

Standard List of Equipment For Engineering college

Deptt. Of Science & Technology,

Govt. Of Bihar Patna

Department of Civil Engineering (Material Testing Lab)

Sl. No.	Name of Items with specification as per Tender	Estimated Cost Of Equipment	Present on your'sInstitute Lab Yes/No	Status Working/Not Working	Required/Not Required	Remark
1	Fully Automatic Compression Testing Machine- 2000 KN - stress controlled	Digital Compression Testing Machine- 2000 KN Make Rajco/Shiva/Standard Rs. 279590.00				
2	Vee Bee Consist meter As per IS 119 consisting or vibrating table 380mm long and 260mm wide. Resting upon elastic support at a height of about 305mm above the floor Complete with start/stop switch, cord and plug. A holder is fixed to the base into which	Vee Bee Consist meter As per IS 119 consisting or vibrating table 380mm long and 260mm wide. Resting upon elastic support at a height of about 305mm above the floor Complete with start/stop switch, cord and plug. A holder is fixed to the base into which Make Rajco/Shiva/Standard Rs. 31390.00				
3	Blaine's Air Permeability Apparatus Consisting of permeability cell, U tube manometer mounted on a Stand with a stop cock, perforated disk, p1unger rubber stopper, rubber tube 30 cm long, packet of filter paper discs, and a bottle of 100 cc dibutyiphthala	Blaine's Air Permeability Apparatus Consisting of permeability cell, U tube manometer mounted on a Stand with a stop cock, perforated disk, p1unger rubber stopper, rubber tube 30 cm long, packet of filter paper discs, and a bottle of 100 cc Rs. 3990.00				
4	Curing Tank temperature	Curing Tank temperature				

	controlled for 12 nos cubes Temperature Range — 50 C to 100 C.	controlled for 12 nos cubes Temperature Range — 50 C to 100 C. Make Rajco/Shiva/Standard Rs. 198990.00				
5	Los Angeles Abrasion Testing machine Consisting of hollow cylinder mounted.on a sturdy frame on ball bearings. A detachable shelf which extends throughout the inside length of the drum, catches the abrasive charge and does not allow it to fall on the cover. The drum is rotated at a speed of 30- 33 rpm by an electric motor through	Los Angeles Abrasion Testing machine Consisting of hollow cylinder mounted.on a sturdy frame on ball bearings. A detachable shelf which extends throughout the inside length of the drum, catches the abrasive charge and does not allow it to fall on the cover. The drum is rotated at a speed of 30- 33 rpm by an electric motor Make: Mars/Asico/Ssi/Om/Mass Rs. 95990.00				
6	Cement Motar Cubes 70.6 mm cube confirming to IS 10080	70.6 mm cube confirming to IS 10080 Make: Rajco/Shiva/StandardRs. 790.00				
7	Flexure Strength Testing Machine.: Consisting of light weight rugged high strength frame, double action hydraulic pump, self-aligning roller assembly and hydraulic jack provided with retraction spring.-50KN	Flexure Strength Testing Machine.: Consisting of light weight rugged high strength frame, double action hydraulic pump, self-aligning roller assembly and hydraulic jack provided with retraction spring.-50KN Make: Rajco/Shiva/Standard Rs. 53690.00				
8	Cylindrical Metal Measure: Consisting of one each of the following measures:	Cylindrical Metal Measure: Consisting of one each of the following measures:				

	3litres, 5litres and 30litres. A tamping rod of 16mm dia x 60cm long should also be provided.	3litres, 5litres and 30litres. A tamping rod of 16mm dia x 60cm long should also be provided. Make: Rajco/Shiva/Standard Rs. 10945.00				
9	Universal Automatic Compacter Electrically operated motor driven mechanical compactor used for compaction of soil in 100 mm and 150 mm dia moulds. Rammer - Circular faced, 50 mm dia adjustable to 2.6 kg or 4.9 kg weight, drop adjustable to 310 mm - 450 mm	Universal Automatic Compacter Electrically operated motor driven mechanical compactor used for compaction of soil in 100 mm and 150 mm dia moulds. Rammer - Circular faced, 50 mm dia adjustable to 2.6 kg or 4.9 kg weight, drop adjustable to 310 mm -450 mm Make: Mars/Asico/Ssi/Om/Mass Rs. 117660.00				
10	Proctor Penetrometer: Consisting of a body housing a spring a plunger calibrated to read 0-40 kg X 1 Kg and a handle Two stems are provided, a Larger stem and a shorter stem both graduated at 12.5 mm intervals, to indicate the depth of penetration. Needle	Proctor Penetrometer: Consisting of a body housing a spring a plunger calibrated to read 0-40 kg X 1 Kg and a handle Two stems are provided, a Larger stem and a shorter stem both graduated at 12.5 mm intervals, to indicate the depth of penetration. Needle Make: Rajco/Shiva/Standard Rs. 22545.00				
11	Digital Platform Balance Capacity a) 600g/1 Kg b) 5Kg c) 10 Kg d) 30 Kg	Digital Platform Balance Capacity 30kg Make: Rajco/Shiva/Standard Rs. 7490.00				
12	Flash Point and fire Point Apparatus: Consisting of Flash cup brass with a	Flash Point and fire Point Apparatus: Consisting of Flash cup brass with a				

	insulated handle power supply, thermometer etc complete as per IS 1209(Part69)	insulated handle power supply, thermometer etc complete as per IS 1448(Part-69) Make: Mars/Asico/Ssi/Om/Mass Rs. 8374.00				
13	Reynolds's Apparatus :The apparatus should consists of a glass tube with one end having bell mouth entrance, connected to a constant head water tank, at the other end another valve is provided to vary the flow rate. A self-contained water recirculate.	Reynolds's Apparatus :The apparatus should consists of a glass tube with one end having bell mouth entrance, connected to a constant head water tank, at the other end another valve is provided to vary the flow rate. A self-contained water recirculate. Make: Rajco/Shiva/Standard Rs. 44990.00				
14	Pitot Tube :Ellipsoidal head, an intake for total pressure and 6 holes for static pressure, sheated thermometer K probe integrated, with connection cable length 1.5m. Body made of stainless steel	Pitot Tube :Ellipsoidal head, an intake for total pressure and 6 holes for static pressure, sheated thermometer K probe integrated, with connection cable length 1.5m. Body made of stainless steel Make: Rajco/Shiva/Standard Rs. 3990.00				
15	Beam deflection Apparatus :The main frame of the apparatus should consists of an upper cross – member carrying graduated scales and two lower members bolted to T - legs to form a rigid assembly. The three load cells and cantilever - support pillar slide model	Beam deflection Apparatus :The main frame of the apparatus should consists of an upper cross – member carrying graduated scales and two lower members bolted to T - legs to form a rigid assembly.				

	should be of steel of capability of applying concentrated and distributed loads with arrangement for strain-deflection measurement.	Make: Rajco/Shiva/Standard Rs. 48990.00				
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Soil Mechanics Laboratory

Sl. No.	Name of Items with specification as per Tender	Estimated Cost Of Equipment	Present on your's institute Lab Yes/No	Status Working/Not Working	Required/Not Required	Remark
1	Standard Compaction Test App. As per IS: 2720 (Part vii) Specifications: The apparatus consists one each of compaction mould gun metal, 100 mm id x 127.3mm height x 1000 c volume complete with collar and base plate. Rammer 2.6 kg x 310 mm controlled fall 150mm wide * 127.3mm height,2250cc	Standard Compaction Test Apparatus-2250cc Note : Specification As Per Tender Document Make: Rajco/Shiva/Standard Rs. 6890.00				
2	Soil Hydrometer IS;2720 (part vi) IS: 3104 used for grain size analysis of soils where more than 10% of the material will pass through 75 microns I.S. sieve manufactured from clear transparent glass having uniform clarity throughout the upper end on which	Soil Hydrometer IS;2720 (part vi) IS: 3104 used for grain size analysis of soils where more than 10% of the material will pass through 75 microns I.S. sieve manufactured from clear transparent glass having uniform clarity throughout the upper end etc. Complete in all respects including its installation to full satisfaction and training of staff. Make: Mars/Asico/Ssi/Om/Mass Rs. 1590.00				

3	I.S. Sieves 20 cm diameter brass Aperture size 4.75 mm,2.36 mm,1.18 mm,600micron,300 micron,150 micron and 75 micron as per IS 460	Test Sieves-20cm. Dia. Brass (As Per List Make: Rajco/ Standard Rs.1250.00				
4	Laboratory C.B.R. Apparatus. Motorised As per IS : 2720 (Part – XVI) The apparatus consists of:- Load Frame, 50Kn (5,000kgf) ,Capacity: 3 speeds Mould 150mm dia. x 175mm high Perforated Base Plate for ZI-3087-2 Mould Extension Collar, 150mm i.d. x 50 mm high Penetration Piston, 50mm face dia Adjustable Bracket for Penetration Dial Gauge Circular Metal Spacer Disc with detachable handle, 148mm dia x 47.7mm high Annular Metal weight 2.5kg 147mm dia with 53mm dia central hole Perforated Metal Weight 2.5kg 147mm dia with 53mm dia soft Perforated Plate, 148mm dia, with adjustable stem and lock nut , Metal Tripod for Dial Gauge Cutting Collar , Rammer 2.6kg 310mm controlled drop. , Rammer 4.9kg 450mm controlled drop Proving Ring capacity 50Kn Dial Gauge, 25mm travel,	C.B.R. Test Apparatus- Electric Operated Note : Specification As Per Tender Document Make: Rajco/Shiva/Standard Rs. 99945.00				

	0.01mm least count Optional extras :Annular Metal Weight 5 kg 147 mm dia with 53mm dia central hole. Slotted Metal Weight 5 kg 147mm dia with 53mm dia slot [IS:9669 & IS:2720(part 15)]					
5	Core Cutter Consisting of cylindrical core cutter 100 mm dia and 130 mm long, steel dolly 25 mm high, rammer with steel rod etc complete as per IS 2720(XXIX) [IS2720(part29)]	Core Cutter Consisting of cylindrical core cutter 100 mm dia and 130 mm long, steel dolly 25 mm high, rammer with steel rod etc complete as per IS 2720(XXIX) [IS2720(part29)] Make: Rajco/Shiva/Standard Rs. 3445.00				
6	Laboratory Vane Shear Apparatus Consisting of a torque head, adjustable in height by means of a lead screw rotated by a drive wheel to enable the vane to be lowered into the specimen. Rotation of the vane is by means of an electric motor which operates a	Make: Rajco/Shiva/Standard Rs. 42745.00				
7	Infra –Red Moisture Meter The equipment should consists of heating element, thermometer (L shaped) and bulb. The capacity and sensitively should be 10g approx and 5mg approx respectively. The range of the stuff gauge should lie in 0 - 1g. the reading accu	Make: Mars/Asico/Ssi/Om/Mass Rs. 12190.00				
8	Direct shear apparatus . moterised with 12 sdpeed . As per IS : 2720 (part XIII) Supplied	Make: Rajco/Shiva/Standard				

