

Govt. Engineering College Jhalawar, Jhalawar

Civil Engineering Department

Tender Technical Specs

Transportation Engineering Lab.				
s.no	Equipment	Quantity	Make	Amount (Rs.)
1	Benkelman Beam Digital Dial Gauge, 25 mm travel & 0.001 mm least count	2	Any reputed make	
2	Bulk Density Measure, 20 lit-2Nos. Bulk Density Measure, 10 lit-2Nos. As per IS:1199, IS:10079, BS:1881, EN1097-3, 12350-6	1 set	Any reputed make	
3	Cylindrical Specimen Capping Equipment : As per IS:516, BS:1881, ASTM C31, ASTM C617 Capping Set, Vertical, for Capping 150 mm dia Cylinders and Cores-2Nos. Capping Set, Vertical, for Capping 100 mm dia Cylinders and Cores-2Nos. Capping Compound, Pack of 5 kg-4 pack Warmer, for melting the capping compound. Consists of an electrically heated bath with a temperature regulator. Complete with a cover and carrying handle. Suitable for operation on 220 V, 50 Hz, Single phase, AC supply. Metallic bowl for carrying the capping compound Metallic laddle for pouring the molten capping compound into the grooves between the cylinder and the capping plate	1 set	Any reputed make	
4	Cylindrical Metal Measures, with ISI Certification Mark, IS:2386 (Part-3) Measure 3 lit.-2Nos. Measure 15 lit.-2Nos. Measure 30 lit.-2Nos. Tamping Rod of 16mm. dia x 60 cm long having ISI Certification Mark IS:10086 ----9Nos.	1 set	Any reputed make	
5	Consistometer: As per- IS:10510, IS:1199, BS 1881 (Part 104), AASHTO T126, EN, 12350-3 Consists of a vibrating table, specimen pot, slump cone, graduated rod and acrylic plate. Suitable for operation on 415 V, 3 phase, 50 Hz, AC Supply.	1	Any reputed make	
6	Speedy Moisture Meter: As per IS:2720 (Part 2), IS:12175 Speedy Moisture Meter: Range : 0 - 50% Gauge Division : 1% -1nos. Calcium Carbide Reagent Sample Container Moisture gauge, 0-50 % × 1%	1	Any reputed make	
7	Soil Cone Penetrometer (Digital Type) As per IS:2720 (Part 5) BS 1377 Penetration Test Cone Penetration Test Cup 55 mm dia x40 mm deep	2	Any reputed make	
8	Pavement Dynamic Cone Penetrometer Supplied with a wooden carrying case.	2	Any reputed make	
9	100 kN Flexure Testing Machine(Fully automatic model)	1	Any reputed make	
10	Beam Mould 100 mm x 100 mm x 500 mm size-6 nos. Beam Mould 150 mm x 150 mm x 700 mm size-6 nos. Tamping Bar, Steel, 25 mm x 25 mm square ramming face, 400 mm long, 2kg in weight-12 nos. Carries ISI Certification Mark IS:10086. For use with Beam Moulds	1set	Any reputed make	
11	Prism mould size is 75mm x 75mm x 285 mm.	5	Any reputed make	
12	SOAKING TANK FOR CBR TEST MOULD	12 mould capacity	Any reputed make	
13	Straight edge 300x5 mm	10	Any reputed make	
14	Centrifugal Extractor – Electrically Operated (as per ASTM D 2172)	1 set	Any reputed make	

