test for the given metals  (Capacity 25Joules) |
|  | Unsymmetrical bending | 01 | An apparatus to study deflection and stability within a structure in relation to beams with unsymmetrical sections and shear center. |
|  | Combined Bending and Torsion Apparatus | 01 | Determination of stresses under combined bending and torsion  1 experimental unit, 1 set of specimens, 1 set of weights (loading), 1 set of weights (compensation) and necessary accessories. |
|  | **Local Items** |  |  |
|  | Center of Gravity apparatus | 01 | Center of gravity of apparatus is used to find out the center of gravity of different two-dimensional thin bodies using plumb bob. |
|  | Jib crane apparatus | 01 | This is used to find out the forces acting in the tie and jib of a simple jib crane. |
|  | Moment law apparatus | 01 | A disc free to rotate about its center, to verify the principle of moments. |
|  | Hanging rope apparatus | 01 | A hanging rope fitted with spring balances and weights, is used to determine the tension in various locations of hanging rope at various points. |
|  | Total Cost |  | 8.0M |

Note:

1. AllitemsmustbeofUSA,Japan,Germany,UK,France,Italy,Spain,Belgium,Netherland,Finland, Switzerland & Sweden’smanufacturer.
2. Quoted hardware must be compatible with lab power supplies and other equipment as perrequirement.
3. Equipment shall be delivered with all necessary supplies and accessories required for installations andstart-up.
4. Thevendorshalldemonstrateanddocumentuponinstallationthatthesystemmeatsallperformance specifications.
5. Comprehensive documentation including Safety/Installation Guidelines and Operation/Experiment Manuals should accompany the product, both in Hard and Soft/CD/eBook formats for allitems.
6. Items (1-7) of this lab. will be technically &financially evaluated as group.Bidders are required to quote individual prices of all items.
7. Local Items (1-4) of this lab. will be technically & financially evaluated as group.Bidders are required to quote individual prices of all items.

TENDER C: STRUCTURE LABORATORY

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No | Item | Qty. | Specifications |
|  | Cut-off machine | 01 | Cut-off machine to cut steel to a suitable length along with cold bending machine for steel bars through 90o and 180o with suitable mandrels and holder to bend rebars of diameter(10,13,16,19,22,25mm). |
|  | Extensometer | 02 | Axial Extensometer confirming to ASTM Class B2. Clip on, until failure. 200mm gauge length. On Site Calibration is also required. Fits round samples up to 25 mm diameter (1.0 inch) and ﬂats to 12 mm thick by 31 mm wide (0.5 inch by 1.25 inch) |
|  |  |  |  |
|  | Total Cost: |  | 6.63M |

Note:

1. AllitemsmustbeofUSA,Japan,Germany,UK,France,Italy,Spain,Belgium,Netherland,Finland, Switzerland & Sweden’smanufacturer.
2. Quoted hardware must be compatible with lab power supplies and other equipment as perrequirement.
3. Equipment shall be delivered with all necessary supplies and accessories required for installations andstart-up.
4. Thevendorshalldemonstrateanddocumentuponinstallationthatthesystemmeatsallperformance specifications.
5. Comprehensive documentation including Safety/Installation Guidelines and Operation/Experiment Manuals should accompany the product, both in Hard and Soft/CD/eBook formats for allitems.
6. Items (1-2) of this lab. will be technically &financially evaluated as group.

TENDER D: SURVEY LABORATORY

| Sr. No | Item | Qty. | Specifications |
| --- | --- | --- | --- |
| 1 | Theodolite | 10 | Magnification:30x, accuracy 5”, effective diameter of objective 45mm, dust and water protection with standard accessories |
| 2 | Automatic level | 05 | Magnification:34x, automatic compensator, ±1.0mm, dust and water protection |
| 05 | Magnification:24x, automatic compensator, ±1.0mm, dust and water protection |
| 3 | Total Station | 6 | Total Station 5” Accuracy, Magnification:30x, reflect less 800m, dual face display, Autofocus, Dual battery, internal memory: 50000 with standard accessories, dust and water protection |
|  | **Local Items** | | |
| 1 | Trough compass | 20 | Narrow and magnetized bar of steel pointed at both ends. Mount in a narrow rectangular box carrying a pivot at its center. |
| 2 | Trestle | 12 | Made of wood, top circular 10”, Length of Legs (4 feet) |
| 3 | Tape thermometer | 12 | Self-adhesive thermometer for monitoring tape temperatures. Scale 0OC to 45 OC |
| 4 | Spring Balance | 12 | Spring balance (0 to 20kg), Stain less steel material, least count=0.5kg) |
| 5 | Prism Catcher | 06 | Prism catcher |
| 6 | Prism | 02 | Prism (360 degree) with pole |
|  | Total Cost |  | 8.5M |

