

ADP Scheme - 778 (110489)

(Package-7)

Civil Concrete Technology for DAE

1. GPI Peshawar Sardar Ghari, 2. GPI Mardan

S#	Name of Items	Specification	Unit	For one college Qty	For 2 college Qty	Unit Price (Both in Figures and words) Inclusive all taxes	Total Price (both in Figures and words) Inclusive all taxes
1	VICAT APPARATUS SAST/BS	Specification (for initial and final setting time of cement) Hand operated Vicat apparatus, formed of a metal frame. Ø 10 mm sliding plunger weighing 300 gm and a graduated scale. Complete with needle Ø 1.13 mm. for initial setting time, final setting time needle, glass plate Ø 120 mm Accessories: 1. Needle Ø 1 mm for initial setting time. 2. Needle Ø 1.13 mm for final setting time. 3. Glass plate Ø 120mm. 4. Vicat Mould ASTM.	No	2	4		
2	PLANETARY MIXER ASTM/BS	Specification (For cement mortars), composed by bowl and beater made in stainless steel. The control panel is composed by the on-off switch, two positions speed switch and lights. Bowl capacity: Min 4 lit Spare Parts: 1. STAINLESS STEEL BOWL, capacity. Min 4 lit. 2. STAINLESS STEEL BEATER.	No	1	2		
3	LE-CHATLIER'S APPARATUS: BS/ASTM	For soundness of cement) LE CHATELIER WATER BATH, Made of stainless steel and incorporates a 1000 W heater enabling the water to reach boiling point within 25 minutes. Regulation of temperature through hydraulic thermostat from +5 to 100°C. Complete with resistance-tray, cover and thermometer. Allow to realize different tests simultaneously. Power supply: 220 V. 50 Hz.	No	2	4		

		LE CHATELIER MOULD, Ø 30 x 300 mm. Long. LE CHATELIER GLASS PLATES (2), 50 x 50 mm. LE CHATELIER CLIP to hold the glass plates					
4	LE CHATELIER FLASK ASTM/BS	Specification (Relative density of hydraulic cement). Graduated from Ø to 1 ml. and from 18 to 24 cm ³ Capacity: 250 ± 0.05 cm ³	No	2	4		
5	FLEXURAL/COMPRESS ION TESTING MACHINE, 300 KN ASTM /BS	With motorized hydraulic power pack fitted with adjustment of the load gradient , rapid approach device and relieve valve The frame is assembled seamless, with electronic display of load. supplied with a 170 mm Ø upper platen, articulated and hardened and with a170 mm Ø lower platen 35 mm thick. Complete with instruction manual and ENAC certificate of calibration. Ram travel : 42 mm Max vertical clearance : 193 mm Horizontal clearance: 210 mm Accuracy: +_ 1 % Power supply: 220-240 V. 50Hz	No	1	2		
6	MOTORISED FLEXURAL/TENSILE MACHINE, 10 KN, ASTM /BS	Specification Used to determine the flexural strength of 40 x 40 x 160 mm. mortar specimens and the tensile strength of briquettes. Composed of a massive aluminium frame with a horizontal graduated beam, complete with weights and counterweights. The steelyard comprises a graduated beam with three read-out scales. The machine is motorized and it ensures a constant increase of the load of 50 ±10 N/sec. It can be operated either in non-stop automatic mode or in start-stop mode driven by the operator's commands. When the specimen fails, the machine automatically stop. A limit switch is however foreseen at full scale. The specimen jaws have to be ordered separately.	No	1	2		