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	<p>With Filter paper (Pack of 100)-2 set Enamelled Transfer Tray (250x300x50 mm)-2 nos. Spatula-2 nos. Sampling scoop-2 nos. Solvent (Benzene/Toluene)-50 lit.</p>			
15	<p>Le – Chatlier flask with water bath (as per IS:4031 part 11) Micro processor based digital temp. Controller system, capable of maintaining temp. Within +0.1 degree C, drainage system, stand for each Le-Chatlier flask cap. 250ml (8nos.), attached with cooling and heating arrangement, fully covered, water bath body will be insulated, water stirrer will be provided to maintain uniform temp. of water, transparent (toughened glass)sheet will be provided in front and back position Le-Chatlier flask 250 ml capacity (12 nos.)</p>	1 nos.	Any reputed make	
16	<p>Standard Penetration Test Set as per Standards IS:2131, IS:9640 Split Spoon Sampler 50.8 mm OD and 38 mm ID. 10 No.(Body split lengthwise, Shoe hardened with an inside cutting edge, Head fitted with a ball check valve and adapter to connect 'A' type drill rod) D rive Weight Cast Iron,63.5 kg, 78 mm bore ID approx.- 1 No. Guide Pipe Assembly Bore 73 mm OD approx. -1 No. Tripod with Pulley and built-in Ladder- 1 No. 'A' Type Drill Rods with coupling 0.5 mtrs. -15Nos. 'A' Type Drill Rods with coupling 1.0 mtrs. -15 Nos Manila Rope 19mm dia. 15 m -1 No. Split Spoon Sampler with Brass Liner, 50.8 mm OD and 35 mm ID-10 Nos. Body split lengthwise. Shoe hardened with an inside cutting edge. Head of split spoon sampler with adapter to connect A-type drill rod. Brass Liner. Helical Augur with connecting rods</p>	1	Any reputed make	
17	<p>FIELD VANE SHEAR Ref. Standard IS:4434 Torque Applicator Assembly, Capacity 2,000 kg-cm. Complete with stand 1 No Vane (with Vane Rod), 37.5 mm dia. x 75 mm high 1 No Vane (with Vane Rod), 50 mm dia. x 100 mm high 1 No. Torque Rod (Square cross section) 60 cm long 1 No. Rods (Quick coupling type) 1 m long 25 Nos. Rods (Quick coupling type) 0.5 m long 1 No. Dummy Rod 1 No. Vane (with Vane Rod), 65 mm dia. x 130 mm high Vane (with Vane Rod), 75 mm dia. x 150 mm high Vane (with Vane Rod), 100 mm dia. x 200 mm high Guide with ball bearing arrangement, for alignment of the string of rods, for use with 10 cm casing pipe Guide with ball bearing arrangement, for alignment of the string of rods, for use with 15 cm casing pipe</p>	1	Any reputed make	
18	<p>Static Cone Penetrometer Capacity 200 kN (Engine Driven) As per IS:4968 (Part 3) Mantle Tube, 36 mm uniform OD with Sounding Rod, working length 1 m - 30 Nos. Hyd. motorized Anchor driving Assly. 1 No. Anchors 150 mm dia. 8 Nos. 220 mm dia. 8 Nos. 350 mm dia. 8 Nos. Anchor pipes. 8 Nos. Anchors bottom shoe bolt. 8 Nos. Locking Bolts 8 Nos. Mantle tube extractor assembly. 1 No. Penetration Cone with friction jacket 1 No. Pin for Static load checking 1 No. Tarpauline cover. 1 No. Penetration Cone Steel, 60 Cone angle, 10cm base area, with friction jacket.-2Nos.</p>	1	Any reputed make	
19	<p>Plate Bearing Test Apparatus Ref. Standard IS:1888 Hand Operated Hydraulic Jack, Capacity 500 kN (50,000 kgf) 1 No.</p>	1	Any reputed make	