<p>with load yoke with direct and lever system for applying load. Normal stress capacity 8 kg/sq. cm. Load is applied either directly or through a counter balanced detachable lever. Provision is made for the load to be applied either through a steel ball recessed in the loading pad or direct through a boss on the pre calibrated loading yoke. The load unit is provided with v strips and roller strips for frictionless movement of shear box housing. Shear box assembly : comprising direct shear box in two halves for a square specimen size 60 X 60 X 25 mm one pair of plain gripper plates , one pair of perforated gripper plates , one pair of porous stones , one top of loading pad. Shear box housing : Accomodate the direct shear box assembly , complete with two ball roller strips. specimen cutter : for cutting 60 X60 X 25 mm. Specimen forms larger sample , set of weight to give a normal stress of 3 kg/ sq. cm through large as follows : to gives kg/cm sq. qty. .05 4 nos .1 1 nos .2 1 nos. .5 3 nos. 1.0 1 nos.</p>	<p>Rs. 121545.00</p>				
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	<p>The unit is electrically operate to given the follows 12 rates of strain 1.25 , .625, .25, .125, .50, .025, .01, .0005, .002, .004, and .0002 mm / min.</p> <p>Accessories :</p> <p>a. dial gauge .01 mm X 25 mm travel</p> <p>b. High sensitively compression providing ring cap 200 kg. fitted with .002 mm dial gauge with calibration certificate.[IS:27209part13]]</p>					
9	<p>Consolidation apparatus : The standard outfit comprises of the following items. Loading unit, maximum capacity 20 kg/cm. sq. Having a loading yoke connected to a lever arm with a counter balancing adjustment and having a lever ratio of 1:1 the whole assembly being mounted on a sturdy steel frame stand , consolidation cells assembly , Fixed ring for specimens 60 mm dia x 20 mm thick with guide ring, Top and bottom porous stones for 60 mm dia specimen , Perforated pressure pad , Channeled base with water inlet and gasket , Flanged water jacket, water reservoir with plastic tube and pinchcock , Set of weights to give a pressure of 10 kg/cm. sqr on 60 mm specimen. Comprising of 7 off 0.05 kg/cm 2, 5 off 0.1 kg/ cm2, 6 off 0.5 kg/cm2 and 5 off 1.0 kg/cm2, Water reservoir with plastic tube, T-Connection and pinch cock Dial Gauge, 0.01 mm x 25 mm travel single</p>	<p>Make: Rajco/Shiva/Standard</p> <p>Rs. 57990.00</p>				

	Gang.[IS:27209part15,IS:12287]					
10	<p>Triaxial shear test apparatus consisting the follows :</p> <p>(a)Triaxial Cell. As per 2720(part – XII), For 38 mm dia specimen. Loading pad made of Perspex for 38mm dia specimens Pair of plain discs made of Perspex 38 mm dia 6 mm thick Pair of porous stones 38 mm dia specimen Split sand former for 38 mm dia specimen Sheath stretcher for 38 mm dia specimen One dozen rubber sheaths for 38 mm dia samples For synthetic rubber ‘O’ rings for 38 mm dia specimen One plastic drainage tube.</p> <p>(b)Load Frame, Bench type , Motorised, with 3 speed. Two pillar type , Light weight and sturdy , Ideal for using in mobile laboratory also This load frame is designed for conducting unconfined triaxial, CBR and other routine tests. Loading system comprises of a screw jack with a detachable handle. The lower platen moves up and down. The top bracket is adjustable for vertical clearance and has an adapter for connecting stranded proving rings. A dial gauge mounting bracket is provided on one of the two pillars rate of strain: 3 (1.25, 1.50, 2.50 mm/min.) Suitable for operation on 220V 50 Hz single</p>	<p>Make: Rajco/Shiva/Standard</p> <p>Rs. 329990.00</p>				

<p>phase AC supply</p> <p>(c) Bishop Pore Pressure Apparatus for 10 Kg / CM sq The apparatus consists of a panel for wall mounting on which are fitted – 1.0 to 10 kg/cm sq. x 0.1 kg cm sq. a pressure gauge, bourdon type 20 cm dia.</p> <p>MANOMETER: Glass u-tube manometer for measuring low positive pore pressures negative pore measures and checking zero error of pressure gauge. It is provided with a mercury trap mercury supplied at extra cost. Null indicator made out of clear ansparent Perspex with mercury trap and cursor to indicate the mercury level BURETTE: 50 ml burette for measuring the volume change in the soil specimen. Pressure pump fitted with four sleeve packed valves Operated by means of a hand wheel on the end of the piston rod which is threaded through the pump cap and gives a smooth, fine adjustment of pressure. Copper coil and water reservoir The unit is tested against leaks upto 10 kg/cm.sq.</p> <p>(d) Lateral Pressure Assembly. 0 -10 kg /cm² The apparatus consists of a pressure chamber which has a flanged top cap fitted with a 10 kg/cm². pressure gauge and a Schrader valve for pumping in air. Water inlet and drain cock are fitted to the chamber. The foot pump supplied easily develops a pressure of 10 kg/cm² complete</p>					
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	<p>with connecting pressure hose.</p> <p>(e)Oil Water Constant Pressure System. Range 0-20 bar (0-20 kg/cm²) Steps of pressure 0-5 bar (0-5 g/cm²) , Accuracy + 0.5% Electric supply 230 volt, single phase 50 hz, A. C. supply Supplied complete with pressure gauge, flow valves, connecting pressure hose and set of weights to give maximum pressure of 20 bar (20 kg/cm²).</p> <p>(f)Sensitive Volume Change Gauge. A sensitivity of 0.003 ml/mm with the 6 ml volume of the fluid per cycle has been realized by the sensitive volume change gauge. The unit is tested to a pressure of 20 kg/cm² and is designed for wall mounting. High sensitivity Proving Ring of 1000 kg capacity fitted with 0.002 mm dial with Calibration certificate and housed in wooden case. Dial Gauge of 0.01 mm x 25 mm travel.[IS;2720(part11&12)]</p>					
11	<p>Unconfined Compression Tester Proving Ring type. Motorised. As per IS : 2720 (Part – X) ASTM T – 208.Comprises a screw operated load frame, cap.5000 kf with a gear box and motor drive giving 1.25, 1.5, 2.5mm/min. rates of strain, a pair of cone seating, adaptor for proving ring and strain dial gauge bracket, supplied with one pair of male/female coning tools for 38mm dia samples but without ring and dial gauge, suitable for operation on 230volts single phase A C supply</p>	<p>Make: Rajco/Shiva/Standard</p> <p>Rs. 92145.00</p>				

	Accessories ; a)High sensitivity proving ring Cap – 200 / 500 / 1000 kgf Dial Gauge 0.01 mm x 25 mm travel.[IS:2720(part10)]					
12	California bearing ratio (C.B.R.) test apparatus equipped with all accessories.	Make: Rajco/Shiva/Standard Rs. 125545.00				

CIVIL ENGINEERING LAB.

Sl. No.	Name of Items with specification as per Tender	Estimated Cost Of Equipment	Present on your's institute Lab Yes/No	Status Working/Not Working	Required/Not Required	Remark
1	DUCTILITY TESTING MACHINE. As per IS:1208 & IP-32, ASTM D-113-44 Thermostatically controlled, 230V AC, operated.	Make: Rajco/Shiva/Standard Rs. 94990.00				
2	Universal PENETROMETER. As per IS:1203, IS:310 (Part II) :IS:1208	Make: Rajco/Shiva/Standard Rs. 38990.00				
3	NEEDLE VIBRATOR.350mm long x 25mm dia. Vibrating pin having bullet nose vibrating speed 1000 rpm 1/2 hp motor, 5ph, 1 meter shaft with 2m long flexible shaft.Nozzle Dia 12.5 mm,25mm, 40mm	Make: Rajco/Shiva/Standard Rs. 38990.00				
4	Dynamic core penetrometer(highway)					
5	Universal Testing Machine Capacity – 1000 KN. Max Capacity -100 Ton	Make:				

	Complete with all standard accessories, Electricals Motors, for Tension Test and Compression Test, shear test, bond Test and flexure or concretestress controlled machine directly connected to computer with necessary software with online load, stress-strain measurements with necessary grips and attachment for concrete specimen/steel bars	Rajco/Shiva/Standard Rs. 2115545.00				
6	Vicat's apparatus equipped with all accessories	Make:Rajco/Shiva/Standard Rs.4950				
7	Slump Test apparatus -	Make: Rajco/Shiva/Standard Rs. 3950.00				
8	Le-chatelier Test Apparatus	Make: Rajco/Shiva/Standard Rs. 4850.00				

ENVIRONMENTAL ENGINEERING LAB.

Sl. No.	Name of Items with specification as per Tender	Estimated Cost Of Equipment	Present on your's institute Lab Yes/No	Status Working/Not Working	Required/Not Required	Remark
1	Determination of PH value of water	Make: Mtezer Rs. 11500.00				
2	Determination of turbidity of water	Make: Make: Mtezer				

		Rs. 11500.00				
3	To find sludge digestion, incubation chamber	Make: Hot Point Rs. 11500.00				
4	Furnace 1000 degree c.	Make: Icon/Scientech Rs. 93545.00				
5	Test of dissolve oxygen meter	Make: Mtezer Rs. 14500.00				
6	BOD Incubator, size- 16" x 16" x 18	Make: Icon/Scientech Rs. 185000.00				

CIVIL ENGG MODEL

Sl. No.	Name of Items with specification as per Tender	Estimated Cost Of Equipment	Present on your's institute Lab Yes/No	Status Working/Not Working	Required/Not Required	
1	MODEL OF STAIRCASES: Properly constructed and painted wooden models showing various details (a) Dog legged stairs 32 x 30 cm pprox size (b) Open wall stairs 32x 30 cm approx size (c) Bifurcate stairs -75x35 cm approx size.	Make: KE/Ambros a) Rs. 4190.00 b) Rs. 3890.00 c) Rs. 5490.00				
2	MODEL OF STEEL ROOF TRUSS Showing different member such as principal rafters tie, stud. Husset plates, river, etc about 1.5 meter long span.	Make: KE/Ambros Rs. 5490.00				
3	HYDRO ELECTRIC POWER INSTALLATION: The model is properly constructed and cut way in design showing dam portion, power house, generator,turbine tailrace .and other necessary details size about 45x35 cm made of wood and fitted with metallic parts.	Make: KE/Ambros Rs. 15990.00				
4	MODEL OF COFFER DAM: Properly constructed wooden model showing earthen dam ,permanent dam, crib,tunnels,roadway ,size	Make: KE/Ambros Rs. 6545.00				

	40x30 cm approx.					
5	RIVER HEAD WORK: The mode is properly constructed showing min canal ,head work with controlling system, complete on about 70x60 cm base board 1	Make: KE/Ambros Rs. 9545.00				
6	MODEL OF CANAL DROP: Showing the canal size embankment , connections, trapezoidal notches and other necessary details,size approx 60x60 cm.	Make: KE/Ambros Rs. 5945.00				
7	MODEL OF SILT EJECTOR: Showing the main canal ,slab, tunnel with curve piers,escape arrangement complete on bout 70x50 cm base board.	Make: KE/Ambros Rs. 5945.00				
8	MODEL OF CANAL REGULTOR: Showing canal portion ,each connections ,roadway and shutters with lifting arrangement complete on about 70x50 cm base board.	Make: KE/Ambros Rs. 5645.00				
9	SUPER PASSAGE OF TWO SPAN: The properly constructed all wooden model showing the drain over canal crossing. Size approx 70x50cm	Make: KE/Ambros Rs. 5945.00				
10	LEVEL CROSSING: A properly constructed model about 60x30cm size.	Make: KE/Ambros Rs. 4945.00				
11	SPILL WAY GATE: The properly constructed model showing road way, bucket water cushion and down stream deflector wall size about 40x30cm.	Make: KE/Ambros Rs. 5545.00				
12	MODEL OF SLOW SAND FILTER: This is gravity type sand filter and is properly made in waterproof	Make: KE/Ambros Rs. 6145.00				