Note:

1. AllitemsmustbeofUSA,Japan,Germany,UK,France, Italy, Spain,Belgium,Netherland,Finland, Switzerland& Swedenmanufacturer.
2. Quoted hardware must be compatible with lab power supplies and other equipment as perrequirement.
3. Equipment shall be delivered with all necessary supplies and accessories required for installations andstart-up.
4. Thevendorshalldemonstrateanddocumentuponinstallationthatthesystemmeatsallperformance specifications.
5. Comprehensive documentation including Safety/Installation Guidelines and Operation/Experiment Manuals should accompany the product, both in Hard and Soft/CD/eBook formats for allitems.
6. Local Items (1-6) of this lab. will be technically &financially evaluated as group. But bidders are required to quote individual prices of all items.

TENDER E: CEMENT TESTING LAB.

| Sr. No | Item | Qty. | Specifications |
| --- | --- | --- | --- |
|  | Vicat apparatus | 10 | VICAT Apparatus confirming to ASTM C187 (contains), Plunger with end of 10mm diameter and 50mm length, Conical ring with lower diameter of 70mm, upper diameter of 60mm and 40mm height, Glass graduates (200mL or 250mL capacity) Scraper, Spatula, Glass plate, trowel, galvanized sample tray (12”x12”x3”) |
|  | Le-chattier mold and flask | 10 | Le-chattier apparatus confirming to BS196-3 standard and Used to determine the specific gravity of hydraulic cement and lime. Glass flask 250 ml capacity, with graduated neck from 0 to 1 ml and from 18 to 24 ml in 0.1 ml graduation with accuracy of 0.05 ml. |
|  | Unit weight measures | 01 each | Unit weight measures confirming to ASTM C29, having capacity 2, 3, 5,10 liters. |
|  | Sieve Shaker with sieves | 03 | Sieve shaker with 300mm dia. Sieves 300mm, 200mm, 150mm, 75mm, 63mm, 50mm, 37.5mm, 28mm, 25mm, 20mm, 19mm, 16mm, 14mm, 12.5mm, 10mm, 9.5mm, 6.3mm, 4.75mm, 4.0mm, 3.350mm, 2.360mm, 2.0mm, 1.4mm, 1.180mm, 0.850mm, 0.600mm, 0.425mm, 0.300mm, 0.250mm, 0.212mm, 0.180mm, 0.150mm, 0.075mm, Pan, Lid |
|  | Balance | 05 | Digital Balance (200kg) |
|  | Pan type Concrete Mixer | 1 | Pan, Capacity 130 Liters, mixing capacity 90 L, Complete with drawbar, additional interchangeable mixing paddle. |
|  | Three-gang mold | 10 | Three-gang mold (40 x 40 x 160 mm) |
|  | Prism Mold | 12 | Prism Mold (25mmx 25 mm x 300mm) |
|  | Mortar Cubes | 6 | Six Gang Mortar Cubes Mold (50mm x50mm x 50mm) |
|  | Cylinder | 12 | Cylinder (75mm x 150mm) |
|  | Cylinder | 12 | Cylinder (100mm x 200mm) |
|  | Cylinder | 12 | Cylinder (150mm x 300mm) |
|  | Cylinder | 06 | Cylindrical Mould (100mm dia. 50mm height) |
|  | Wheelbarrow | 01 | Wheelbarrow (Tube less tires) |
|  | Hand lifter | 02 | Hand lifter (2Ton) |
|  | Shovel | 05 | Hand shovel (rounded point) with wooden handle. |
|  | Spade | 01 | Spade with wooden handle |
|  | Slump cone | 05 | Slump cone apparatus |
|  | Tasla | 05 | Galvanized Tasla, 18 Gauge, Circular shape for carrying crush, sand 5kg, 10kg, 15kg, 20kg, 25kg |
|  | Stopwatch | 03 | Digital stop watches |
|  | Pick Mattock | 01 | Pick Mattock |
|  | Rubber mallet | 05 | Rubber mallet ,50mm dia. |
|  | Wire brush | 2 Dozen | Wire brush |
|  | Sieve soft brush | 1 Dozen | Sieve soft brush |
|  | Trowel | 06 | Pointed Trowel |
| 06 | Flat Trowel |
|  | Steel Float | 06 | Steel Float |
|  | Wooden Float | 06 | Wooden Float |
|  | Galvanized Trays | 4 Each | Tray size :3” x12”x12”; Tray Size: 3” x18”x24”; Tray Size: 3” x24”x24” |
|  | Electric  Melting pot | 02 | Electric Melting pot with accessory: Cylinder cappers, cylinder carriers, melting pot, stainless steel ladle, and capping plate specimens (dia.150mm, h:300mm) |
|  | Splitting tensile test device | 01 | Splitting tensile test device for concrete cylinder |
|  | Total Cost |  | 1.61M |