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	<p>Hydraulic Hand Operated Pump with 200mm Dia Load Gauge capacity 500 kN (50,000 kgf). 1 No.</p> <p>High Pressure Flexible Metallic Pipe 5 m long. 1 No.</p> <p>Ball and Socket Arrangement consisting of two steel plates, with one steel ball in-between the plates. 1 No.</p> <p>Extension Rod long, 12 mm dia x 25 cm for taking Dial Gauge readings. 16 Nos.</p> <p>Magnetic base with female thread on top, for holding extension rod. 4 Nos.</p> <p>Top End Plate 50 mm dia with male thread, for fitting on to the Extension Rods and positioning the Dial Gauge Plunger. 4 Nos.</p> <p>light weight, portable, total span 5m height approx. 30 cm, mounted on two removable legs.</p> <p>(It is made in two parts. Provision exists for Datum Bar of 2.5m span to be used. A spare leg is provided for the purpose. Complete with two quick release clamps for positioning and holding the dial gauge brackets). 2 Nos.</p> <p>Anchor Spikes 10 Nos.</p> <p>Quick Release Clamp for positioning dial gauge bracket</p> <p>Dial Gauge 4 Nos.</p> <p>25 mm travel, 0.01 mm least count.</p> <p>Grooved MS Plate 30 cm x 30 cm square x 25 mm thick</p> <p>Grooved MS Plate 45 cm x 45 cm square x 25 mm thick</p> <p>Grooved MS Plate 60 cm x 60 cm square x 25 mm thick</p> <p>Grooved MS Plate 75 cm x 75 cm square x 25 mm thick</p> <p>Plain MS Plate 30 cm x 30 cm square x 25 mm thick</p> <p>Plain MS Plate 45 cm x 45 cm square x 25 mm thick</p> <p>Plain MS Plate, 60 cm x 60 cm square x 25 mm thick</p> <p>Plain MS Plate 75 cm x 75 cm square x 25 mm thick</p> <p>Column 15 cm dia x 25 cm long, with flanges, complete with four bolts and nuts. 2 Nos.</p> <p>Column 15 cm dia x 50 cm long, with flanges, complete with four bolts and nuts. 1 No.</p> <p>Datum Bar</p> <p>Load Truss, Capacity 500 kN and soil anchor</p>			
20	<p>Sand Pouring Cylinder Apparatus, Large with Metal Tray 45cm square and 5cm deep without hole and standard sand 50 kg. Ref. Standard IS:2720 (Part 28)</p>	2 set	Any reputed make	
21	<p>Relative Density Apparatus With Weight Handling Equipment Ref Standard IS: 2720 (Pt XIV)</p>	1	Any reputed make	
22	<p>Compaction Test Apparatus for heavy compaction test Rammer : 4.9 kg x 450 mm fall, as per IS: 9198 Compaction mould : complete with Collar and Base Plate, made of Gunmetal 150 mm ID, 127.3 mm height 2,250 ml volume Ref. Standard IS:2720 (Part VIII)</p>	3	Any reputed make	
23	<p>Soil Cone Penetrometer (Digital Type) As per IS:2720 (Part 5) BS 1377 Penetration Test Cone Penetration Test Cup 55 mm dia x40 mm deep</p>	2	Any reputed make	
24	<p>Jaw crusher(suitable to crush any type of stone up to 80mm & discharging opening adjustment range 3-20mm) Capacity 80kg/hr. 440v, 3ph,50Hz ,AC ,complete with a 3HP motor A starter 'v' belt pulley drive and mounting</p>	1	Any reputed make	
24	<p>Hot plate (round dia.-30cm.) Maximum temp. 300 degree C 2 kw capacity with Energy regulator Digital temp. Controller with dual display</p>	2	Any reputed make	
25	<p>Hot plate (rectangular -45x60 cm.) Maximum temp. 300 c 2 kw capacity with Energy regulator Digital temp. Controller with dual display</p>	2	Any reputed make	