		<p>Accuracy: $\pm 1\%$. Power supply: 220-240 V. 50 Hz. Accessories: FLEXURAL JAWS, for flexural test according to ASTM. FLEXURAL JAWS, for tensile test according to BS and ASTM. SINGLE MOULD, used for the preparation of mortar briquettes, according to ASTM standards. Dimensions: 320 x 110 x 400 mm. THREE-GANG MOULD, used for the preparation of tar briquettes, according to ASTM standards.</p>					
7	<p>SAND EQUIVALENT APPARATUS ASTM /BS</p>	<p>Specification Set includes :- 1. Plastic measuring cylinders. 4 nos. 2. Weighted foot assembly 1no. 3. Irrigator tube. 1 no. 4. Rubber tubing (1 m) complete with pinch clip. 1no 5. Syphon assembly, with 5 liter polythene bottle 1no. 6. Funnel 1 no. 7. Carrying case. 1 no. 8. Measuring can, 85 cm³ capacity, and 1 no. Accessories: 1. Calcium chloride. 2.5 kg 2. Form aldehyde. 40 % solution, 2.5 liters 3. Glycerol analar. 2.5 liter 4. Mechanical sand equivalent shaker, ASTM METHOD 220-240V AC, 50Hz, single phase</p>	No	2	4		
8	<p>ELECTROMAGNETIC SIEVE SHAKER, with Standard sieves set , ASTM /BS</p>	<p>Specification Activated by electromagnetic impulses. It is particularly recommended to carry out sieving test where high precision and performance are important. This electromagnetic shaker is of simple and sturdy construction, it is also suitable for wet sieving tests along electronic control panel. The vibrating intensity and the pauses between one vibration and the following one (this is especially indicated for fine material sieving). The sieve shaker can hold up to 10 sieves. Standard sieves set , ASTM C 33-13</p>	No	2	4		

		(for fine and Coarse aggregates): Of Ø 200 mm x 50 mm with hole With compatible electromagnetic sieve shaker.					
9	CYLINDICAL METAL MEASURES PROVIDED WITH HANDLES , ASTM C29	Specification. (For bulk density of aggregate) BULK DENSITY 30 dm ³ , complete with carrying handles BULK DENSITY 15 dm ³ , complete with carrying handles BULK DENSITY 10 dm ³ , complete with carrying handles BULK DENSITY 3 dm ³ , complete with carrying handles BULK DENSITY 1 dm ³ , complete with carrying handles STEEL ROD, Ø 16 x 600 mm.	No	2	4		
10	FLAKINESS GAUGE, BS /ASTM (complete set).	Specification To measure the flakiness index of aggregates. Made in galvanized sheet with Set of seven square flakiness sieves made of painted sheet.	No	3	6		
11	LENGTH GAUGE, BS/ ASTM	For measuring the length index of aggregates	No	3	6		
12	BUOYANCY BALANCE , 6000g x 0.1 g, ASTM/ BS	Specification. (For particle density (specific gravity) and water absorption) The Buoyancy balance system consists of a rigid support frame, incorporating a water tank mounted on a platform. A mechanical lifting system is used to raise the water tank for immersing the specimen suspended below the balance. Accessory: Wire Basket, with handle for BS 812 relative density, Ø200mmx190mm deep, 1.70mm wire mesh.	No	2	4		
13	PYKNOMETER, ASTM C 128	Specification (For the determination of specific gravity of sands and fine aggregates.) SET OF CONE MOULD, FUNNEL AND TAMPER, ASTM C 128 (To determine the absorption of fine aggregate.)	No	2	4		