Note:

1. Quoted hardware must be compatible with lab power supplies and other equipment as per requirement.
2. Equipment shall be delivered with all necessary supplies and accessories required for installations and start-up.
3. The vendor shall demonstrate and document upon installation that the system meats all performance specifications.
4. Comprehensive documentation including Safety/Installation Guidelines and Operation/Experiment Manuals should accompany the product, both in Hard and Soft/CD/eBook formats for all items.
5. Items (1-30) will be technically & financially evaluated as a group. But the bidders are required to quote individual prices of all items.

TENDER F: ENVIRONMENTAL ENGINEERINGLABRATORY

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No. | Items | Qty. | Specifications |
| **Equipment** | |  |  |
|  | DO Meter | 05 | DO range up to 300%(0-45mg/l), Altitude compensation up to 4000 m; Salinity compensation up to 40 g/L; Automatic temperature compensation; Automatic calibration in air; PC compatible via USB; Battery powered or Workable on 220V 1Ph 50~60 Hz.Supplied with DO Standard, carrying case |
|  | BOD incubator | 05 | BOD Incubator: temp. range:2~-50 ℃ temp. tolerance (℃): ≤±0.5℃ temp. uniformity℃: ≤±1, temp. accuracy (℃): ±0.5 volume (L):>150; Glass bottles for BOD measurement 300 ml (5Nos.) along with BOD Meter and chemical |
|  | COD meter | 05 | COD meter with COD reactor and vials of low and midrange |
|  | COD Photometer | 05 | COD photometer with digester and reagent, vials, cooling rack |
|  | PH Meter | 05 | Bench top, Range:0-16 pH, resolution:0.01 pH, accuracy ±0.01 pH; supplied with pH electrode, temperature probe, electrode holder, pH 4,7,10 buffer solution, electrolyte solution, cleaning solution, adapter and instruction manual.  Spare pH electrode(3Nos) and electrolyte solution |
|  | Electrical Conductivity/  TDS meter | 05 | Bench top, EC: range up to 500.0 mS/cm, TDS: range up to 400g/L supplied with conductivity probe, adapter and instruction manual |
|  | Multi parameter Photometer | 05 | The instrument can measure alkalinity, Hardness, Ca, Mg, Iron, Nitrate, Nitrite and Chlorine. Supplied with sample cuvettes and caps, cloth for wiping cuvettes, adaptor and instruction manual. Reagents for alkalinity, Hardness, Ca, Mg, Iron, Nitrate, Nitrite and Chlorine., Set of spare cuvettes (2Nos.) how many samples |
|  | Colorimeter | 1 | Range up to 500 PCU, supplied with sample cuvettes with caps, battery, instruction manual. |
|  | Turbidity meter | 05 | Meets USEPA standards.2,3,4 or 5point turbidity calibration; range (accuracy):0-1000NTU (±2% of reading plus 0.02NTU); Resolution:0.1 NTU; supplied with glass cuvette with caps, calibration solution, cuvette wiping cloth, batteries, rugged carrying case and instruction manual. |
|  | Flame photometer | 1 | Flame photometer: Sodium (Na), range 1-100ppm; Potassium (k), range:1-100ppm with standards |
|  | Fume hood | 1 | Cabinet Material: Stainless Steel (SS41 or better) Inner Material: Coated Asbestos Board, Coated Urethane Resin, Working Material: Lead Sheet Plate, External: should be chemical and corrosion resistant.  Utility Device: Air Cock, Gas Cock, Goose, Cup Sink Concent Vapor  proof Lamp, FFan Motor: Sirocco type Fan Motor, Stainless steel, Dimension (minimum): 1x 0.8 x 2 (H) meter, Air Volume: 1000 - 1600 CFM, Power Supply : 220 V / 50 Hz |
|  | Lab. Magnetic Stirrers with Hot plate | 2 | Surface temperature :0-250 °C; Stirring speed:0-1400 rpm; Stirring capacity: 0.5-2L; Heating power variable control with LED indicator; Magnetic stirrer variable control with LED indicatorWorkable on 220V 1Ph 50~60 Hz |
|  | Particulate Air Quality Monitoring kit | 2 | Real-time direct reading of particulate mass concentrations along with temperature and relative humidity Selection of particulate settings PM2.5, PM4, PM10, Battery life ≥ 4 hrs.Measurement Parameters: MIN. MAX, LEVEL; Included Sensors: Relative Humidity, Temperature, Particulates Available Sensors: CO, CO2, O2 |
|  | Laboratory Oven | 1 | Solid Door, Capacity: 120 liters, temperature range +5-300oC |
|  | Water distillation Plant | 1 | Output >5 liters/hr, single distilled; pH 5.0 - 6.5, Conductivity, μScm-1 1.0 – 2.0, Resistivity, mOhm-cm 0.5 – 1.0; Temperature 25 - 35°C; Pyrogen content- Pyrogen free; Water supply 1 litre/min; 3 – 100psi; (20-700kPa), Electricity supply 220 or 240V, 50-60Hz, single phase |