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26	Weighing machine max. 500gm. Least count 0.001gm	1	Any reputed make	
27	Density bottles (pycnometers) of 50 ml capacity with stoppers. I. ordinary capillary type specific gravity bottle with a neck of 6mm diameter. II . wide mouthed capillary type specific gravity bottle with a neck of 25 mm diameter	4 each	Any reputed make	
28	Pavement Intensity Test Apparatus Digital type with load cell LVDT with digital indicator Capacity :100 kN Max. Vertical distance b/w the plates :200mm Allowed Overload:30% Speed of Piston :High 50.8mm/min Low 1mm/min	1	Any reputed make	
29	Cloud and Pour Point Apparatus: Bath with cover fitted with a Drain Cock. Jacket to receive Test Jar. Graduated Jar fitted with Cork. Insulating Gasket. Insulating Disc. Thermometer IP IC , Range :-38° C to +50° C Thermometer IP 2C , Range :-80° C to +20° C	1	Any reputed make	
30	Flash Point (open) and Fire Point Cleveland, Electrical Heating with NPL Certificate Thermometer IP 28C , Range :-6°C to +110 °c	1	Any reputed make	
31	Abel Flash Point Apparatus Calibrated by NPL Heating Element Abel oil cup thermometer IP 74, Range :-35°C to +70 ° C Abel water bath Thermometer IP 75 , Range :-30°C to +80° C	1	Any reputed make	
32	Flash Point (open) and Fire Point Pensky-Martens Apparatus with NPL certificate	1	Any reputed make	
33	Chain Pulley system with tripod stand capacity 10 tons	1	Any reputed make	
34	Enamel tray 300x450x50 450x600x50 600x600x50 250x300x50	4 nos. Of each	Any reputed make	
35	G.I. tray 300x450x50 450x600x50 600x600x50 250x300x50	4 nos. Of each	Any reputed make	
36	Ennure sand Gr.1,Gr. 2, Gr. 3	100 kg. Of each grade	Any reputed make	
37	Pycnometer : Consists of a 1 kg Glass Jar(Make:borosil) with Cone(brass), Locking Ring (brass) and Rubber Seal.	5	Any reputed make	
38	Soil hydrometer With hydrometer jar 1000 cc (2 nos. For each hydrometer) And calibration certificate for hydrometer	5 set	Any reputed make	
39	Microprocessor based bump integrator	1	Any reputed make	
40	Tile abrasion testing machine degital	1	Any reputed make	
41	Mercury	5 kg.	Any reputed make	
42	Moisture can 50x50 50x75 75x75	5 nos. Of each	Any reputed make	

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	75x100 100x100			
45	Plastic limit set Glass plate 20x20 cm. having ground ends and side frosted Brass rod of 3 mm dia and 150 mm long Flexible spatula Set of 6 moisture can Porcelain bowl of 100 mm dia. 25 ml measuring cylinder	5 set	Any reputed make	
46	Sampling scoops Stainless steel capacity 5kg. Stainless steel capacity 2kg. Aggregate scoop, 690x300x100 with two handles	4nos of each	Any reputed make	
47	Spatula with wooden handle 100mm 150mm 200mm	4 no. of each	Any reputed make	
48	Planetary mixer (as per IS 10890) With heat resistance hand gloves Transfer tray and stainless steel scoop	2 set	Any reputed make	
49	High speed stirrer	2 set	Any reputed make	
50	Tube sampler	4	Any reputed make	
51	Slotted tube sampler for bulk cement	4	Any reputed make	
52	Blaine air permeability test apparatus with standard cement sample(5 sample) from cement research institute of india(CRI)	2	Any reputed make	
53	Digital dial gauge 0.001x50 mm <ul style="list-style-type: none"> • Accurate Inductive measuring system. • Inch / Metric capability • Hardened and ground stainless steel plunger and stem • Same gauge can be set to 0.01 mm/ 0.0005 inch, besides the standard 0.001 mm/ 0.00005 inch. • The Electronic Module is completely sealed against dust and water / coolants / lubricating oils directed towards it from all sides (IP 65). • Each gauge carries a calibration certificate giving actual values. Magnetic Bases for each Dial Gauge: Complete with stand and arm for mounting dial gauges. The Length of the stand should be at least 400mm and arm should be at least 150mm	10	Baker/mitutoyo	
54	Wet sieve shaker motorised	1	Any reputed make	
55	Universal compactor for both 4”(Marshall) & 6”(modified Marshall) with mould (3 each) samples	1	Any reputed make	
56	Film Stripping Device Electrically operated	1	Any reputed make	
57	Riffle sample divider Size(mm)-40 No. Of slot-16	1	Any reputed make	
58	Automatic free fall hammer Anvil, front wheel, hammer guide assembly, fall hammer attached to a flexible rope and drum, base assembly for the hammer system with suitable wheels for moving about when attached to a vehicle, split spoon sampler (5nos) , tripod with pulley and built in ladder, “A” drill rod, 1.0 m long, with adapter (15nos). split spoon sampler , with liner (5nos.) dynamic cone plain, 50 mm dia base and cone angle of 60 degree. Cone adapter with standard threads. Dynamic cone threaded for type “A” rod coupling.	1	Any reputed make	
59	Core cutting and grinding machine for 75-150 mm dia core	1	Any reputed make	