13	<p>MODEL OF RAPID SAND FILTER: Water flows by gravity through bed of sand and then through gravels. The mild steel sheet filter tank is about 28 cm dia and 45 cm high approx. Lid with rubber strap is given at the top and eye bolts with wing nuts to put the lid down tight. A standard 3/4 size fittings are provided for inlet, outlet and back washing arrangements. Without motor and pump etc.</p>	<p>Make: KE/Ambros Rs. 8590.00</p>				
14	<p><u>SAFE WATER SUPPLY FROM A RIVER:</u> Same as above but instead of pond river site is shown.</p>	<p>Make: KE/Ambros Rs. 8990.00</p>				
15	<p>SEDIMENTATION TANK: With mechanical sluge scraping and collecting devices the properly constructed model is rectangle in shape, showing influent scum collector, sluge hopper, devices overall size is bout 52x19x30cm.</p>	<p>Make: KE/Ambros Rs. 6545.00</p>				
16	<p>SEPTIC TANK: Properly constructed dissectible wooden model showing different compartments, baffle wall, inlet and outlet pipers, vent pipe and manhole covers etc size 20x25x50 cm approx.</p>	<p>Make: KE/Ambros Rs. 5545.00</p>				
17	<p>PLATE GIRDER BRIDGE: A properly constructed model of usual constructed showing showing abutment, wing wall all necessary transverse and longitudinal sleep and track of rail road. The model is about 135 cm long and is made of metallic and wooden parts.</p>	<p>Make: KE/Ambros Rs. 14990.00</p>				
18	<p>FLY OVER ROAD JUNCTION : The model is fabricated of wood and</p>	<p>Make: KE/Ambros</p>				

	<p>mounted on 60x 60 cm base board showing the uninterrupted flow of one way traffic, the connection to the main highway are very nicely demonstrated for the student of the traffic engineering</p> <p>a) Clover Leaf Junction b) Diamond Pattern's</p>	<p>a) Rs. 4590.00 b) Rs. 4545.00</p>				
19	<p>MODEL OF CROSS SECTION OF NATIONAL HIGHWAY: Showing proper formatting of embankment carriage way should and courses. Complete on about 60x40 cm base board.</p>	<p>Make: KE/Ambros</p> <p>Rs. 5690.00</p>				
20	<p>ROAD SIGNS: A set of 12 signs beautifully drawn on metal plate pieces and all fitted on a 60x30 cm wooden base.</p>	<p>Make: KE/Ambros</p> <p>Rs. 4545.00</p>				
21	<p>MODEL OF POINTS CROSSING: Properly constructed model to demonstrate to direct a moving train from one track to another. Consisting of sleepers, stock rail, loop rail, stretched bar, switch level and a two wheel trolley. Complete on about 100x35 cm polished wooden base.</p>	<p>Make: KE/Ambros</p> <p>Rs. 7590.00</p>				
22	<p>MODEL OF INTER LOCKING: Properly constructed model. To demonstrate the mechanical signaling and inter-locking consisting of stock rail, tongue rail, stretcher bar, detector signals and switch levers, complete on about 90x40 cm polished base.</p>	<p>Make: KE/Ambros</p> <p>Rs. 7445.00</p>				
23	<p>GRILLAGE FOUNDATION: A properly constructed model of cast aluminum and metal parts, showing concreted footing grillage on platform of beams, anti vibration</p>	<p>Make: KE/Ambros</p>				

	mat, base plate and column, complete on wooden base of size about 30x25 cm .	Rs. 7545.00				
24	MODEL OF FOUNDATION: Showing two walls of room basement, foundation footing, foundation, concrete, sand filling steps ground level etc size 45x40 cm approx.	Make: KE/Ambros Rs. 5545.00				
25	PILES OF DIFFERENT TYPES: (a) steel sheet pile (b) screw pile (c) timber pile	Make: KE/Ambros a) Rs. 3245.00 b) Rs. 0.00 c) Rs. 2845.00 Make: KE/Ambros a) Rs. 0.00 b) Rs. 4500.00 c) Rs. 0.00				
26	MODELS OF TRUSSES :- JOINTS OF TRUSSES: Set of four types of joints, properly constructed wooden models, complete with iron straps and beautifully painted.	Make: KE/Ambros Rs. 6545.00				
27	MODELS OF STEEL ROOF TRUSS: Showing different members such as principales rafters tie, stud, husset plates, river, etc about 1.5 meter long span.	Make: KE/Ambros Rs. 5545.00				
28	MODEL OF ROOF SHOWING RIDGE HIP AND VALLEY: L shaped, one end is provided with a hip and other end a gabble.	Make: KE/Ambros Rs. 11545.00				
29	MODEL OF JACK ARCH FLOORING: For four bay showing different details such as girders, surrounding concrete arches, floor finish etc size 60x12 cm approx.	Make: KE/Ambros				

		Rs. 7500.00				
30	T BEAM AND SLAB REINFORCEMENT: A properly constructed model in wood, showing main girder with secondary girders, pillars, reinforcements, flooring, drip hanger etc complete on board.	Make: KE/Ambros Rs. 15990.00				
31	TWO ROOMS AND VARANDAH: Properly constructed model in wood illustrating cross section of a building of two room and one verandah with sectional details complete on 40x30 cm base approx.	Make: KE/Ambros Rs. 11990.00				
32	TWO STORIED BUILDING: flat roof showing different detail including staircase . The first floor can be removed to see inside details, four room are shown in each floor. The model is sectionised so that student may get clear idea. Size 70x60 cm approx.	Make: KE/Ambros Rs. 22990.00				
33	Spectrophotomer (For determination of Arsenic in water)	Make: KE/Ambros Rs. 495000.00				

CADD Lab.

Sl. No.	Name of Items with specification as per Tender	Estimated Cost Of Equipment	Present on your's institute Lab Yes/No	Status Working/Not Working	Required/Not Required	Remark
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1	Computer Table					
2	Chair of Computer					
3	Intel core i7 4770 / 4790 with 6MB to 8MB cache 2.20 GHz or higher with integrated Graphics Card 4 GB / 8 GB 1600MHz DDR3 RAM 500 GB/ 1TB 3.5 inch HDD with 7200rpm SATA DVD WRiter, 18.5 inch Monitor, Keyboard, Mouse					
4	Cat 6 Cable under PVC Channel, I/O Box, Switch, Patch cord- 1m & 2m. RJ-45 connector for each computer/ WI/FI					
5	Electrical point for each computer					
6	6 KVA online UPS with 02 hours backup					
7	with stabilizer for CADD lab, required AC with stabilizer.					
8	Antivirus for each computer					
9	Software for CADD (Civil Engg.) lab. for 60 computer with console					

MECHANICAL ENGINEERING DEPARTMENT
WORKSHOP

Sl. No.	Name of Items with specification as per Tender	Estimated Cost Of Equipment	Present on your's institute Lab Yes/No	Status Working/Not Working	Required/Not Required	Remark
1	LATHE MACHINE EKL-412 BED LENGTH FT: 1371 MM WIDTH OF BED : 304 MM HEIGHT OF CENTRE : 250 MM SPINDLE BORE : 52 MM SWING IN GAP : 813 MM SWING OVER BED : 508 MM NO. OF SPINDLE SPEED : 6 ADMIT BETWEEN CENTRE : 762 MM ELECTRIC MOTOR- 1 HP FOUR JAW CHUCK- 300 MM STANDARD ACCESSORIES MACHINE LAMP, ELECTRIC WIRING FITTING, SPANNER SET, OIL CAN, DEAD CENTER, MOTOR PULLY, MOTOR PLATE, REVOLVING CENTER, FACE PLATE, R/F SWITCH SET OF VEE BELTS	Make: Master/Kwality/ Banka/Standard Rs. 445000.00				
2	SHAPER MACHINE ESH - 18 LENGTH OF RAM STROKE - 457 MM LENGTH OF RAM - 914 MM LENGTH X WIDTH OF RAM BEARING- 711X245 MAX/MIN DISTANCE OF TABLE FROM RAM - 406/89 MM WORKING SURFACE FROM TABLE - 381/279 MM MAX. HORIZONTAL TABLE TRAVEL - 457 MM	Make: Master/Kwality/ Banka/Standard Rs. 355000.00				

	<p>MAX. VERTICAL TABLE TRAVEL - 305 MM ANGULAR MOVEMENT OF TABLE- +60 DEG MAX TOOL SHANK SIZE-30X16 MAX. VERTICAL TRAVEL OF TOOL SLIDE-152MM SWIVEL OF TOOL HEAD-+-60 DEG DIAMETER OF CLUTCH PULLY-311 NUMBER OF RAM SPEED/STROKES-4 RANGE OF RAM STROK PER MIN-17 TO 75 DIAMETER OF MOTOR PULLY-89 RANGE OF TABLE FEED/STROK -0.22/0.88 TOOL HEAD FEED-HAND FEED ELECTRIC MOTOR-1HP</p> <p>STANDARD ACCESSORIES SWIVELLING VICE, ALLEN KEY SET V-BELTS, CRANK HANDLE SPANNER SET, SCREW DRIVER, OIL CAN, MOTOR PULLEY TOOL BOX, ELECTRIC MOTOR & STARTER MACHINE COMPLETE WITH FITTINGS & WIRINGS</p>					
3	<p>PILLAR DRILL MACHINE EPD-25 MODEL NO EPD-25 DRILLING CAPACITY-25MM SPINDLE TRAVELS-155MM SPINDLE CENTRE TO COL-255MM SPINDLE NOSE TO TABLE-650MM SPINDLE NOSE TO BASE-1015MM COLUMN DIAMETER- 74.5 MM MORSE TAPER: ROUND TABLE SIZE- 335 MM BASE WORKING AREA - 290X300MM FLOOR SPACE REQUIRED - 380X485 MM NO. OF SPEEDS - 8 SPINDLE SPEED WITH 1440 RPM MOTOR - 110 - 2640 HIGHT OF MACHINE - 1535 MM ELECTRIC MOTOR - 1HP</p>	<p>Make: Master/Kwality/ Banka/Standard</p> <p>Rs. 245000.00</p>				