|  | Desiccator | 05 | simple desiccator (Plastic/Glass or equivalent) with silica gel or other equivalent desiccant. Plate size>300mm with facility for vacuum desiccation |
|  | Weather Station | 1 | A complete weather Station for measuring precipitation, Humidity, wind speed, wind direction, temperature, pressure etc. |
|  | Digital Noise Meters | 05 | Digital Noise Meters |
|  | Lab. Refrigerator | 1 | Cfc free, Single Door, Capacity:(min. 150 liters), temperature range +0-10oC with Chemical storage cabinet |
|  | Precision balance | 1 | Range (accuracy):200±0.01g; Resolution :0.01g; Battery operated or Workable on 220V 1Ph |
|  | Electronic weighing balance | 1 | Range (accuracy):200±0.0001g; Resolution :0.0001g; Battery operated or Workable on 220V 1Ph |
|  | Washing bottles | 24 | Washing bottles (500ml) |
|  | Kjeldahl digestion/distillation apparatus with blower exhaust | 1 | Two or more Kjeldahl unit. Hood constructed of epoxy-coated formed steel, or equivalent Heaters. Unit shall include heaters, for digestion, & distillation.Distillation Manifold. Unit shall be equipped with seamless stainless-steel tubes and cooling water temperature gauge.Fume Manifold. Unit shall include a fume manifold of chlorinated polyvinyl chloride (CPVC) or equivalent. Blower Exhaust. Unit shall include at least 1/4 hp blower exhaust system for fume removal. Temperature Range:> 500’C, Capacity: 150-600ml x 2 each. |
| **Glass wares:** | |  |  |
|  | Kjeldahl Flask(800mL) | 12 | High quality flask which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Kjeldahl Flask(500mL) | 12 | High quality flask which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Kjeldahl Flask(300mL) | 12 | High quality flask which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Titration Funnel | 24 | Material: Glass, capacity 50-100mL |
|  | filter paper (0.45μm) | 12 | Resistant to weak acids & base ,100 pcs |
|  | filter paper (0.2μm) | 12 | Resistant to weak acids & base ,100 pcs |
|  | Laboratory dishes (porcelain) | 12 | Laboratory dishes (porcelain) |
|  | Pipette Sucker | 2 Each | Pipette Sucker (2ml,5ml,10ml) |
|  | Indicator bottles | 4 | Indicator bottles |
|  | Graduated Burette with stand | 24 | Accuracy :0.01ml Max volume:50ml |
|  | Pipette  (2-20μL) | 24 | Single channel, borosilicate glass/Plastic |
|  | Pipette (20-200μL | 24 | Single channel, borosilicate glass/Plastic |
|  | Pipette  (200-1000μL) | 24 | Single channel, borosilicate glass/Plastic |
|  | Automatic burettes | 12 | Automatic burettes 50ml with plastic bottles |
|  | Certified Pipettes | 12 Each | Certified Pipettes (1ml,2ml,5ml,10ml) |
|  | Beaker (1litre) | 24 | High quality glass beakers which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Beaker (500 mL) | 24 | High quality glass beakers which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Beaker (250mL) | 24 | High quality glass beakers which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Beaker (100 mL) | 24 | High quality glass beakers which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Beaker (50 mL) | 24 | High quality glass beakers which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Graduated Cylinder (1L) | 24 | High quality glass cylinders which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Graduated Cylinder (250 mL) | 24 | High quality glass cylinders which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Erlenmeyer flask (50ml) | 24 | High quality flask which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Erlenmeyer flask (100ml) | 24 | High quality flask which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Erlenmeyer flask (250ml) | 24 | High quality flask which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Erlenmeyer flask (500ml) | 24 | High quality flask which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Volumetric Flask (250 ml) | 24 | High quality flask which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Volumetric Flask (500 ml) | 24 | High quality flask which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Volumetric Flask  (1 L) | 24 | High quality flask which can endure heating over the open flame of an alcohol lamp, lab burner, or hot plate |
|  | Glass Rods | 12 | Glass Rods |
|  | Total Cost |  | 6.0M |