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	Table mounted ,stable construction , feed arrangement for cutting , cooling water arrangement ,heavy duty , AC -single phase motor.			
60	Split mould and rubber sheath for each dia given below with plain platen and adapter and steel ball 38 mm dia x 76 mm long 50 mm dia x 100 mm long 75 mm dia x 150 mm long 100 mm dia x 200 mm long	1 set	Any reputed make	
61	Sieves size-45 cm G.I. 125,90,75,63,53,45,37.5,26.5,25,22.4,19,13.2,13,12.5, 11.2,10,9.5,6.7,6.3,6.0,5.6,4.75,3.35,2.8,2.36,1.4,1.18 mm with pan and cover Brass sieves -20 cm 850,710,600(2Nos),425,355,300(2Nos),212,180,150(2Nos),90(3Nos),75(3Nos) micron with pan and cover, brush for cleaning brass sieve (2Nos)	1 set	Any reputed make	
62	<u>Rebound Hammer digital type(For Concrete and Plaster)</u> <u>(Original Schmidt)</u> Type N: <ul style="list-style-type: none"> • Used for the non-destructive measurement of the concrete/mortar compressive strength characteristics <u>Standardization</u> <ul style="list-style-type: none"> • ISO/DIS 8045 • EN 12 504-2 • ENV 206 • DIN 1048 part 2 • BS 1881 part 202 • ASTM C 805 • ASTM D 5873(Rock) • NFP 18-417 • B 15-225 • JGJ/T 23-2001 • JJG 817-1993 	1 set	Any reputed make	
63	Longitudinal compressometer , digital(ASTM-C649)	1	Any reputed make	
64	Lateral extensometer , digital(ASTM-C649)	1	Any reputed make	
65	Length Comparator , digital	1	Any reputed make	
66	Air Entrainment Meter, Capacity 10 litres , Calibration cylinder with spring clamp,trowel,tamping rod,straight edge, rubber mallet and measure (2nos. each) suitable for	1	Any reputed make	

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	aggregate size upto 75mm. supplied with foot pump (IS:1199,IS:10079,BS:1881,EN12350-7)			
67	Heat of hydration of cement(C-186)	1	Any reputed make	
68	M.O.R. Testing Machine Electrically operated , capacity 10kN with Rupture test attachment for M.O.R. Testing Machine	1	Any reputed make	

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ADVANCE SURVEYING LAB.				
S.No.	Equipment	Quantity	Make	Amount (Rs.)
1	<p>Total station Performance Specification Accuracy(standard deviation based on DIN 18723)- 1.5” Angle reading -0.1” Automatic level compensator – Dual –axis compensator ±5’</p> <p>Distance Measurement EDM type-High Precision DR Standard EDM</p> <p>Accuracy Standard measurement ±(1 mm + 1 ppm) (0.0033 ft + 1 ppm) Fast Standard ±(3 mm + 2 ppm) (0.01 ft + 2 ppm) Tracking ±(5 mm + 2 ppm) (0.016 ft + 2 ppm)</p> <p>Reflective foil Standard measurement. ±(3 mm + 2 ppm) (0.01 ft + 2 ppm) Fast Standard ±(3 mm + 2 ppm) (0.01 ft + 2 ppm) Tracking ±(5 mm + 2 ppm) (0.016 ft + 2 ppm)</p> <p>Direct Reflex mode Standard measurement ±(3 mm + 2 ppm) (0.01 ft + 2 ppm) Fast Standard ±(5 mm + 2 ppm) (0.016 ft + 2 ppm) Tracking ±(10 mm + 2 ppm) (0.032 ft + 2 ppm)</p> <p>Shortest possible range To prism and Direct Reflex 1.5 m (4.9 ft) in Normal mode To reflective foil 2.5 m (8.2 ft)</p> <p>Measuring time Standard measurement <2 s Fast Standard <1.8 s Tracking <0.4 s</p> <p>Direct Reflex mode Standard measurement 0.3 s up to 30 m + 1 s/10 m Fast Standard 0.2 s up to 30 m + 1 s/10 m Tracking 0.8 s up to 30 m + 1 s/10 m</p> <p>Range(at standard clear) 1 prism 3000 m (9,840 ft) 1 prism Long Range mode 1000 m–5000 m (3,280 ft–16,400 ft) 3 prisms 5000 m (16,400 ft) 3 prisms Long Range mode 1000 m–7000 m (3,280 ft–22,960 ft)</p> <p>Range (at standard clear) Reflective foil 20 mm Normal mode</p>	1	Any Reputed Make	