14	SLUMP CONE APPARATUS, ASTM/BS	<p>Specification</p> <p>1. SLUMP CONE, made from galvanized plate, Suitable for measuring cohesive of concrete.</p> <p>2. TAMPING ROD, made from steel. Dimensions: Ø 16 x 600 mm.</p> <p>3. HOPPER, used for filling the slump cone. Made from aluminum.</p> <p>4. BASE PLATE, made from galvanized sheet iron with handle. Dimensions: 60 x 40 cm.</p> <p>GRADUATED RULE made from stainless steel. Length: 300 mm.</p>	No	2	4		
15	COMPACTING FACTOR APPARATUS. BS /ASTM	<p>Specification.</p> <p>This equipment is used for the determination of the compacting factor of concretes with low, medium, and high workability. The apparatus is made from painted steel sheet, and is composed of two hoppers with trap doors, mounted vertically above a cylindrical mould. Tamping rod 16mm in dia. and 600mm length.</p>	No	2	4		
16	CONCRETE TEST HAMMER SCHMIDT:	<p>Specification</p> <p>For the measurement of compressive strength of concrete in ordinary building and bridge construction. Fitted with a built-in automatic recorder device.</p> <p>Impact energy: 2.207 Nm. (0.225 kg m)</p> <p>Compressive strength: 10 to 70 N/mm²</p> <p>Or Equivalent</p>	No	2	4		
17	Determine clay percentage in aggregate. ASTM /BS	<p>Specification.</p> <p>1. This is a gravimetric method for determining the clay, silt, and dust content of that portion of the material finer than 75 µm.</p> <ul style="list-style-type: none"> • BOTTLE ROLLER, with rotation speed 80 rpm. • BOTTLE 1 L., capacity with lid. <p>2. BLUE METHYLENE TEST</p> <p>Set for determination of Blue Methylene composed by:</p> <ul style="list-style-type: none"> • ELECTRONIC STIRRER, with digital display. It is supplied complete with stirring rod, support and fixing nut. Reliable speed between 400-700 rpm. • BURETTE, with glass key, 100 ml. capacity. • FILTER PAPER, Ø 125 mm. • GLASS ROD, length 300 mm. • BEAKER, capacity 600 ml. • BLUE METHYLENE, (25 gr). 	No	2	4		
18	Concrete mixer	With generator operation up to vol 10 cft	No	2	4		

19	SINGLE CUBE MOULDS ASTM/ BS	<p>Specification For preparation of concrete cube tests. Made in non-deforming steel, easily disassembled. Dimensions 10 x 10 x 10 cm. Dimensions 15 x 15 x 15 cm. Dimensions 20 x 20 x 20 cm. Dimensions 30 x 30 x 30 cm. Dimensions 6" x 6" x 6".</p>	No	2	4		
20	BEAM MOULDS ASTM/ BS	<p>Specification For preparation of concrete beam tests, made in non-deforming steel, easily disassembled. Dimensions 10 x 10 x 40 cm. Dimensions 10 x 10 x 50 cm. Dimensions 15 x 15 x 60 cm. Dimensions 15 x 15 x 75 cm. Dimensions 20 x 20 x 80 cm. Dimensions 6" x 6" x 18". Dimensions 6" x 6" x 21". Dimensions 6" x 6" x 24". Dimensions 6" x 6" x 30". Dimensions 6" x 6" x 36". Dimensions 6" x 6" x 40".</p>	No	1	2		
21	HINGED CYLINDER MOULDS, ASTM C31	<p>Specification Made of steel. Suitable for the preparation of test cylinders. Dimensions Ø 100 x 200 mm. Dimensions Ø 150 x 150 mm. Dimensions Ø 150 x 300 mm. Dimensions Ø 6" x 12". Accessories: HOPPER for Ø 150 x 300 mm. cylindrical mould. COMPACTIGN ROD. Long. 50 cm.</p>	No	2	4		
22	CONCRETE SPECIMENS CURING TANK, ASTM C 31	<p>Specification Made from galvanized metal, designed for curing of concrete specimens cubic as well as cylindrical. It is supplied complete with grid, under which there is heating resistance, waste gate and complete overflow pipe.</p>	No	2	4		