	STANDARD ACCESSORIES MOTOR PULLEY VEE BELT					
4	DRILL CHUCK ARBOUR SURFACE GRINDER EMSG- 618 WORKING SURFACE OF TABLE TO GRINDING WHEEL- 250 MM VERTICAL FEED GRADUTATION- 0.01MM CROSS FEED GRADUATION-0.05 MM SPINDLE SPEED-2800 R.P.M. SIZE OF GRINDING WHEEL- 180X13X31.75MM MAGNETIC CHUCK RECOMMENDED 1HP.3 PHASE DIAMOND DRESSERE- 0.5 CR. WHEEL BALANCING STAND RECOMMENED – ONE	Make: Master/Kwality/ Banka/Standard Rs. 285000.00				
5	UNIVERSAL MILLING MACHINE EUM - OA SURFACE OF TABLE - 800X175 MM NO. OF TEE SLOTS - 3 SIZE OF TEE SLOTS - 3 SIZE OF TEE SLOTS-25 mm SWIVEL OF TABLE - 45 DEGREE LONGITUDINAL TRAVERSE - 375 MM CROSS TRAVERSE - 150 MM VERTICAL TRAVERSE - 325 MM STANDARD ARBOR - 25MM TAPER OF SPINDLE ISO - 30 RPM OF SPINDLE - 95-650 MM NO.OF SPINDLE SPPED - 6 ELECTRIC MOTOR - 1HP	Make: Master/Kwality/ Banka/Standard Rs. 525000.00				
6	HYDRAULIC HACKSAW MACHINE EHK - 200 MODEL - EHK-200 CUTTING CAP.IN SQUARE BAR - 150 MM \CUTTINFG CAP. IN ROUND BAR - 200MM CAPACITY OF 45 ⁰ CUT - 90 MM WORKING STROKE - 140 MM SIZE OF BLADE (MM) - 350 - 400	Make: Master/Kwality/ Banka/Standard Rs. 285000.00				

	ELECTRIC MOTOR: 1 H.P. STANDARD ACCESSORIES WATER PUMP ELECTRIC MOTOR FITTED WITH MOTOR PULLEY VEE BELTS, PUSH BUTTON STARTER FITTED WITH INTERNAL WIRING CLAMPING VICE, CUTTING BLADE					
7	BENCH GRINDER 200 GRINDING WHEEL DIA - 200 MM LAPPING WHEEL DIA - 200 MM MOTOR 0.5 HP	Make: Master/Kwality/ Banka/Standard Rs. 28990.00				
8	DESKTOP WITH PRINTER AND LCD PROJECTOR	Make: Dell Rs. 119590.00				
9	R.O. WITH WATER COOLER	Make: Voltas Rs. 110000.00				
10	CNC Lathe - Maximum Swing Diameter- 360mm Power - 7.5 KW Dimention - 2250 mm x 1170mm x 1490mm Carriage- Two (A) Horizontal - 6 Station, (B) Horizontal- 4 Station. Spindle Speed- 200 to 2500 rpm. Swing Diameter Over Sliding Plate- 180 mm Maximum Cutting Length- 750 mm	Make: Master/Kwality/ Banka/Standard Rs. 1850000.00				
11	CNC Milling Automatic machine	Make: Master/Kwality/ Banka/Standard Rs. 1750000.00				

HYDRAULICS AND FLUID MECHANICS LABORATORY

Sl. No.	Name of Items with specification as per Tender	Estimated Cost Of Equipment	Present on your's institute Lab Yes/No	Status Working/Not Working	Required/Not Required	Remark
1	Hydraulic Bench with Accessories and Experimental Set Up	Make: Ambros/KE Rs. 325000.00				
2	Closed Circuit Pipe Friction Apparatus	Make: Mars/Asico/Ssi/Om/Mass Rs. 71550.00				
3	Centrifugal Pump (Single stage) Test Rig. General Contents of the unit.	Make: Ambros/KE Rs. 68545.00				

Engg. Mechanics Lab.

Sl. No.	Name of Items with specification as per Tender				
1	Universal Force Table 1.) 01HP monoblock (Kirloskar) 2.) Measuring tank 400x400x400mm 3.) Pressure gauge and vaccum gauge for measuring the head of energy meter (200 watt.) 4.) Stop Watch 5.) Jump tank with sufficient capacity with technical manual	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 10494.00	-	-	-
2	Parallelogram of forces Apparatus	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2862.60	-	-	-
3	Polygon of forces Apparatus	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2766.60	-	-	-

4	Simply supported beam for span 1.0m	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 4770.00	-	-	-
5	Friction slide	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2194.20	-	-	-
6	Worm and worm wheel	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 5704.92	-	-	-
7	Screw Jack	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 6582.60	-	-	-
8	Moment of inertia of Flywheel (20cm dia)	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2862.00	-	-	-
9	-	-	-	-	-
10	Simple jib crane	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3720.60	-	-	-
11	Pulley system different type	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 6868.80	-	-	-
12	Winch Crab Single Purchase	-	Make: Ambros/KE	-	-

			Rs. 19990.00		
13	Cantilever Beam Apparatus	–	Make: Ambros/KE Rs. 16545.00	–	–
14	Searl's appartus	–	Make: Ambros/KE Rs. 9990.00	–	–
15	Inclined plane (Friction Test)	–	Make: Ambros/KE Rs. 9990.00	–	–
16	Overhanging Beam	–	–	–	Make: Ambros/KE Rs. 22500.00

RAC LAB

Sl. No.	Name of Items with specification as per Tender				
1	COMPLETE REFRIGERATION AND A.C TOOL KIT.	–	Make: Ambros/KE Rs. 54990.00	–	–
2	REFRIGERATION CYCLE TEST RIG	–	Make: Ambros/KE Rs. 127990.00	–	–

THERMODYNAMICS LAB / HEAT ENGINE LAB.

Sl. No.	Name of Items with specification as per Tender				
1	Single Stage Reciprocating Air Compressor Test Rig (2 H.P.)	–	Make: Ambros/KE Rs. 109545.00	–	–
2	Boiler Mounting and Accessories display models: All metallic section	Make: Ambros/KE Rs. 37011.00		–	–
3	SI engine Four stroke-four cylinder, Engine(used)	–	Make: Ambros/KE Rs. 64990.00	–	–
4	Single cylinder diesel engine (used)	–	Make: Ambros/KE Rs. 49545.00	–	–
5	Petrol engine 2-stroke (used)	–	Make: Ambros/KE	–	–

			Rs. 26990.00		
6	Lubrication system of an Automobile	–	Make: Ambros/KE Rs. 15190.00	–	–

ELECTRICAL WORKSHOP PRACTICE

Sl. No.	Name of Items with specification as per Tender				
1					
	<u>Tools and Hardware</u>				
	(a) Hammer set	–	Make: GTI/Standard Rs. 4500.00	–	–
	(b) Mallet	–	Make: GTI/Standard Rs. 120.00	–	–
	(c) Handsaw	–	Make: GTI/Standard Rs. 250.00	–	–
	(d) Hacksaw	–	-	–	–
(e) Screw driver set	–	Make: GTI/Standard Rs. 350.00	–	–	

(f) Monkey wrench/pipe wrench	–	Make: GTI/Standard Rs. 390.00	–	–
(g) Chisel(farmer chisel & cold chisel)	–	Make: GTI/Standard Rs. 450.00	–	–
(h) Scraper	–	-	–	–
(i) Wire stripper	–	-	–	–
(j) Hand drill	–	Make: GTI/Standard Rs. 450.00	–	–
(k) Vise	–	Make: GTI/Standard Rs. 2850.00	–	–
(l) Pliers set(with flat nose, side cutting orround nose)	–	Make: GTI/Standard Rs. 650.00	–	–
(m)Electric drill	–	Make: GTI/Standard Rs. 3250.00	–	–
(n) Power saw	–	-	–	–
(o) Tool box-containing adjustable wrench, screwdriver bits, screwdriver, take measure,hammer,knife, socket, socket wrench, bull nose pliers, needle- nose pliers level, washer, nut, etc.	–	Make: GTI/Standard Rs. 15000.00	–	–
(p) Drill bits-metalbit, reamer, carpentry bits, flat wood bit, and masonry bit.	–	-	–	–
(q) Wire strippers	–	-	–	–
(r) Soldering Iron (different sizes)	–	Make: GTI/Standard Rs. 2250.00	–	–
(s) Wire cutters	–	Make: GTI/Standard Rs. 190.00	–	–

	(t) Electrical tape	-	-	-	-
	(u) Hammer set	-	-	-	-
	(v) Mallet Handsaw	-	-	-	-
	(w) Hacksaw	-	-	-	-
	(x) Screw driver set	-	-	-	-
	(y) Monkey wrench/pipe wrench	-	-	-	-
	(z) Chisel(farmer chisel & cold chisel)	-	-	-	-
	(aa) Scraper	-	-	-	-
	(bb) Wire stripper	-	-	-	-
	(cc) Hand drill	-	-	-	-
	(dd) Vise	-	-	-	-
	(ee) Pliers set(with flat nose, side cutting orround nose)	-	-	-	-
	(ff) Electric drill	-	-	-	-
	(gg) Power saw	-	-	-	-
	(hh) Tool box-containing adjustable wrench, screwdriver bits, screwdriver, take measure,hammer,knife, socket, socket wrench, bull nose pliers, needle- nose pliers level, washer, nut, etc.	-	-	-	-
	(ii) Drill bits-metalbit, reamer, carpentry bits, flat wood bit, and masonry bit.	-	-	-	-
	(jj) Wire strippers	-	-	-	-
	(kk)	-	-	-	-
	(ll) Circular saw	-	-	-	-
2	<u>Switches-</u> Tumbler Switch DPIC Switch Main Switch Sub Main Switch	-	-	-	-

	2Way 6A Switch 1Way 6A Switch Single Pole Double Throw Single Pole Single Throw Triple Pole Switch				
3	MCB Box	–	–	–	–
4	Metal conduit pipe with junction box	–	–	–	–
5	Metal bend	–	–	–	–
6	PVC casing and lapping	–	–	–	–
7	PVC bend	–	–	–	–
8	Batten lamp holder	–	–	–	–
9	Switch boards with socketoutlets	–	–	–	–
10	7/20 SWG Power wire	–	Make : GTI/Standard Rs. 4500.00	–	–
11	3/20 SWG Phase wire	–	Make : GTI/Standard Rs. 3500.00	–	–
12	3/22 SWG Neutral wire	–	Make : GTI/Standard Rs. 3000.00	–	–
13	1/18 SWG Earthing wire	–	Make : GTI/Standard Rs. 2200.00	–	–
14	Flexible cable	–	–	–	–
15	Distribution Board	–	–	–	–
16	Sub Distribution Board	–	–	–	–
17	File (of different size set)	–	–	–	–
18	Try square	–	–	–	–
19	Fluorescent tube with tube base, starter & choke	–	Make : GTI/Standard	–	–

			Rs. 1250.00		
20	D.C. Motor (assembly type) 2 HP	–	–	–	–
21	Coil winding machine	–	Make : Eletech/Standard Rs. 19500.00	–	–
22	Laminated transformer case	–	–	–	–
23	Car dynamo for the purpose of armature winding	–	–	–	–
24	Table fan	–	Make : Eletech/Standard Rs. 3500.00	–	–
25	Ceiling fan	–	Make : Eletech/Standard Rs. 3500.00	–	–
26	3-φ squirrel cage 2HP induction motor for armature winding purpose	–	Make : Eletech/Shakti Rs. 32500.00	–	–
27	Small battery charger for assembly purpose	–	-	–	–
28	Alarm bell for assembly and testing purpose	–	-	–	–
29	Inducting relays for assembly and testing purpose	–	-	–	–
30	Coil windings varnish coated wire of suitable guage	–	-	–	–
31	For the purpose of dismantling repairing, assembly and testing flooring equipments are require a) Electric Iron b) Room Heater c) Electric Toaster d) Water heater (small size) e) Electric Kettle f) Electric Oven g) Fan Regulator	–	Make : GTI/Standard Rs. a) 2500.00 b) 3500.00 c) 1250.00 d) 1250.00 e) 3500.00 f) 25000.00 g) 0250.00	–	–
32	Megger	–	Make : Eletech/Shakti Rs. 8500.00	–	–