Note:

1. All items must be of USA, Japan, Germany, UK, France, Italy, Belgium, Netherland, Finland, Switzerland &  
   Sweden’s Manufacturer.
2. Quoted hardware must be compatible with lab power supplies and other equipment as per requirement.
3. Equipment shall be delivered with all necessary supplies and accessories required for installations and start-up.
4. The vendor shall demonstrate and document upon installation that the system meats all performance specifications.
5. Comprehensive documentation including Safety/Installation Guidelines and Operation/Experiment Manuals should accompany the product, both in Hard and Soft/CD/eBook formats for all items.
6. Equipment (1-23) will be technically & financially evaluated as a group. and glass wares (1-30) will be technically & financially evaluated as a group.
7. But the bidders are required to quote individual prices of all items.

TENDER G: WORKSHOP PRACTICE

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No. | Items | Qty. | Specifications |
| Equipment | |  |  |
|  | Circular saw | 01 | Circular saw: blade diameter: 185mm (7-1/4") |
|  | Jig saw | 01 | Jig saw wood cutting capacity160mm (6-19/64") |
|  | Band saw | 01 | Band saw: Max. Cutting Depth: 80mm; Max. Cutting Width: 230mm |
|  | Table Saw | 01 | Table Saw: Max. Cutting Depth: 80mm; Max. Cutting Width: 230mm |
|  | Surface planner | 01 | Max Planing Width: 80 mm |
|  | Thickness planner | 01 | Max Thicknessing Capacity: 40 mm |
|  | Wood turning lathe | 01 | Wood turning lathe: Cutting Diameter: 350mmCutting Lathe:1000mm with accessories |
|  | Bench Grinder | 01 | No load speed: 2950rpm; Wheel diameter: 150mm |
|  | Lathe machine | 01 | Bed length 3.5’, range of spindle speed 50 to 1500 rpm; motor speed minimum 1400 rpm, motor power 1HP, with necessary accessories face plate, steady rest, follow rest, electric motor(1 HP), one taper sleeve, one drip pot for coolant, one set of spanners,, one set of Allen keys, one grease gun, complete electric outfits and one American tool post. |
|  | Power hack saw | 01 | Power heck saw: Maximum cutting capacity:250mm |
|  | Bench drill machine | 01 | Bench drill machine: Max drilling capacity: 20mm with pair of Vee Blocks and U-Clamps, plain clamp, goose neck clamp, screw heel clamp, finger clamp, double finger clamp, T-Slot bolt, C-clamp, parallel clamp, step back, drill vice, angle plate |
|  | Electric Hand Planer | 06 | No Load, RPM 16,500, Planning Depth: 0” to 1/16” (1.5 mm), Planning Width 0” to 3-1/4”, Accessories: Wood razor Blades (2), Edge Guide Fence, Chip Bag, Blade Wrench |
|  | Gauge mark machine | 01 | Steel rebar gauge mark off machine |
| Workshop Tools | |  |  |
|  | Cross cut saw | 25 | Cross cut saw 8tpi or 12tpi crosscut teeth with 0.13mm set, 20-26 inches. |
|  | Hand saw | 25 | Hand saw size:450mm |
|  | Rip Saw | 25 | Rip saw size: 20-28 inches, 3-6tpi |
|  | Hacksaw | 25 | Heck saw size:300mm |
|  | Tenon saw | 25 | Tenon saw size:8-14”, 10-15 tpi |
|  | Spoke shave | 5 | Spoke shave plane, blade: 21/8” |
|  | Pincer | 05 | Pincer size:7-8 inch. |
|  | Block plane | 7 | Block plane cost iron body, length:100-200mm |
|  | Smoothing plane | 25 | Smoothing plane, length:100-200mm, blade width:50mm |
|  | Jack plane | 25 | Jack plane, length:350-450mm, blade width:50-75mm |
|  | Rabbit plane | 5 | Rabbit plane, length:100-200mm, blade width:6-50mm |
|  | Firmer chisel | 50 | Blade width:22mm, Length:100-125mm |
|  | Mortise chisel | 10 set | Mortise chisel: Blade width: 6-25mm, length:200-450mm |
|  | Bradawl | 10 | Bradawl |
|  | Gimlet | 10 | Plain & twisted gimlet |
|  | Auger | 10 | Scotch pattern eyed auger and shell auger |
|  | Ratchet brace | 01 | Ratchet brace with bits |
|  | Hand drill | 01 | Hand drill with bits |
|  | Rasp & scraper | 10 | Rasp (6-14”) & scraper |
|  | Ball peen hammer | 25 | Ball peen hammer (450 gm) |
|  | Claw hammer | 20 | Claw hammer (450 gm) |
|  | Wooden mallet | 10 | Wooden mallet (1000gm) |