23	COMPACT COMPRESSION TESTING MACHINE, 3000 KN. Capacity, ASTM C 39	<p>Specification Motorized, suitable for testing 150 x 300 and 160 x 320 mm; cylinders and also for testing 150 mm. cubes, prismatic and Brazilian tests. Reading effected by means of a digital display. Accessories for Compression for Machines: REDUCTION PLATEN, made of steel. Thickness: 50 mm. REDUCTION PLATEN, made of steel. Thickness: 75 mm. • SAFETY GUARD. • COMPRESSOMETER, For the determination of static elasticity modulus. Used for the measurement of stress and strain on Ø 150 x 300 mm. cylinders during compression test. • COMPRESSOMETER, For the determination of static elasticity modulus. Used for the measurement of stress and strain on Ø 150 x 300 and 160 x 320 mm. cylinders during compression tests. Complete with three aluminum rings, 2 centesimal dial gauges and carrying case. • COMPRESSOMETER, For the determination of static elasticity modulus. Used for the measurement of stress and strain on cubes with side 150 mm. during compression test. • FLEXURAL TEST SET, Used with 150 x 150 x 600 mm. beams. Complete with steel flexural bearers. • SPLITTING TENSILE TEST SET (Brazilian test), Suitable for Ø 150 x 300 and 160 x 320 mm. specimens. It is composed of a lower bearing plate with self-centering system and of an upper articulation with compression platen. • FLEXURAL TEST SET, For test on ceramic floor tiles, terrazzo, tiles, pieces of clays and bricks</p>	No	1	2		
24	TRIPLE BEAM MECHANICAL BALANCE	<p>Specification Complete with stainless steel pan, calibration device, magnetic damper and weight set. 20 kg with accuracy of 1 gm</p>	No	2	4		

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(Package-7) BUILDING'S CONSTRUCTION AND P.H.E.
1.GPI Peshawar
2. GPI Mardan

S#	Name of Items	Specification	Unit	For one college Qty	For 2 college Qty	Unit Price (Both in Figures and words) Inclusive all taxes	Total Price (both in Figures and words) Inclusive all taxes
1	Smith hammer	64 Oz. high carbon steel with wooden handle.	No	3	6		
2	Trowel	Hardened and tempered steel blade 4 ¾ in. x 11 in. with hard wood handle	No	5	10		
3	Spirit Level	Aluminum , 12 inches	No	5	10		
4	Plumb Bob	Steel plumb bob , 200 g, with a pointed tip on the bottom and a string attached to the top end	No	5	10		
5	Shovel	Shovel round point. Blade size 9 ½" x 12" with wooden handle	No	5	10		
6	concrete mixer	Drum type designed to produce uniform mix, yield 75litre, power 5hp, 220 to 240V, 50 Hz,, 1 Phase	set	5	10		
7	Pipe wrench, pipe grip, pipe rammer,	Stainless steel (6", 12", 14",18",24"	No	5	10		
8	Pipe Vice	Pipe vice capacity 1/8" to 2 ½" mounted on triangular table tray, fitted with three metal folding legs	No	5	10		
9	pipe thread set	Pipe thread set reversible ratchet handle set to include dies for pipe ¼", 3/8", 1/2", ¾". 1",and 1-1/4"	No	5	10		
10	Pipe taps	High grade tempered tool steel, one set consisting of square shank top and of sizes ¼,3/8,1/2,3/4 inches.	No	10	20		
11	Pipe Cutter	Pipe cutter with heavy duty cutter wheel , capacity: 1/8", to 1 ¼" and ¼" to 2"	No	5	10		
12	Cutter Wheel	These wheels are to fit in the above pipe cutter at S.No. 11	No	2	4		
13	pliers adjustable	Pliers adjustable 8" alloy steel construction drop forged rust resistant finish	No	10	20		
14	Level Aluminum	Level aluminum Masons 48" with double plumbs	No	10	20		

15	Square Steel	Square steel 24" body, 16" tongue	No	10	20		
16	Steel Drill	Forged alloy steel, each set to consist of one each ¼", 3/8", ¾" with 12" shank for drilling bricks, concrete	No	2	4		
17	Mason's Drills	One each ¼", 5/16", 1/4", 1/8" carbide type masonry drill designed for use in electric handle drill	No	2	4		
18	Hacksaw	Hacksaw 10" to 12" adjustable pistol grip handle rust proof finish	No	10	10		
19	hammer Ball	Hammer ball peen 16 Oz size, hard wood handle, drop forged alloyed steel head	No	24	24		
20	Files (flats, Round, Triangular)	High carbon steel, each file to be of 12 inches size.	set	10	10		
21	Safety equipments(work gloves, boots, glasses, overall, dust mask/ respirator)	All are to be of standard sizes and of good quality	set	5	10		
22	Screw driver	Screw drivers ¼" x 16" shank plastic handle , stainless steel blade	set	5	10		
23	Wheel barrow	Wheel barrow 4 to 5 cu. Ft capacity steel under carriage metal handles heavy rolled steel body 16" wheel	No	2	4		
24	Sealing tape	Bonding tapes/sealing tapes; Mastic sealants: bonding ceiling, wall and floor tiles, bonding ply wood panels, as a joint sealer for windows and doors sealing the area around bath tubs and other sanitary appliances, as a filler for cracks in masonry and concrete.	No	10	20		