33	Earth Resistance Tester	-	Make : Eletech/Shakti Rs. 6500.00	-	-
34	Common Tester (125 mm)	-	-	-	-
35	Computer with printer and LCD projector for demonstration	-	Make : Eletech/Shakti Rs. 119990.00	-	-

ELECTRICAL MACHINE LAB

Sl. No.	Name of Items				
1	<p>Description-</p> <p>(a) Determination of turn ratio of 1-ϕ transformer by voltage and current measurement.</p> <p>(b) Determination of voltage regulation of 1-ϕ transformer by performing O.C test.</p> <p>(c) Determination of percent efficiency and voltage regulation curve against increasing percentage output by performing load test on a 1-ϕ transformer.</p> <p>Equipment Required-</p> <p>1-ϕ transformer, input 230 V, output 230V with tapping at 10%,25%, 50% and 75% housed in steel box with educational type terminals provided with control panel (for OC& SC test) consist of the following accessories-</p> <p>(a) M.C.B.(16 A, 600 V) (1PC)</p> <p>(b) Fuses 10A (1 pc)</p> <p>(c) Analog Ammeter (0-1A) MI type (1 pc)</p> <p>(d) Analog ammeter (0-5A) MI type (1pc)</p> <p>(e) Analog voltmeter (0-50V) MI type (1pc)</p>	<p>Make:</p> <p>Mars/ASICO/SSI/OM/MASS International or Mentioned</p> <p>Rs.</p> <p>a) 37683.00</p> <p>b) 0.00</p> <p>c) 52947.00</p> <p>90630.00 (Total)</p>	-	-	-

	<p>(f) Analog voltmeter (0-300V) MI type (1pc) (g) Educational type insulated colored terminals (h) Wattmeter 1/2A, 150/300 V (i) Wattmeter 5/10 A,75/150 V (j) 1-ϕ auto transformer (k) Loading rheostat1-ϕ</p>	<p><u>Equipment Required-</u></p> <p>Rs.</p> <p>a) 0.00 b) 0.00 c) 238.50 d) 238.50 e) 238.50 f) 238.50 g) 0.00 h) 0.00 i) 0.00 j) 0.00 k) 19557.00</p>			
2	<p><u>Description-</u> Study of 3-ϕ induction regulator <u>Equipment Required</u> 3-ϕ induction regulator 415V, 50 Hz (study type)</p>	–	Make : Eletech/Shakti/MSW Rs. 24990.00	–	–
3	<p><u>Description-</u> Determinations of losses and efficiencyof 3- ϕ induction motor by performing no load test and blocked rotor test. <u>Equipment Required</u> 3-ϕ Induction motor squirrel cage type with brake drum arrangement star-delta starter, A.C 440 V, 50Hz, 5HP, 8A, 1400rpm with control panel having (i) 3 Pole M.C.B.(16A,600V, 1PC) (ii) Fuses (10A) (1PC) (iii) RPM meter(0-2000RPM)(1PC) (iv) Ammeter type (0-10A) MI(1PC) (v) Voltmeter (0-500) MI type (1PC) (vi) Wattmeter (600V/10A)-2 separate terminal for each component.</p>	–	Make : Eletech/Shakti/MSW Rs. 54990.00	–	–
4	<p><u>Description-</u> Determinations of toque slip characteristics of 3-ϕ induction motor by performing load test. <u>Equipment Required</u> 3-ϕ Indication motor slip ring type with brake drum arrangement, rotor resistance starter, A.C. 440V, 50 Hz, 5HP,</p>	–	Make : Eletech/Shakti/MSW Rs. 54990.00	–	–

	8A, 1400 rpm with control panel (i) 3 phase M.C.B.(16A, 600V) (1PC) (ii) Fuse 10A (1PC) (iii) RPM meter (0-2000RPM) (1PC) (iv) Ammeter (0-10A) MI type (1PC) (v) Voltmeter (0-500V) MI type (1PC) (vi) Wattmeter (600V/10A)-2seperate terminal for each component				
5	Description- Study of 3- ϕ auto transformer starter Equipment Required- Study model 3- ϕ auto transformer starter, 415V/415-470V, 15A for 5HP, 50Hz motor with switching arrangement	–	Make : Eletech/Shakti/MSW Rs. 25990.00	–	–
6	Description- Study of D.O.L. starter Equipment Required- Study model of D.O.L. starter, 50Hz, 415-470V, 15A for 3HP motor	–	Make : Eletech/Shakti/MSW Rs. 3290.00	–	–
7	Description- Study of star-delta Starter Equipment Required- Study model of star- delta starter, 415/V-470V, 15A for 5 HP motor	–	Make : Eletech/Shakti/MSW Rs. 6290.00	–	–
8	Description- (a) Determination of open circuit characteristics and short circuit characteristics of 3- ϕ alternator. (b) Determination of losses and efficiency by performing load test on 3- ϕ alternator. Equipment Required- D.C. shunt motor 3HP, 220 V, mechanically coupled to 3- ϕ , 440 V, 2KVA alternator separately excited, separately excitation in built in the panel with control panel having all the necessary accessories such as. (i) D.P.S.T., T.P.S.T. switches for motor and alternator. For D.C. motor- (i) Analog meters ammeter(0-25A) M.C. type - 1 no (ii) Analog meters voltmeter (0-30V) M.C. type- 1 no (iii) Field regulator For synchronous Alternator- (i) Analog meter ammeter (0-5A) M.I. type -1 no (ii) Analog meter voltmeter (0-500 V) M.I. type -1 no	–	Make : Eletech/Shakti/MSW Rs. 78990.00	–	–

	(iii) M.C.B. (iv) Indicating light (v) Field Rheostate-1no <u>For excitor-</u> (i) Analog meter ammeter (0-2A), M.C.type.				
9	Description- Determination of V- curve of a synchronous motor Equipment Required- Synchronous motor 3HP, 415V, A.C., 3- ϕ coupled to D.C. shunt generator 230V, 2KW bolted on common base plate with flexible coupling and auto transformer starter with controlpanel having all necessaryaccessories to be provided on the panel board such as (i) D.P.S.T., T.P.S.T. switches for motor and alternator. <u>For D.C. Generator</u> (i) Analog meter ammeter (0-15A), MC type (1 PC) (ii) Analog meter voltmeter (0-300V), MCtype (1PC) (iii) Analog meter ammeter (0-2A), MC type (1 PC) <u>For synchronons motor-</u> (i) Analog meters ammeter (0-10A), MI type (1PC) (ii) Analog meter voltmeter (0-500V), MC type (1 PC) (iii) M.C.B. (1 PC) (iv) Indicating lights (3 PC) <u>For Excitor-</u> (i) Analog meter ammeter (0-2A), MC type (ii) Field rheostat(1no)	–	Make : Eletech/Shakti/MSW Rs. 59990.00	–	–
10	Description- Study of 3- ϕ synchronous capacitor Equipment Required- Study model of 3- ϕ synchronous capacitor for laboratory purposes	–	Make : Eletech/Shakti/MSW Rs. 45990.00	–	–
11	Computer with printer and LCD projector for demonstration	–	Make : Eletech/Shakti/MSW Rs. 119990.00	–	–
12	AC to Dc convertor with complete installation 50A	–	Make : Eletech/Shakti/MSW Rs. 79990.00	–	–
13	Exhaust Fan	–	Make : Eletech/Shakti/MSW Rs. 4500.00	–	–

ELECTRIC TRACTION LAB

Sl. No.	Name of Items with specification as per Tender				
1	<p><u>Description-</u> (a) Determination of speed torque characteristics of D.C. series motor (b) Determination of tractive force- speed characteristics of D.C. series motor under different diverter positions</p> <p><u>Equipment Required-</u> D.C. series motor 3HP, 220V, 1500rpm with prony brake loading arrangement consisting of CI drum pulley suitable for water- cooling dial type spring balances , canvas belt with hooks, threaded studs with wheel for lighting the belt, frame and base with control panel consisting of nicely powder coated M.S. fabricated box with engraved circuit fitted on the bakelite sheet panel with duly marked termination and also back door of the panel to have lock facility for safety of panel and</p> <p>(i) D.P.S.T switches (ii) 3 Point D.C. motor starter (iii) Regulator for motor (iv) Analog meter ammeter (0-1A) MC type (IPC)</p>	-	Make : Eletech/Shakti/MSW Rs. 58990.00	-	-

	(v)Analog meter voltmeter (0-300V) MC type (2pcs)(vi) Fuses				
2	<p>Description- (a) Study of train- movement mechanism (b) Study of speed time curves for train movement</p> <p>Equipment Required- Study model of train movement mechanism incorporating catenary, pantograph, bow-collector, C.Bs, tap changing transformer, metal rectifier, D.C.series motor, gear arrangement of motor pulley with wheel for mechanical power transfer to wheels, rail (all in model form, small size for lab purpose)</p>	–	–	–	–
3	Computer with printer and LCD projector for demonstration	–	Make : Standard Rs. 115000.00	–	–

ELECTRONICS & MICROPROCESSOR LAB

Sl. No.	Name of Items with specification as per Tender				
1	Study of logic trainer kit and verification of Truth Table in respect of following: a) AND gate b) OR gate c) NAND gate d) NOR gate e) EX-OR gate	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 1431.00	–	–	–
2	Study of the Microprocessor Kit (8085 based).	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 7155.00	–	–	–

3	Study of D-Flip Flop And T-Flip Flop.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3005.10	–	–	–
4	Programming to add two 8-bit numbers: Sum 8-bit.	–	Make : Eletech/Shakti/MSW Rs. 4990.00	–	–
5	Programming for 8-unit subtraction.	–	Make : Eletech/Shakti/MSW Rs. 4990.00	–	–
6	Decimal addition of two 8-bit numbers, Sum 16-bit.	–	Make : Eletech/Shakti/MSW Rs. 4990.00	–	–
7	Programming practice for 1's and 2's complement of a number.	–	–	–	–
8	Shifting an 8-bit number (left shift and right shift).	–	Make : Eletech/Shakti/MSW Rs. 5590.00	–	–
9	Program to find the largest and smallest numbers from a series of numbers stored in memory.	–	Make : Eletech/Shakti/MSW Rs. 5590.00	–	–
10	Program to arrange a series of numbers in ascending and descending order.	–	Make : Eletech/Shakti/MSW Rs. 5590.00	–	–
11	Interfacing of A/D converter (ADC 0800).	–	Make : Eletech/Shakti/MSW Rs. 2645.00	–	–