|  | Rubber mallet | 05 | Rubber mallet (450gm) |
|  | Marking gauge | 30 | Marking gauge (10”) |
|  | Combination set | 10 | Combination set (12”) |
|  | Try square | 25 | Try square (6”) |
|  | Miter square | 25 | Miter square (8-12” |
|  | Measuring tape | 10 | Flexible measuring tape (3m) |
|  | Steel ruler | 30 | Steel ruler (12”) |
|  | Divider | 10 | Divider (10”) |
|  | Try plane | 05 | Try plane (10”) |
|  | Carpenter bench vise | 10 | Carpenter bench vise size:8” |
|  | Screwdriver set | 10 | Screwdriver set of different size (9Pcs) |
|  | Sharpening stone | 15 | Sharpening stone (6”x2”x1”) |
|  | Hand drill machine | 02 | Hand drill (3”/8”) machine |
|  | Flat file | 12 | Flat file (10”) |
|  | Wood box | 24 | Box made of wooden, size (20”x12”x3”) |
|  | Axe | 5 | Axe Head made of high carbon iron with wooden handle. And side axe |
|  | Adz | 5 | Adz |
|  | Vernier Caliper | 25 | Analog, 0-200 mm , least count 0.1 |
|  | Adjustable reamer set | 05 | Adjustable reamer set |
|  | Outside caliper | 25 | Outside caliper (10”) |
|  | Insider caliper | 25 | Insider caliper (10”) |
|  | Back ductile saw | 2 | Back ductile saw; blade length:240mm |
|  | Vernier height gauge | 02 | Vernier height gauge |
|  | Vee block | 04 | Vee block |
|  | Center punch | 10 | Center punch |
|  | Scriber | 02 | Scriber, hardened steel, 6-10 inches |
|  | Divider | 10 | Divider |
|  | Screwdriver set | 03 set | Screwdriver set |
|  | Taps set | 02 each | Taps set m4, m5, m6, m8, m10, m12, m14, m16 |
|  | Tap handle set | 06. | Tap handle set |
|  | Screw pitch gauge | 02 set | Screw pitch gauge 60o |
|  | Screw pitch gauge | 02 set | Screw pitch gauge 55o |
|  | Radius gauge | 02 set | Radius gauge 1-7,7.5-14mm |
|  | Allen key set | 01 set | Allen key set 1-10mm |
|  | Double ended open spanner | 02 set | Double ended open spanner set 6-32mm |
|  | Ball peen hammer | 10 | Ball peen hammer 500gm |
|  | Cross peen hammer | 06 | Cross peen hammer 500gm |
|  | Number punch set | 01 set | Number punch set |
|  | Letter punch set | 01 set | Letter punch set |
|  | Flat file | 25 | Flat file 200mm |
|  | Half round file | 10 | Half round file 200mm |
|  | Round file | 10 | Round file 200mm |
|  | Needle file set | 25 | Needle file (4-8 inches)set |
|  | Triangular file | 10 | Triangular file (8 inches) |
|  | File brush set | 10 | File brush |
|  | Flat chisel | 06 | Flat chisel |
|  | Hand vice | 06 | Hand vice |
|  | Adjustable wrench | 06 | Adjustable wrench 12” |
|  | Try angle file | 10 No. | Try angle file 200x2 |
|  | Combination pliers | 02 | Combination pliers |
|  | Toolbox | 10 | Toolbox |
|  | Digital micrometer | 05 each | Digital micrometer 0-25mm; 25-50mm |
|  | Surface plate | 01 | Cast iron Surface plate 12x19 inches |
|  | Bench vise | 10 | Cost iron Bench visesize 3-4 inches |
|  | M/S Flat | 25 | Size: 60mmx15mmx95mm |
|  | Cutting bare | 01 | Cutting bare |
|  | Pliers | 12 | Commonly used plier in wood working |
|  | Ripping bar | 01 | Ripping bar length 12-36 inches |
|  | Crowbar | 01 | Crowbar length:4ft. |
|  | Gauge | 01 | Sheet metal and wire gauge |
|  | Total Cost |  | 4.0 M |

Note:

1. Quoted hardware must be compatible with lab power supplies and other equipment as per requirement.
2. Equipment shall be delivered with all necessary supplies and accessories required for installations and start-up.
3. The vendor shall demonstrate and document upon installation that the system meats all performance specifications.
4. Comprehensive documentation including Safety/Installation Guidelines and Operation/Experiment Manuals should accompany the product, both in Hard and Soft/CD/eBook formats for all items.
5. It is mandatory to submit the samples of all workshop equipment & tools at time of technical evaluation at its own cost.
6. Workshop equipment (1-13) and tools (1-82) will be technically & financially evaluated as a group. But the bidders are required to quote individual prices of all items.