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<p>100 m (328 ft) Reflective foil 20 mm Long Range mode 200 m (656 ft) Reflective foil 60 mm Normal mode 250 m (820 ft) Reflective foil 60 mm Long Range mode 800 m (2,620 ft) Range (at standard clear) Direct Reflex measurement on Kodak Gray Card: Kodak Gray (18% reflective) 80 m (230 ft) Kodak Gray (90% reflective) 120 m (328 ft) Light source Laser diode 660 nm Laser class 1 on prism Laser class 2 in Direct Reflex mode Beam divergence 0.4 mrad x 0.8 mrad Atmospheric correction Temperature sensor in instrument Leveling Circular level in tribrach and instrument 8¹/₂ mm Clamps and slow motion drives. Co-axial, friction clamp with endless slow motion Centering Centering system 3-pin Optical plummet yes Magnification 2.4 x Shortest focusing range 0.5 m – infinity Laser plummet yes Telescope Magnification 30 x Aperture 40 mm (1.57 in) Shortest focusing range 1.5 m (4.92 ft) Field of view at 100 m 1.2°, 2.2 m/100 m (7.21 ft/328 ft) Illuminated crosshair Yes Tracklight @ Standard Operating temperature –20 °C to +50 °C (–5 °F to +122 °F) Environmental IP54 Power supply Internal battery NiMH battery pack, 6 V, 3.5 Ah, rechargeable Charging time on empty: 1.5 hours Operating time: approx. 8.5 hours External battery NiCd battery pack, 6 V, 7.0 Ah, rechargeable Charging time on empty: 3.5 hours</p>			
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	<p>Operating time: approx. 12 hours Weight <6.7 kg (14.8 lb) Dimensions Instrument 222 mm x 370 mm x 185 mm (8.7 in x 14.6 in x 7.3 in) Trunnion axis height – 3-pin 196 mm (7.7 in) Control unit Features Keyboard Alphanumeric Key Board (Dual Display) Display screen Colour, illuminated TFT, daylight readable touch screen Displayed at 320 x 240 pixels (QVGA) CCFL 33 keys, 4 line LCD, 20 characters/line, illuminated Data recording Internal memory up to 20,000 points Data transfer Data communication through docking station . USB, TWO RS-232 and Bluetooth® External removable memory USB memory device Motorola cls1410 two-way radio (pair) along with software and all standard accessories required for above requirement and Operation Manual</p>			
2	<p>Digital level Height accuracies: Standard deviation height measurement per 1 km double run (ISO 17123-2) –Electronic measurement: 0.7 mm –Optical measurement: With standard aluminium E-scale/Numeral staff: 2.5 mm –Single staff reading: Standard Deviation: 0.6 mm (electronic) and 1.2 mm (optical) at 30m Distance accuracies: Standard deviation distance measurement 10 mm for D 10 m and (Distance in m x 0.001) for D > 10 m Range: 2 - 300 m (electronic) Measuring modes : Single and Tracking Time for single measurement: <3 sec Compensator: Magnet damped pendulum compensator (range +/-</p>	1	Any Reputed Make	