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(Package-7) SOIL MECHANICS
(1.GPI Peshawar 2. GPI Mardan)

S#	Name of Items	Specification	Unit	For one college Qty	For 2 college Qty	Unit Price (Both in Figures and words) Inclusive all taxes	Total Price (both in Figures and words) Inclusive all taxes
1	STAINLESS STEEL DRYING OVEN	Power supply: 220-240 V AC, 50Hz, Single Phase 50 liters capacity Temperature controlled. Maximum temperature range 200 C ⁰	No	2	4		
2	ELECTRONIC DIGITAL BALANCE	Power supply: 220-240 V AC, 50Hz, Single Phase (set of four balances) a) 20 kg with accuracy of 1 gm b) 5 Kg with accuracy of 0.1 gm c) 1 kg with accuracy of 0.01 gm 2). Solution balance with 20 kg capacity.	No	1	2		
3	MOISTURE CONTENT TIN 90 g Capacity.	Aluminum Moisture Content Tin with Lid : 75X75X50 mm , 200 g capacity	No	10	20		
4	SPEEDY MOISTURE TESTER Standard: ASTM D 4944	Accessory : Calcium carbide powder Standard: ASTM D 4944 For accurate moisture reading on site of soil, sand, aggregates. The test system arrives by the reaction between water and calcium carbide forming a gas. Complete with electronic balance, reagent tin, accessories; the whole contained in a portable molded case. Capacity 6 gm Moisture Range 0-20%	No	2	4		
5	MOTORISED CASAGRANDE APPARATUS.A STM D 4318,	Power supply: 220-240 V AC, 50Hz, Single Phase ASTM D 4318, Complete with mechanical stroke counter, smooth with adjustable falling height and normalized base. Accessories. 1. Cassagrande grooving tool according to ASTM. 2. Spatula made in stainless steel 120 mm blade.	No	2	4		

6	SHRINKAGE LIMIT APPARATUS ASTM D 427,	Power supply: 220-240 V AC, 50Hz, Single Phase Glass plate, with three metal prongs. Porcelain dish Ø 150mm , Flexible spatula with 120mm blade length, Shrinkage dish Ø 42x12mm (2), glass crystallizers Ø 57x32 mm, Graduated cylinder 25 ml capacity, 1 Kg of mercury and carrying case.	No	5	10		
7	PLASTIC LIMIT: ASTM D 4318	Set for Plastic limit 1. Glass plate: 300mm squarex10 mm thick, 2. Metal rod Ø 3x100 mm length 3. Porcelain dish Ø 100mm 4. Flexible spatula with 120mm blade length. 5. Aluminum can (6) Ø55x35 mm 6. Carrying case	No	3	6		
8	PYKNOMETER ASTM D 854,	1 liter capacity, manufactured of glass and non corrodible brass cone lid.	No	2	4		
9	Standard sieves set , ASTM C 33-13	(for fine and Coarse aggregates): Of Ø 200 mm x 50 mm with hole With compatible electromagnetic sieve shaker.	No	1	2		
10	CORE CUTTER APPARATUS	Cylindrical core cutter 10 cm diameter and 12.7cm high Dolly/collar 2.5 cm high, Steel rammer Wt- 13kg	No	2	4		
11	SAND REPLACEMENT METHOD ASTM 1556	(In-situ density) ASTM-Ø 6". CALIBRATED SAND (50 kg). 5 I. CAPACITY PLASTIC CONTAINER. 4" (102 mm) CONE. BASE PLATE WITH Ø 4 "FLANGED HOLE. 6" (152 mm) CONE. BASE PLATE WITH Ø 6" FLANGED HOLE • BS 1377, 1924 SAND CONE WITH UPPER CYLINDER Ø 100 mm. BASE PLATE WITH Ø 100 mm. FLANGED HOLE. CALIBRATING CONTAINER Ø 100 mm. SAND CONE WITH UPPER CYLINDER Ø 150 mm. BASE PLATE WITH Ø 150 mm. FLANGED HOLE. CALIBRATING CONTAINER Ø 150 mm. TOOLS FOR IN-STU DENSITY TESTS 1. PLASTIC BOTTLE, CAPACITY 5 I. 2. CANVAS GLOVES. 3. RUBBER GLOVES. 4. PLASTIC BOTTLE, CAPACITY 250 ml.	No	2	4		