TENDER H: COMPUTER LABRATORY

| Sr. No | Items | Qty. | Specifications |
| --- | --- | --- | --- |
| 01 | Computer System | 51 | Tower PC: Operating system: recommended: Intel i7 (10th Generation), A 64-bit CPU is required; processor: Microsoft® Windows 8 or Microsoft® Windows 10, 64-bit processor; 3+ GHz processor; memory Minimum: 16 GB RAM; Disk space: 500GB or larger PCIe Solid State Drive (SSD). Display card 4 GB GPU with 106 GB/s Bandwidth and DirectX 11 compliant; LED monitor 22 in. Cable mouse and cable keyboard |
| 02 | Multimedia | 01 | Multimedia (3600 lumens). |
| 03 | Sound system | 02 | Low noise & wide-spread Sound system including 4 surface mount high definition speakers, 2.4 GHzdual wireless microphone, all-in-one Bluetooth 6-channel mixer. |
|  |  |  | Total cost: 08.00M |

Note:

1. Quoted hardware must be compatible with lab power supplies and other equipment as per requirement.
2. Equipment shall be delivered with all necessary supplies and accessories required for installations and start-up.
3. The vendor shall demonstrate and document upon installation that the system meats all performance specifications.
4. Comprehensive documentation including Safety/Installation Guidelines and Operation/Experiment Manuals should accompany the product, both in Hard and Soft/CD/eBook formats for all items.

GENERAL TERMS AND CONDITIONS

1. Only the sole & certified Dealers/Distributors of the Manufactures (from the countries of manufacturing as mentioned in each tender document) are eligible. Eligible Bidder/Tenderer is a Bidder/Tenderer who has authorization of the Principal/Manufacturer/Dealer necessarily accompanied with PEC registered list of Engineer having training conducted from the Manufacturer. Failure to provide such certificate in the Technical Proposal will make a Bidder/Tenderer liable to be rejected.
2. The Bidders shall compulsorily produce a certificate from the Manufacturer/Principal that it will continue to support the terms and conditions accepted by the Bidder and will comply with these terms and conditions in any circumstances. Failure to produce such certificate from the Manufacturer/Principal will make the Bidder liable to be rejected.
3. Prices should be quoted separately both on C&F & FOR basis.
4. The Bidder shall have at least five (05) years of work experience regarding the relevant field in Pakistan for successful delivery and commissioning of such equipment duly supported by the relevant documents in this regard.
5. Safe delivery and successful commissioning of the equipment at the University College of Engineering & Technology, The Islamia University of Bahawalpur shall be the responsibility of the contractor. If the items supplied are not according to the required specification/make it will have to be replaced by the firms on their own cost.
6. Payment will be made through irrevocable letter of credit, which will be opened by the Islamia University of Bahawalpur, with the terms that 80% payment against the shipping documents at sight after completion of codal formalities and rest of 20 % payment will be released after successful commission and testing of the equipment at IUB site. The successful bidder will be responsible for all kinds of charges (customs clearance, freight, insurance, loading, unloading etc.) and any other expenditure regarding extension or amendment of L/C etc. till the successful delivery of items at IUB site.
7. Agreement on stamp paper @ 0.25 percent of total cost should be submitted by the firm.
8. If the acceptance letter of a tender issued during the validity period of the tender is not accepted by the Bidder or the Bidder remains unable to comply with the supply order, the bid security shall be forfeited. Furthermore, the bid security shall be forfeited in the following cases.
   1. In case the offer is withdrawn, amended or revised during the validity period of the tender.
   2. In case the Bidder fails to execute the order strictly in accordance with the terms and conditions laid down in the order.
9. The successful Tenderer/the Contractor against each Item(s) shall furnish a Performance Security as under:
10. Within twenty (20) days of the receipt of the Acceptance Letter from the Purchaser, in the form of Bank Guarantee from the Principal / Demand Draft / Pay Order / Call Deposit Receipt, in the name of the Treasurer, The Islamia University of Bahawalpur, issued by a Scheduled Bank operating in Pakistan, for a sum equivalent to 10% of the contract value denominated in Pak Rupees.
11. The Performance Security shall be confiscated, on occurrence of any / all of the following conditions and it will be retained for the initial period of warranty (03Years): -
    * 1. If the Contractor commits a default under the Contract;
      2. If the Contractor fails to fulfill the obligations under the Contract;
      3. If the Contractor violates any of the terms and conditions of the Contract.
      4. If the Contractor remains unable to comply with the terms and conditions of the contract as mentioned in the Tender Document.
12. Technical Proposal shall compulsorily comprise the following, without quoting the price:
13. Technical Proposal Form.
14. 02% Bid Security of the estimated cost as mentioned in the Tender.
15. Covering letter duly signed and stamped by authorized representative.