12	Display of Alphabetic and Numeric characters in the data field using LED display.	–	Make : Eletech/Shakti/MSW Rs. 2645.00	–	–
13	Measurement of Frequency.	–	Make : Eletech/Shakti/MSW Rs. 15990.00	–	–
14	Measurement and monitoring of Temperature.	–	Make : Eletech/Shakti/MSW Rs. 3845.00	–	–
15	To draw the static characteristic of a junction diode.	–	Make : Eletech/Shakti/MSW Rs. 1990.00	–	–
16	To measure the amplification factor of a NPN or PNP transistor.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2098.80	–	–	–
17	To connect a common emitter amplifier and measure the gain.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2098.80	–	–	–
18	Assembling and testing of a burglar's alarm etc.	–	Make : Eletech/Shakti/MSW Rs. 4390.00	–	–
19	Microprocessor Kit (8085 based)	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 7155.00	–	–	–
20	Trainer Board of junction diode	–	Make : Eletech/Shakti/MSW Rs. 1990.00	–	–
21	Logic gate trainer board	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 1621.80	–	–	–

22	CRO 30MHz Dual Trace		Make : Eletech/Shakti/MSW Rs. 28990.00	-	-
23	D/T flip-flop	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3052.80		-	-
24	Common Emitter Transistor set	-	Make : Eletech/Shakti/MSW Rs. 2645.00	-	-
25	Analog to digital converter interface card	-	Make : Eletech/Shakti/MSW Rs. 2645.00	-	-
26	4 Digit seven segment display interface card	-	Make : Eletech/Shakti/MSW Rs. 2645.00	-	-
27	DAC Kit	-	Make : Eletech/Shakti/MSW Rs. 2645.00	-	-
28	Temperature measurement & controller card	-	Make : Eletech/Shakti/MSW Rs. 3845.00	-	-
29	Computer with printer and LCD projector for demonstration	-	Make : Eletech/Shakti/MSW Rs. 119990.00	-	-
30	Split inventor AC with stabilizer	-	Make : Eletech/Shakti/MSW Rs. 81990.00	-	-

CONTROL SYSTEM LAB

Sl. No.	Name of Items with specification as per Tender				
1	Study of D. C. position control servomechanism system.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 38541.60	-	-	-
2	Study of Control System Components.		Make : Eletech/Shakti/MSW Rs. 38990.00	-	-
3	Transient Response of First Order System.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned	-	-	-

		Rs. 23850.00			
4	Transient Response of Second Order System.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 23850.00	–	–	–
5	Frequency Response of Second Order System.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 25376.40	–	–	–
6	ON-OFF temperature Control.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 12402.00	–	–	–
7	Analogue Computer, Solution of different equation..	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 9921.60	–	–	–
8	Open loop speed control of DC motor set	–	Make : Eletech/Shakti/MSW Rs. 32990.00	–	–
9	Closed loop speed control of DC motor set	–	Make : Eletech/Shakti/MSW Rs. 32990.00	–	–
10	Basic feedback control system set	–	Make : Eletech/Shakti/MSW Rs. 29990.00	–	–
11	Type '0' control system trainer set	–	Make : Eletech/Shakti/MSW Rs. 21990.00	–	–
12	Type '1' control system trainer set	–	Make : Eletech/Shakti/MSW	–	–

			Rs. 21990.00		
13	Type '2' control system trainer set	–	Make : Eletech/Shakti/MSW Rs. 19990.00	–	–
14	Test signal generator for type 0,1,2 system	–	Make : Eletech/Shakti/MSW Rs. 38990.00	–	–
15	Temperature control system	–	Make : Eletech/Shakti/MSW Rs. 32990.00	–	–
16	Bode plot trainer	–	Make : Eletech/Shakti/MSW Rs. 31990.00	–	–
17	DC Position servo system trainer set	–	Make : Eletech/Shakti/MSW Rs. 36990.00	–	–
18	AC Position servo system trainer set	–	Make : Eletech/Shakti/MSW Rs. 36990.00	–	–
19	Computer with printer and LCD projector for demonstration	–	Make : Eletech/Shakti/MSW Rs. 119990.00	–	–

ELECTRICAL MEASUREMENT LAB

Sl. No.	Name of Items with specification as per Tender				
1	Calibration of Ammeter by D.C. Potentiometer.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 10398.60	-	-	-
2	Study of Transducers.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 21465.00	-	-	-
3	Extension of Range of Ammeter and Voltmeters.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3577.50	-	-	-

4	Calibration of Wattmeter.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 16885.80	-	-	-
5	Testing of Energy Meter.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 13260.60	-	-	-
6	Measurement of single phase power without using wattmeter.	-	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 38990.00	-	-
7	Measurement of R, L, & C using Kelvin's Double Bridge Method.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 12163.50	-	-	-
8	Measurement of Dielectric strength of Transformer Oil.	-	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 23990.00	-	-
9	Measurement of Point of fault in a given cable.	-	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 62990.00	-	-
10	Kelvin's double bridge trainer kit Input voltage=15 V AC, output voltage=5V AC, output current=1A	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 12115.80	-	-	-
11	LCR Q meter	-	-	-	Make : MSW/Eletech

	R=0.01 milli ohm to 990 ohm, L=0.001H to 9900H, C=0.001 pf to 99000 microfarad.				Rs. 15000.00
12	Single phase energy meter experimental set Rated voltage 240 V(rms),operating voltage 140 to 300V, Basic current 2.5/5/10 A, Power consumption in voltage circuit < 1.5watts, Power consumption in current circuit < 2.5VA, Temperature range=10 to 60°C	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 25185.60	–	–	–
13	Earth tester experimental set 4 terminal type, provided with Ni-Cd rechargeable battery, housed in rugged ABS body, display should be of 3V, 2 digit LCD and accuracy of 1.5%	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 9349.20	–	–	–
14	3 phase balanced load current rating of 20 A, voltage rating of 0-500V, 5KW	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 23850.00	–	–	–
15	3 phase wattmeter Measure 3-phase totals for watts, VA, VAR, P.F., 500V, 15A,	–	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 9945.00	–	–

	Typical accuracy of 0.2%				
16	Current Transformer Class 0.1or 0.2 for precision measurement, burden of 1-2 VA for moving iron ammeter, VA of 2.5 for low consumption relay.	–	–	–	Make : MSW/Eletech Rs. 4500.00
17	Potential Transformer Burden of 100VA, class of accuracy=0.5	–	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 5290.00	–	–
18	3 phase energy meter,(3 phase, 40A)digital/analog experimental set	–	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 4245.00	–	–
19	Star delta starter manual/automatic	–	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 7890.00	–	–
20	DC voltmeter (Bakelite stand) range:0-3V, 0-5V, 0-10V	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 238.50	–	–	–
21	DC voltmeter (Bakelite stand) range: 0-100mV	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 238.50	–	–	–
22	DC ammeter (Bakelite stand) range:0-1A, 0-1.5A, 0-3A, 0-5A	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned	–	–	–

		Rs. 238.50			
23	Stopwatch Swiss 1/10 second, stop watch smith English metal body start stop and fly back action	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 5724.00	-	-	-
24	LVDT study set	-	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 15890.00	-	-
25	Strain gauge study kit	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 13260.60	-	-	-
26	D.C dual power supply o/p=0 to 30 V, 3A, 90 watts, i/p=100 to 345 V AC, 50 Hz, 0.6 to 0.3 A	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 8490.60	-	-	-
27	Regulating variable power supply, 0-30V, 5A	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 7155.00	-	-	-
28	Cathode Ray Oscilloscope Operating modes: channel I, channel II, channel I X-Y operation (Ratio 1:1 Input via CH II), Add/Sub CH I±CH II, Invert CH II Bandwidth: 30 MHz (-	-	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 29990.00	-	-

	3dB) electronic control, display on 32 character bakelit alphanumeric LCD.				
29	Digital multimeter	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 267.12	–	–	–
30	Computer with printer and LCD projector for demonstration	–	–	–	–
31	Split inventor AC with stabilizer	–	–	–	–
32	Digital Energy Meter	–	–	–	–
33	Wiens Bridge	–	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 6490.00	–	–
34	Maxwells Bridge	–	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 6490.00	–	–
35	Whetstones Bridge	–	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3790.00	–	–
36	Power Factor Meter(1Hz to 10Hz,voltage up to 250v)	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3672.90	–	–	–

ELECTRICAL ENGINEERING LAB

Sl. No.	Name of Items with specification as per Tender				
1	<p><u>Description-</u></p> <p>a) Determination of hysteresis loop of generator</p> <p>b) Determination of external characteristic/percentage voltage of a shunt generator against percentage output load.</p> <p>c) Determination of external characteristic of a generator by performing open circuit and short circuit test.</p> <p>d) Determination of armature resistance and field coil resistance by</p>	-	Make : Eletech/Shakti/MSW Rs. 110990.00	-	-

	<p>voltmeter and ammeter method with D.C. supply.</p> <p>e) Determination of magnetization characteristic (O.C.C.) of a D.C. shunt generator</p> <p>f) Determination of efficiency of two similar generators coupled (Hopkinson's test/regenerative test)</p> <p>Equipment Required- D.C. shunt generator, 110V/220V/230V, 8A, 5KW along with D C Moter as prime mover</p>				
2	<p>Description- Determination of external characteristic/percentage voltage of a series generator against percentage output load.</p> <p>Equipment Required- D.C. series generator, 110V/220V/230V, 8A, 5KW along with prime mover.</p>	-	Make : Eletech/Shakti/MSW Rs. 111545.00	-	-
3	<p>Description- Determination of family of external characteristic/percentage voltage curves of a compound generator performing load test as shunt, cumulative compound and differentially compounded generator.</p> <p>Equipment Required- D.C. compound generator, 110V/220V/230V, 8A, 5KW along with prime</p>	-	-	-	Make : MSW/Eletech Rs. 29500.00

	mover.				
4	<p>Description- Study of D.C. machine including development of armature winding.</p> <p>Equipment Required Study set for D.C. machine</p>	<p>Make: Mars/ASICO/SSI/OM/MASS International or Mentioned</p> <p>Rs. 41022.00</p>	-	-	-
5	<p>Description-</p> <p>a) Determination of percentage speed verses field current characteristic curve of a shunt motor.</p> <p>b) Determination of percentage speed verses armature voltage curve at full excitation and half excitation (like Wardleopard control).</p> <p>c) Study of speed control of D.C. shunt motor (various methods)</p> <p>Equipment Required- D.C. shunt motor, 3HP, 220V, 1500 rpm</p>	<p>Make: Mars/ASICO/SSI/OM/MASS International or Mentioned</p> <p>Rs. 74030.40</p>	-	-	-
6	<p>Description- Determination of percentage speed, percentage efficiency and percentage regulation curve against percentage output of a D.C. shunt motor by performing load test with mechanical braking arrangement.</p> <p>Equipment Required- D.C. shunt motor 3HP, 220V, 1500rpm with</p>	<p>Make: Mars/ASICO/SSI/OM/MASS International or Mentioned</p> <p>Rs. 57049.20</p>	-	-	-

	mechanical braking arrangement.				
7	<p>Description- Determination of family of curves of percentage speed verses output of a shunt motor by putting different values of resistance in series with the armature and performing load test.</p> <p>Equipment Required- D.C. shunt motor 3HP, 220V, 1500rpm with armature resistance control arrangement.</p>	–	Make : Eletech/Shakti/MSW Rs. 71990.00	–	–
8	<p>Description- Determination of percentage speed, percentage efficiency and percentage regulation curve against percentage output of a D.C. series motor by performing load test with mechanical braking arrangement.</p> <p>Equipment Required- D.C. series motor 3HP, 220V, 1500rpm with mechanical braking arrangement.</p>	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 57049.20	–	–	–
9	<p>Description- Determination of percentage speed, percentage efficiency and percentage regulation curve against percentage output of a D.C. compound motor by performing load test with mechanical braking arrangement.</p> <p>Equipment Required-</p>	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 57049.20	–	–	–