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	<p>10min) Motorola cls1410 two-way radio (pair) Telescope: Magnification (optical) 32x Data storage: up to 5'000 points Environmental conditions: IP55 Power supply: AA dry cells (4 x LR6/AA/AM3 1.5 V) Weight: <2.5 kg</p>			
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Environmental Engineering and design				
S.No.	Equipment	Quantity	Make	Amount (Rs.)
1	beaker (polycarbonate) 50ml 100ml 250ml 500ml 1000ml	30 each	borosil	
2	Volumetric flask (glass) 100ml 250ml 500ml 1000ml	30 each		
3	Graduated pipettes 10.0x0.1ml 25.0x0.2ml	30 each		
4	Polythene Wash bottle capacity 500ml liter	20		
5	Porcelain crucible , capacity 50ml with lid	20		
6	Measuring cylinder (glass) 10ml 25ml 50ml 100ml 250ml 500ml 1000ml	30 each		
7	Measuring cylinder (polycarbonate) 50ml 100ml 250ml 500ml 1000ml	20 each		
8	balance capacity 500gm with 0.1mg accuracy	1	Any reputed make	
9	Instrument Capable of BOD Measurement with Direct Sample Selection: · Measuring Principle: Monometric, Mercury-free Electronic Pressure Sensor · Ranges (mg/1 O ₂) 0-40, 0-80, 0-200, 0-400, 0800,0-2000,0-4000 mg/1 · Accuracy: 0.5% full scale at 20°C · Applications: BOD5, BOD7, OECD, 301F · Result Display: BOD (mg/1); 4-digitsm 7 segment LED · Measurement Parameter Display: BOD Range, Volume, Duration, Time of Measurement · Measurement Period: User selectable, between 1 to 28 days Auto Result Storage: Up to 28	1	Any reputed make	

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	<p>results, depending on measurement period.</p> <ul style="list-style-type: none"> ·Storage Interval: Hourly (1day), Every 2 Hours (2days), Daily (3-28 days) ·Automatic Start Function: After Temperature <p>Equalization of samples can be switched off.</p> <ul style="list-style-type: none"> ·Power Supply: 3 Alkaline-manganese batteries ·Battery Life: 1year, Early warning before battery fails · USB interface between PC and BOD unit and printer <p>BOD sampling bottles.</p> <ul style="list-style-type: none"> ·Clock: Real Time ·Protection Class: Sensor Head. 			
10	Digital D.O. Meter (Table Model) Range 0-20 PPM, Resolution 0.1 PPM, accuracy 0.2 PPM \pm 1 digit, temp range 0-100°, complete with D.O. probe, temperature probe, and 30nos D.O. membranes.	1	Any reputed make	
11	Double distillation plant	1	Any reputed make	
12	<p>Laboratory Deep freezer With suitable stabilizer capacity 170 ltrs.</p> <ul style="list-style-type: none"> • Temperature can be controlled up to -40 degree C • Can achieve set temperature in short time • Suitable to work on 220/230 V, 50 Hz & single phase AC supply 	1	Any reputed make	
13	<p>Kinematic Viscosity Bath (with heating up to 150 ° C and cooling up to -80 ° c)capacity 8 viscometers As Per IS : 1448 P 25 / ASTM O : 445 Lighting attachment with long life low wattage lamp. Viscometer holder Different type of glass u tube (5 nos. each) viscometers with certificate of constant Voltage stabilizer Bath with high resolution 0.01 c Energy regulator Digital temp. Controller Calibration certificate with national traceability</p>	1	Any reputed make	