# Authorized Certificate / document from the Principal / Manufacturer. Failure to provide such certificate will make the Bidder liable to be rejected.

# The Bidders shall compulsorily produce a certificate from the Manufacturer/Principal that it will continue to support the terms and conditions accepted by the Bidder and will comply with these terms and conditions in any circumstances. Failure to produce such certificate from the Manufacturer/Principal will make the Bidder liable to be rejected.

1. The Bidder shall attach the relevant evidence of having at least five (05) years of work experience regarding the relevant field in Pakistan for successful delivery and commissioning of such equipment duly supported by the relevant documents in this regard.
2. Technical Brochures /Literature
3. Technical proposal shall be submitted in ring binding to ensure the safety and security of all the documents submitted by the Bidder.
4. The Tenderer shall also enclose soft copies of the Technical Proposal, including all Forms, Annexes, Schedules, Charts, Drawings, Documents, Brochures, Literature, etc., in the form of MS Word Documents, MS Excel Worksheets and Scanned images, with the hardcopies.
5. Where a reference is made to any specifications or national or international standard, equal or higher quality will be acceptable. In case your offer conforms to the standards other than quoted in the tender document, you are required to submit the required evidence of equivalence by the recognized forum and a copy of each of the standard.
6. Delivery period shall be 90 days from the date of opening of L/C against the order.
7. The Contractor shall furnish the user documentation, the operation manuals, and training manuals for each appropriate unit of the supplied items and other information pertaining to the performance of the items, in hard copy format and in soft copy format.
8. The bidder shall ensure the warranty, after sale service and supply of the spare parts must be guaranteed. All the supplies must be covered comprehensively for after sale & service both labor and parts for the period of warranty of 03 years after the issuance of Taking-over Certificate in respect of items or any portion thereof as the case maybe.
9. Any clarification may be sought from the contractors and the Bidders may be asked to give the presentation of their product.
10. Warranty Requirements are asunder;
11. The Contractor shall warrant to the Purchaser that the equipment supplied by the Contractor, under the Contract are genuine, brand new, non- refurbished, un-altered in any way. The component(s) of any item(s) found dead on arrival /defective shall be replaced with new item(s) or component(s) by the contractor as such and shall in no way be referred to the warranty.
12. The Contractor shall provide Manufacturer's warranty of parts and workmanship for minimum period of three (03) years after the issuance of Taking-over Certificate in respect of the items or any portion thereof, as the case may be, which will include: Free on-site repair / replacement of defective / damaged parts, labor and transportation expense of any kind, within four weeks of intimation.
13. The Contractor shall clearly mention the Terms and Conditions of service agreements for the items supplied after the expiry of initial warranty period of three 03years.
14. The taking-over certificates will be issued after the supply of the items (including installation, configuration, deployment, commissioning, testing, and training of the delivered items).
15. Validity of rate should be for 120 days from the date of opening of tenders.
16. The vendors will be responsible for any damages during Transit/Delivery. They will also be responsible for any accident and their consequent damages.
17. The successful Bidder/Tenderer in the financial stage has to submit an authorization of the Principal/Manufacturer/Dealer duly verified by the embassies concerned. In case the bidder fails to provide such certificate, IUB will not issue the supply order to the bidder.
18. The Contractor shall arrange and undertake a comprehensive training program for the staff nominated by the Principal UCET, to ensure that they shall acquire a good working knowledge of the operation, and general maintenance of the equipment to be supplied under the Contract.
19. The responsibility for the quality, quantity, correctness and adherence to the Specifications etc. of the Equipment shall lie solely and squarely on the Supplier /Contractor.

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Designation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ATTACHMENTS:

Bid Money with the Technical Proposal (02% of the Estimated Cost) (Yes /No)

Affidavit for Non-Black listing (Yes /No)

Bid Validity Certificate. (Yes /No)

Duly Signed terms & conditions (Yes /No)

All the other documents mentioned in the Tender Document. (Yes /No)

All the other documents mentioned in the General Terms & Conditions. (Yes /No)

NOTE: Bid shall be signed by the bidder/authorized person for bidder.