		<p>5. PLASTIC BOTTLE, CAPACITY 500 ml.</p> <p>6. PLASTIC BOTTLE, CAPACITY 1000 ml.</p> <p>7. RUBBER BASKET, 12 LITRES CAPACITY.</p> <p>8. RUBBER BASKET, 18 LITRES CAPACITY.</p> <p>9. 2 x 2 m. BLANKET TO EXTEND SAMPLES.</p> <p>10. 5 cm. WIDE FLAT BRUSH.</p> <p>11. DENSITY CHISEL, 300 mm, LONG.</p> <p>12. DENSITY PICK. 13. RUBBER Mallet. 14. FLAT SCOOP. 15. SMALL ROUND SCOOP. 16. SPOON. 17. LADLE. 18. TROWEL. 19. TROWEL 60 X 140 mm. 20. STEEL Mallet.</p>					
12	PERMEAMETER	<ul style="list-style-type: none"> FALLING HEAD PERMEAMETER (Suitable for clays and silts tests). The apparatus consists of a Ø 4" permeability cell, a stand pipe panel complete with 3 glass tubes with reference scales, a plastic de-airing tank and a metallic container for the saturation of the cell. Cell diameter: 101.6 mm. (4"). 	No	1	2		
13	CONSTANT HEAD PERMEAMETER, BS 1377	<ul style="list-style-type: none"> (For granular soils, such as gravel and sand.) Complete with the following elements: <ul style="list-style-type: none"> - Support panel with 9 monomeric tubes, complete with nipples for the cell connection. - Constant level tank with outlet inlet, outlet and overflow nipples. - Cell made of transparent plastic material. Provided with 9 connectors for pressure inlet on 3 different levels. - Dimensions: Ø 90 x 330 mm. h. - Connection tube (20 m). 	No	1	2		