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	High temp. Up to 150 degree C			
14	COD Analyzer(digital type)	1	Any reputed make	
15	Coloury meter	1	Any reputed make	
16	Toxic gas analyzer (digital)	1	Any reputed make	
17	<p>Water and soil Analysis Kit 3 digit LCD display covering 8 parameter : PH, Conductivity, TDS, Salinity, Colorimeter, Turbidity, Dissolved Oxygen & Temperature with rechargeable battery, Complete with accerssories fitted in a high quality ABS brief case.</p> <p>PH- Range 0 to 14 PH Resoulution 0.01 PH Temp. Comp. 0 to 100 Cmanual CONDUCTIVITY (EC)- Range 0-200 us (0-2,0-20,2-200ppt) Resolution 0.1 us Accuracy +/- 0.5 FS +/- digit Temp. coefficient 2% Temp. Comp Adjustable form table Reference Temp. 25 C TEMPERATURE - Range 0 to 100 C Resolution 0.1 C Accuracy. =/-0.1C+/- 1 digit Senser Semi Conductor type TDS - Ranger 0-200 ppm Resoulution Manual Accuracy 0.1 ppm Cell contant Adjustable 0.4 to 1.5 DO- Range 0-20 ppm Resoulution 0.1 ppm Accuracy: 0.5 ppm +/- 1 digit Temp. Comp 5C to 55 C DO senser Gold/Silver A\Ameprometer prove Mv (ORP) Range 0 to +/-1999mV Resolution I mV Accuracy. 1 Mv +/- 1 digital TURBIDITY Range 0-1000NTU Accuracy +/-3%FS+/-1 Digit Sample system . 30mm clear class tube SALINITY.- Range 0-50 ppt Resoulution 0.1ppt Accuracy +/-0.5 FS+/- 1 digit POWER SUPPLY - 1.5 vx6drycells or 230 V+/- 10% AC, 50Hz</p>	1	Any reputed make	
18	Chloride content measuring apparatus	1	Any reputed make	
19	Oil and gas assembly	5	Any reputed make	
20	Various water supply fitting	5 set	Any reputed make	
21	Burette , straight size 50 x 0.01 ml 100x0.02 ml	15 each	borosil	
22	Burette stand (plastic quoted)	10	Any reputed make	

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Raw Material				
S.No.	Equipment	Quantity	Make	Amount (Rs.)
1	Rotary Hammer Drill 1 auxiliary handle - Grease tube - Carrying case - 1 /2" Keyless Chuck & SDS Adaptor - Rated power input : 1.050 W - Impact energy : 7 – 9 J - Impact rate at rated speed : 2.900 bpm - Toolholder : SDS-max - Weight : 5,8 kg Drilling range : - Drilling diameter in concrete with hammer drill bits : 16 – 38 mm - Drilling diameter in concrete with breakthrough drill bits : 45 – 55 mm - Drilling diameter in concrete with core cutters : 40 – 90 mm	1	BOSCH/ Any reputed make	
2	Digital calipers <ul style="list-style-type: none"> • Attractive shape and elegant design complimented by uncompromising performance • Latest "Swiss Inductive measuring system" • Accuracy and construction conforms to requirements specified by DIN 862 • 9.6 mm tall, high contrast Liquid Crystal Display significantly augments visibility, and minimises user fatigue. • Absolute & Comparative Measuring modes • Measuring ranges : 0 – 150 mm, 0 –300 mm. • All three ranges of calipers are fitted with thumb-roller to improve quality of measurement. • Easy and quick operation. (User friendly) • Battery changeover is fast, easy and reliable. • All three varieties of digital calipers are capable of External, Internal, Step and Depth measurement. • Supplied with certificate of calibration 	1 nos of each	Baker/ mitutoyo/ Any reputed make	
3	Humidity-0 to 95% RH (0.1%RH resolution) Temp.(internal) :-4to122°F (-20 to 50 ° C),0.1° resolution Temp.(external):-328 to2498 °F(-200to1370 °C), 0.1° resolution Dev Point:-90.4 to 122 °F(-68 to 49.9 °C) Wet bulb:-6.9 to 122 °F(-21.6 to 49.9 °C) <ul style="list-style-type: none"> • Datalogs 16,000 Humidity and 16,000 Temperature readings with a user programmable sample rate • USB interface for easy setup and data download • Selectable data sampling rate: 1 second to 24 hours • User-programmable alarm thresholds for RH and Temperature • LCD displays current readings, Min/Max, and alarm status • Software and calibration unit included 	4	Any reputed make	
4	Clamping Jaws for round specimens (mm) 10-25,25-40,45-55	1 set of each		
5	Clamping Jaws for flat specimens (mm) 0-20,20-40, 40-60	1 set of each		
6	FOR COMPRESSION Diameter of platens (mm)-250	1 set of each		
NOTE-Above requirement of S.No. 4 ,5& 6 should be compatible to "ENKAY UNIVERSAL TESTING MACHINE-100TONNS"				