	D.C. compound motor 3HP, 220V, 1500rpm with mechanical braking arrangement.				
10	Description- Study of three point manual starter Equipment Required- Three point D.C. motor starter	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3148.20	-	-	-
11	Description- Study of four point manual starter Equipment Required- Four point D.C. motor starter	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3148.20	-	-	-
12	Description- Study of automatic starter of a D.C. motor Equipment Required- Automatic starter of D.C. motor	-	Make : Eletech/Shakti/MSW Rs. 22990.00	-	-
13	Description- Study of drum controller of a D.C. series motor Equipment Required- Drum controller of D.C. series motor	-	Make : Eletech/Shakti/MSW Rs. 42990.00	-	-
14	DC voltmeter (Bakelite stand) range: 0-230V	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 238.50	-	-	-
15	DC ammeter (Bakelite stand) range:0-10A	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 238.50	-	-	-
16	Computer with printer and LCD projector for demonstration	-	Make : Eletech/Shakti/MSW Rs. 119990.00	-	-

17	Exhaust Fan	-	Make : Eletech/Shakti/MSW Rs. 4500.00	-	-
18	1 phase Resistance load 10KW	-	Make : Eletech/Shakti/MSW Rs. 28990.00	-	-
19	3 Phase Resistance load 10KW	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 31482.00	-	-	-
20	3 Phase Inductive load 5KVA	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 39114.00	-	-	-
21	Cut section of 1 phase Transformer rating 2 KVA, range 280V tapping 100%, 60%, 33%,	-	Make : Eletech/Shakti/MSW Rs. 14990.00	-	-

COMPUTER SCIENCE & ENGINEERING LAB.

Sl. No.	Name of Items with specification as per Tender				
1	Desktop computer-Processor	-	-	-	-
2	Specification of Server - 1No.	-	-	-	-
2	Web Camera.	-	-	-	-
3	Operating System	-	-	-	-
4	Computer Lab Equipment (UPS)	-	-	-	-
	Laser Printer	-	-	-	-
	Computer Table	-	-	-	-
	Revolving chair for computer	-	-	-	-

	Electrical point for each computer	–	–	–	–
6	BCIT LAB.	–	–	–	–
7	C. Lab. (00307)	–	–	–	–
8	CoA Lab. (18308)	–	–	–	–
9	Digital Electronics and Microprocessor Lab	–	–	–	–
10	DBMS Lab. (18406)	–	–	–	–
11	DCN Lab. (18506)	–	–	–	–
12	SYSTEM aintenance Lab. (18508)	–	–	–	–
13	Visual Basic Lab. (18606)	–	–	–	–

Department of Electronics Engg.
Electronic Measurement and Instrumentation

Sl. No.	Name of Items with specification as per Tender				
1	Standard AC bridges kit	–	Make : Eletech/Shakti/MSW Rs. 6145.00	–	–
2	Frequency Counter	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 4655.52	–	–	–
3	VSWR Meter	–	Make : Eletech/Shakti/MSW Rs. 16545.00	–	–
4	Measurement of displacement using LVDT	–	Make : Eletech/Shakti/MSW Rs. 14990.00	–	–

5	Anderson's bridge	–	Make : Eletech/Shakti/MSW Rs. 6125.00	–	–
6	Kelvin's bridge	–	Make : Eletech/Shakti/MSW Rs. 11845.00	–	–
7	Wien's bridge	–	Make : Eletech/Shakti/MSW Rs. 6145.00	–	–
8	Maxwell's bridge	–	Make : Eletech/Shakti/MSW Rs. 6145.00	–	–
9	Whetstone's bridge	–	Make : Eletech/Shakti/MSW Rs. 3245.00	–	–
10	Conversion of galvanometer into a ammeter	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2385.00	–	–	–
11	Conversion of galvanometer into a voltmeter	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2385.00	–	–	–
12	Strain Gauge	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 13356.00	–	–	–
13	Desktop With Printer	–	Make : Eletech/Shakti/MSW Rs. 119990.00	–	–

14	Dual DC Regulated Power supply	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 6105.60		–	–
15	Dual Trace CRO, 30MHz with accessories	–	Make : Eletech/Shakti/MSW Rs. 29990.00	–	–
16	Digital LCR Meter	–	Make : Eletech/Shakti/MSW Rs. 3190.00	–	–
17	Universal/LCR Bridge	–	–	–	–

Electronic Construction & Repair Lab.

Sl. No.	Name of Items with specification as per Tender				
1	Soldering Station Soldering Power consumption 60W Input voltage 170 to 270 V Temperature range 180 to 270V Temp stability tolerance at idling time Tip to ground potential under 2 mV Tip to ground resistance under 2 Ohms Desoldering 70 Watts Input 170 to 270 V AC Temp CPump diaphragm type Vacuum 600 mm/Hg □ range 180 to	–	–	–	Make : MSW/Eletech Rs. 12500.00

	<p>480 Soldering & Desoldering</p> <p>1. Unit 2. Complete Soldering Handle 01 No.3. Complete Desoldering Handle 01 No.4. Stand Soldering 01 No.5. Stand Desoldering 01 No.6. Sponge 02 No.7. Fibre Filters(Primary/Small) 01 No.(Secondary/ Big) 01 No. 8. Cleaning Springs 01 No.9. Glass Tubes 01 No.10. Mains Cord 01 No.</p>				
2	<p>Drill Machine</p> <p>The drill machine is used for making drills in the PCB. This is provided with different size of drill bits for making drills in the PCB. Supply : 230V AC ± 10%, 50Hz RPM : 1500 which are adjustable in steps. Drill bits : 0.8mm - 5 Nos. 1.0 mm - 5 Nos.</p>	<p>Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3816.00</p>	-	-	-
3	<p>PCB Design & Fabrication Complete setup PCB Art Work Film Maker</p>	-	-	-	-
4	Calculator Trainer	-	-	-	-
5	Digital Clock Trainer	-	-	-	-
6	Emergency Light Trainer	-	-	-	-

7	Exhaust Fan	–	–	–	–
8	Air Blower	–	–	–	–
9	Vaccum Cleaner	–	–	–	–
10	Tag Board	–	–	–	–
11	Soldering stand	–	–	–	–
12	Soldering iron ,60 watt.	–	–	–	–
13	Soldering wire	–	–	–	–
14	Desoldering Pump	–	–	–	–
15	20 MHz dual trace CRO	–	–	–	–
16	Auto Stabliser kit for input 110 to 300 V of 1KVA.	–	–	–	–
17	Radio kit for Demonstration IC based	–	–	–	–

Digital Electronics & Microprocessor Lab.

Sl. No.	Name of Items with specification as per Tender				
1	Expt. board for verification and interpretation of truth table for AND,OR,NOT,NAND,NOR,XOR, XNOR, Gates.	–	Make : Eletech/Shakti/MSW Rs. 1690.00	–	–
2	Expt. Board for construction of half adder using gates.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 1717.20	–	–	–
3	Expt. Board for construction of full adder using gates.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2098.80	–	–	–
4	Expt. Board for verification operation of a 8- bit D/A converter.	–	Make : Eletech/Shakti/MSW	–	–

			Rs. 3990.00		
5	4 bit adder, 2's compliment subtractor ckt. using 4 bit adder IC and an XOR IC kit to verify its operation	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3577.50	–	–	–
6	Kit to verify the truth table for +ve edge triggered, -ve edge triggered, level triggered IC flip flops (at least one IC each of D latch, D flip flop, JK flip flop)	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3386.70	–	–	–
7	Kit to verify the truth table for encoder and decoder IC's, mux and DeMux.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3911.40	–	–	–
8	Basic digital Electronics kit	–	Make : Eletech/Shakti/MSW Rs. 7490.00	–	–
9	4 bit adder and subtractor kit	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2957.40	–	–	–
10	Flip flop kit	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2432.70	–	–	–
11	Multiplexer de-multiplexer kit	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2957.40	–	–	–
12	Digital frequency meter/universal counter/timer experimental kit	–	Make : Eletech/Shakti/MSW	–	–

			Rs. 7645.00		
13	Logic probes TTL and CMOS	–	Make : Eletech/Shakti/MSW Rs. 1990.00	–	–
14	Logic trainer boards	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 1621.80	–	–	–
15	Universal programmer	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 14310.00	–	–	–
16	EPROM programmer	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 15264.00	–	–	–
17	EPROM eraser	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 8156.70	–	–	–
18	Half and full subtractor ckt. from universal gate	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3052.80	–	–	–
19	RS flip-flop	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2909.70	–	–	–
20	4-Bit Binary Counter	–	Make :	–	–

			Eletech/Shakti/MSW Rs. 2890.00		
21	4-Bit Decade Counter	–	Make : Eletech/Shakti/MSW Rs. 2845.00	–	–
22	4 Bit BCD Counter	–	Make : Eletech/Shakti/MSW Rs. 2890.00	–	–
23	4 Bit Binary ripple counter	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2909.70	–	–	–
24	4 Bit BCD Adder	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2909.70	–	–	–
25	4 Bit BCD Subtractor	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2909.70	–	–	–
26	Binary to BCD Converter	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2623.50	–	–	–
27	Binary to grey Converter	–	Make : Eletech/Shakti/MSW Rs. 2490.00	–	–
28	Binary to decimal	–	Make : Eletech/Shakti/MSW	–	–

			Rs. 2890.00		
29	BCD to Seven segment decoder	–	Make : Eletech/Shakti/MSW Rs. 2845.00	–	–
30	Code Converter	–	Make : Eletech/Shakti/MSW Rs. 2890.00	–	–
31	8085 Microprocessor Trainer	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 7202.70	–	–	–
32	8086 Microprocessor Trainer	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 10064.70	–	–	–
33	Universal IC Tester	–	–	–	Make : MSW/Eletech Rs. 21500.00
34	Digital Multimeter	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 267.12	–	–	–
35	ADC Kit	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned	–	–	–

		Rs. 2766.60			
36	30MHz. Dual Trace Oscilloscope	–	Make : Eletech/Shakti/MSW Rs. 29990.00		
37	Logic Probe	–	–	–	–

Radio & T.V. Engg. Lab.