14	<p>DIRECT SHEAR TEST APPARATUS. ASTM-D3080,</p>	<ul style="list-style-type: none"> • DIRECT/RESIDUAL SHEAR APPARATUS <p>The shear apparatus can test 60 x 60 mm. or 100 x 100 mm. square specimens and cylindrical Ø 60 x 20 mm.</p> <p>The shear strength is applied by means of a motor and a drive with infinitesimal adjustment of the test speed, with control system fully digital and liquid crystal digital LCD. The vertical load is applied to the specimen through a counter-balanced loading lever, ratio 10:1. The motor can be easily reversed so that residual strength tests can be carried out. The carriage which contains the two knives of the shear box is made of non-corrodible material and is mounted on special ball tracks. The input of test parameters is carried out by means a keyboard and alphanumeric display, thus granting infinitesimal resolutions in short times. Capacity 300 KN proving ring lever arm with ratio 10:1 Set of 50 kg weights and two 10x0.01 mm dial gauges.</p> <p>MAIN FEATURES OF DIRECT SHEAR APPARATUS</p> <ul style="list-style-type: none"> • Adjustable shear speed between 0.0001 and 3 mm/min. • Max. Shear load: 5000 N. • Vertical load ratio: 10:1. • Max. Vertical load: 500 N. • Max. Vertical load with lever arm: 5500 N. • Shear box and accessories made in brass. • Power supply: single phase 220-240 V. 50 Hz. • 300 KN. Capacity proving ring, lever arm with ration 10:1, set of 50 kg. Weights and two 10 x 0.01 mm. dial gauges. <p>Accessories and Spare Parts:</p> <ul style="list-style-type: none"> • SET OF 50kg WEIGHTS, manufactured in steel painted: (4 x 10 kg; 1 x 5 kg; 2 x 2 kg; 1 x 1 kg). <p>Spare weights:</p> <ol style="list-style-type: none"> i. CALIBRATED WEIGHT of 10 kg. ii. CALIBRATED WEIGHT of 5 kg. iii. CALIBRATED WEIGHT of 2 kg. iv. CALIBRATED WEIGHT of 1 kg. v. CALIBRATED WEIGHT of 0.5 kg. vi. CALIBRATED WEIGHT of 0.250 kg. vii. SHEAR BOX for round specimens of Ø 60 x 20 mm. viii. POROUS DISC, Ø 60 mm. ix. HOLLOW PUNCH, Ø 60 mm x. SHEAR BOX for square specimens of 60 x 60 mm. xi. SQUARE POROUS STONES, _ 60 x 60 mm. xii. SQUARE HOLLOW PUNCH, 	No	1	2		
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		<p>_ 60 x 60 mm. xiii. SHEAR BOX for square specimens of 100 x 100mm.</p> <p>xiv. SQUARE POROUS STONES, _ 100 x 100 mm.</p> <p>xv. SQUARE HOLLOW PUNCH, _ 100 x 100 mm. xvi. PROVING RING, 5 KN. Capacity.</p> <p>xvii. DIAL GAUGE of 10 x 0.01 mm.</p> <p>xviii. DIAL GAUGE of 30 x 0.01 mm. Or Equivalent</p>					
15	<p>STANDARD, PROCTOR COMPACTION TEST APPARATUS. ASTM D 558.</p>	<ul style="list-style-type: none"> • MOULD. Made of corrosion protected steel. Complete with base plate and collar. • Accessories: COMPACTION RAMMER (ASTM) Army type 2. 5 kg, made of corrosion protected steel. Diameter: 50.8 mm. (2"). STRAIGHT EDGE with handle. STRAIGHT EDGE without handle 	No	2	4		
16	<p>MODIFIED PROCTOR COMPACTION TEST APPARATUS ASTM D 698</p>	<ul style="list-style-type: none"> • MOULD. Made of corrosion protected steel. Inside diameter: 152.4 mm. (6"). • Accessories: BASE PLATE FOR MODIFIED PROCTOR MOULDS. COLLAR FOR MODIFIED PROCTOR MOULDS. COMPACTION RAMMER (ASTM) Army type 4.5 kg, made of corrosion protected steel. Diameter: 50.8 mm. (2"). STRAIGHT EDGE with handle. STRAIGHT EDGE without handle 	No	2	4		
18	<p>C.B.R. MOTORIZED MACHINE ASTM D1883, D3668, D4429</p>	<p>CBR Motorized Press. It consists of a rigid two column frame, upper beam equipped with ball joint and its height is adjustable by means of a threaded ring nuts. It is operated by means of a constant speed gear motor, with double end, so as to stop the lower plate automatically. Complete with control panel with main Max. Capacity: 50 KN.</p> <p>Power Supply: 220-240 V. 50 Hz</p> <p>Accessories.</p> <p>C.B.R PENETRATION PISTON made of surface protected steel. Surface: 10 KN. PROVING RING 30 KN. PROVING RING 50 KN. PROVING RING</p> <p>DIAL GAUGE BRAKE DEVICE, it maintains the max. Load reached value on the dial indicator of the load ring with possibility of manual zero setting.</p>	No	1	2		