Sl. No.	Name of Items with specification as per Tender				
1	Remote controlled Colour T.V trainer (21")	–	Make : Eletech/Shakti/MSW Rs. 39990.00	–	–
2	Black & White T.V. trainer (20")	–	Make : Eletech/Shakti/MSW Rs. 33990.00	–	–
3	Black & White T.V. trainer (14")	–	Make : Eletech/Shakti/MSW Rs. 29990.00	–	–
4	V.C.R. Trainer	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned	–	–	–

		Rs. 31482.00			
5	Audio CD/VCD/MP3 Player trainer	–	Make : Eletech/Shakti/MSW Rs. 17545.00	–	–
6	DVD Player trainer	–	Make : Eletech/Shakti/MSW Rs. 17845.00	–	–
7	LCD Monitor trainer	–	Make : Eletech/Shakti/MSW Rs. 25845.00	–	–
8	Tuner section of B&W T.V	–	–	–	–
9	Video I.F. section of B&W T.V	–	–	–	–
10	Sound I.F. section of B&W T.V	–	–	–	–
11	Horizontal drive and EHT section of B&W T.V.	–	–	–	–
12	Electronic tuner and EHT section of B&W T.V.	–	–	–	–
13	Electronic tuner section of Colour T.V.	–	–	–	–
14	Video I.F section	–	–	–	–
15	Sound I.F section	–	–	–	–

16	Horizontal oscillator section	-	-	-	-
17	Vertical Oscillator & output section	-	-	-	-
18	Horizontal driver and EHT section	-	-	-	-
19	Switch mode power supply(SMPS)	-	-	-	-
20	Colour decoder section	-	-	-	-
21	Video transmitter trainer	-	-	-	-

Electronics Circuit Lab.

Sl. No.	Name of Items with specification as per Tender				
1	Transistor CB and CE configuration kit	-	Make : Eletech/Shakti/MSW Rs. 3290.00	-	-
2	Fre. Response, of direct- coupled amp. kit	-	Make : Eletech/Shakti/MSW Rs. 1990.00	-	-
3	Fre. Response of R.C- coupled amp. kit	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2289.60	-	-	-
4	Charce. Of a transformer- coupled amp. kit	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3052.80	-	-	-
5	Push- pull amp kit	Make:	-	-	-

		Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2766.60			
6	Charac. curves ,of FET kit	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3052.80	–	–	–
7	Wien bridge oscillator kit	–	Make : Eletech/Shakti/MSW Rs. 1990.00	–	–
8	Phase shift oscillator kit	–	Make : Eletech/Shakti/MSW Rs. 1990.00	–	–
9	Operational amp. Complete kit using IC 741 (Adder, subtract or, integrator, differentiator, comparator, etc.)	–	Make : Eletech/Shakti/MSW Rs. 4290.00	–	–
10	Multivibrator kit using IC 555 (Astable, Monostable, Biastable)	–	Make : Eletech/Shakti/MSW Rs. 3545.00	–	–

Advance Communication System Lab.

Sl. No.	Name of Items with specification as per Tender				
1	Amplitude Modulation/demodulation system trainer	–	Make : Eletech/Shakti/MSW Rs. 4690.00	–	–
2	DSB-SC AM Modulation/demodulation system trainer	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 7393.50	–	–	–
3	Amplitude modulation/demodulation using I.C.	–	Make : Eletech/Shakti/MSW Rs. 5290.00	–	–

4	PLL FM Modulation/demodulation	–	Make : Eletech/Shakti/MSW Rs. 5790.00	–	–
5	Sampling Theorem Trainer (Sampling & Reconstruction)	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 11448.00	–	–	–
6	Time division multiplexing/demultiplexing system trainer	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 6201.00	–	–	–
7	AM/DSB/SSB Kit	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 25376.40	–	–	–
8	Noise- audio kit	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3243.60	–	–	–
9	Voltage controlled oscillator(V.C.O.) Module	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3052.80	–	–	–
10	Phase locked loop (PLL) Module	–	Make : Eletech/Shakti/MSW Rs. 6990.00	–	–
11	Pre- emphasis & De- emphasis module	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 7011.90	–	–	–

12	Phase code modulation/demodulation system trainer	-	Make : Eletech/Shakti/MSW Rs. 10990.00	-	-
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Electronics Engg. Deptt. (Power Electronics Lab)

Sl. No.	Name of Items with specification as per Tender				
1	Characteristics of SCR	-	Make : Eletech/Shakti/MSW Rs. 3090.00	-	-
2	Characteristics of diac & triac	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 4626.90	-	-	-
3	SCR Triggering Circuits	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned	-	-	-

		Rs. 4006.80			
4	AC and DC Power Control Trainer	–	–	–	Make : MSW/Eletech Rs. 13500.00
5	AC Phase Control using SCR	–	–	–	Make : MSW/Eletech Rs. 4500.00
6	AC Phase control using diac & triac	–	–	–	Make : MSW/Eletech Rs. 4500.00
7	DC regulated power supply using SCR	–	Make : Eletech/Shakti/MSW Rs. 5575.00	–	–
8	AC regulated power supply using triac	–	Make : Eletech/Shakti/MSW Rs. 5690.00	–	–
9	Inverter using power Transistors	–	Make : Eletech/Shakti/MSW Rs. 24545.00	–	–
10	Inverter using power MOSFET	–	Make : Eletech/Shakti/MSW Rs. 14545.00	–	–
11	Series Inverter using SCR	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 15836.40	–	–	–
12	Parallel Inverter using SCR	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 15836.40	–	–	–

13	Single phase half wave controlled rectifier trainer	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 5580.90	–	–	–
14	Single phase full wave bridge controlled rectifier trainer	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 5819.40	–	–	–
15	UJT Characteristic Kit	–	–	Make : Apex/Jyoti Rs. 690.00	–
16	Speed control of DC motor using SCR with 12 V DC motor	–	Make : Eletech/Shakti/MSW Rs. 7490.00	–	–
17	UJT relaxation oscillator experimental kit	–	Make : Eletech/Shakti/MSW Rs. 1990.00	–	–
18	TRIAC based AC phase control experimental kit for varying lamp intensity and AC fan speed control	–	Make : Eletech/Shakti/MSW Rs. 5490.00	–	–
19	Power supply training system using ICs	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 3482.10	–	–	–

Electronics Engg. Deptt.

Sl. No.	Name of Items with specification as per Tender				
1	Computer intel Core i3, 3.6 GHz, 3MB cache, 4 GB RAM, 500GB HDD, 18.5" LED Monitor, Window-7 preinstalled	-	-	-	-
2	UPS 750 VA	-	-	-	-
3	Printer (HP Laser Jet Pro) P1108	-	-	-	-
4	Printer 3 in 1 (HP Laser Jet Pro M 1136)	-	-	-	-

5	MATLAB 10-User License with one year technical support	-	-	-	-
6	Projector (3LCD, 3-Chip Technology (1024x768), 2300 lumens, Screen size 30"-300"	-	-	-	-

Basic Physics Lab

Sl. No.	Name of Items with specification as per Tender				
1	Searle's apparatus full set.	-	Make : Eletech/Shakti/MSW Rs. 945.00	-	-
2	Capillaries of different bores with accessories	-	Make : Eletech/Shakti/MSW Rs. 545.00	-	-
3	Stokes apparatus full set. (viscosity)	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 1526.40		-	-
4	Boyle's law apparatus	-	Make : Eletech/Shakti/MSW Rs. 4500.00	-	-

5	Thermocouple	–	Make : Eletech/Shakti/MSW Rs. 4500.00	–	–
6	Pullingere's apparatus	–	Make : Eletech/Shakti/MSW Rs. 1745.00	–	–
7	Laser light	–	Make : Eletech/Shakti/MSW Rs. 545.00	–	–

Applied Science Lab (Physics)

Sl. No.	Name of Items with specification as per Tender				
1	Resonance tube full set.	–	Make : Eletech/Shakti/MSW Rs. 1190.00	–	–
2	Bunsen's Photo meter full set.	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 954.00	–	–	–
3	Joule's constant apparatus	–	Make : Eletech/Shakti/MSW Rs. 26990.00	–	–

4	Newton's ring with Sodium light.	–	Make : Eletech/Shakti/MSW Rs. 17545.00	–	–
5	Sono meter	–	Make : Eletech/Shakti/MSW Rs. 1290.00	–	–
6	Prism	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 57.24	–	–	–
7	He-Ne laser beam	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 23850.00	–	–	–
8	Oersted's Experiment apparatus	–	Make : Eletech/Shakti/MSW Rs. 79990.00	–	–
9	Sphecto meter	–	Make : Eletech/Shakti/MSW Rs. 6145.00	–	–
10	Compound bar Pendulum	–	Make : Eletech/Shakti/MSW Rs. 845.00	–	–
11	Spring	–	Make : Eletech/Shakti/MSW Rs. 190.00	–	–

Chemistry Lab.

Sl. No.	Name of Items				
1	Burette 50 ml – All Borosilicate	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 114.48	–	–	–
2	Burette Stand superior Quality - Made of Heavy Duty Matreial	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 381.60	–	–	–

3	Burette Stand normal quality	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 305.28	-	-	-
4	Pipette 10 ml	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 28.62	-	-	-
5	Pipette 20 ml	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 38.16	-	-	-
6	Pipette Stand	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 286.20	-	-	-
7	Test Tube	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 11.45	-	-	-
8	T.T. Stand Heavy Duty Material	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 38.160	-	-	-
9	Reagent Bottle 250 ml Borosillicate Glass	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 152.64	-	-	-
10	Reagent Bottle 125 ml Borosillicate Glass	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned	-	-	-

		Rs. 114.48			
11	Measuring Cylinder 100 ml Borosillicate Glass	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 76.32	–	–	–
12	Other Glass Items one kit		–	–	–
13	pH Meter digital	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 4770.00	–	–	–
14	Dissolved Oxygen Meter Digital	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 7632.00	–	–	–
15	Electronic Balance 10 mg 300 mg	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2289.60	–	–	–
16	Tripod Stand Superior Quality		Make : Standard Rs. 80.00	–	–
17	Wire Mash	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 19.08	–	–	–
18	Magnetic Stirrer	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 2623.50	–	–	–
19	Magnetic Stirrer with hot plate	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned	–	–	–

		Rs. 3672.90			
20	TDS Meter Portable	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 6868.80	–	–	–
21	Lab Tool Kit		–	–	–
22	Distillation Apparatus Borosilicate Glass	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 1908.00	–	–	–
23	Heating Mantle 500 ml 200 Wattage	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 1431.00	–	–	–
24	Heating Mantle 1000 ml 200 Wattage	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 1688.58	–	–	–
25	Thermometer Mercury	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 95.40	–	–	–
26	Water Bath - Rectangular Double Walled Thermostatic control Size : 300x250x100 mm with 6 holes of 75 mm dia. Capacity – 8 Litres	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 4770.00	–	–	–
27	China Dish		Make : Rs. 26.00	–	–
28	Dessicator – All Clear Made up of Polycarbonate – Full	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned	–	–	–

	Transparent – Size 150 mm	Rs. 1411.92			
29	Rectangular Muffle Furnance Inner Muffle Size:- 9”x4”x4”	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 19080.00	–	–	–
30	Universal Oven Size – 14”x14”x14”, Number of Selves – 2 Capacity – 45 Liters with three side heating element – Made of S.S	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 9540.00	–	–	–
31	Stop Watch	Make: Mars/ASICO/SSI/OM/MASS International or Mentioned Rs. 572.40	–	–	–
32	Chemicals		–	–	–