19	HAND-OPERATED HYDRAULIC EXTRUDER ASTM D698, D1587, D1883	Used to remove samples from CBR, Proctor and Marshall moulds. Hand-operated driven by means of a hydraulic jack. Made of galvanized steel. It is supplied complete with Ø 4" and 6" adaptors. Capacity: 50 KN.	No	1	2		
20	CBR-MACHINE: 50 KN ASTM D1883	Maximum vertical clearance 800mm Horizontal clearance 255mm Platen diameter 105 mm Test speed 1.27 mm/min Power Supply 220V, 50Hz. Accessories. 1. Soaking Tank. 2. Penetration piston. Surface 1.935 mm ² Proving rings 50kN. CBR MOULD : ASTM D 1883 • Mould Ø152.4x177.8 mm height Collar 50.8 mm height, fits both ends of mould • Base Plate perforated • ASTM CBR cutting collar • ASTM CBR spacing disc • Filter screen 150 mm diameter, 150 micro meter mesh • 10 lb. annular surcharge weight • 5lb split surcharge weight Filter papers 150mm dia. Box of 100	Set	2	4		

21	GLASS WARES AND HARDWARES TOOLS:	<ul style="list-style-type: none"> ü Beaker 500 ml capacity 1. Borosilicate glass, squat form beaker with spout and graduations, capacity: 100 ml,600 ml,1000 ml ü BEAKER 1000 ML CAPACITY: 2. Polypropylene squat form beaker with spout and graduations, capacity: 100 ml, 600 ml, 1000 ml ü GRADUATED CYLINDER 1000 ML CAPACITY: 1. Measuring cylinder, soda glass, spouted, capacity: 100 ml, 250 ml,500 ml, 1000 ml ü GRADUATED CYLINDER 2000 ML CAPACITY: 2. Measuring cylinder, plastic with spout, graduated, capacity: 100 ml, 250 ml, 500 ml, 1000 ml ü STEEL HAMMER: Steel hammer 16 Oz with wooden handle. ü SPATULA : Stainless steel blades with wooden handle: Blade 100 mm, 200 mm. ü STAINLESS STEEL BOWLS ü STEEL TRAY: Heavy-duty, galvanised steel, nesting (460x460x50 mm), (610x610x63 mm), (910 x 910x 76 mm) ü VERNIER CALIPER: Range: 150 x 0.1 mm, 200 x 0.2 mm ü STOP WATCH: Digital stop watch, precision 0.1 sec ü DESICCATOR - 200 ml internal dia, borosilcate glass ü CANVAS GLOVES ü GLOVES, LATEX RUBBER ü PLASTIC BOTTLE, capacity. 2 Liter. ü PLASTIC BOTTLE, capacity 5 Liter. ü RUBBER BUCKET, capacity 12 Liter. ü RUBBER BUCKET, capacity 18 Liter. ü CANVAS 2 x 2 m. ü FLAT BRUSH ü CHISEL ü PICK HAMMER ü RUBBER HAMMER: Rubber hammer with rubber head and wooden handle. ü FLAT SCOOP ü SMALL CURVE SCOOP (Stainless steel) ü MEDIUM CURVE SCOOP (Stainless steel) ü LARGE CURVE SCOOP (Stainless steel) ü SPOON ü LADLE ü SPADE ü TROWEL (Stainless steel blade) ü BEAKER -600 ml Capcity, borosilcate ü BRUSH ü TRIANGLE SPATULA (Stainless steel blade) ü DRAWKNIFE ü SAMPLE BAGS 	Set	2	4		
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ADP Scheme - 778**(Package-7) MECHANICS OF STRUCTURE (1.GPI Peshawar 2. GPI Mardan)**

S#	Name of Items	Specification	Unit	Qty	For one college Qty	For 2 college Qty	Unit Price (Both in Figures and words) Inclusive all taxes
1	SEARLE YOUNG'S MODULUS APPARATUS	The instrument consists of two frames connected by a link. The frames are fitted with self-centering chucks. An accurately graduated micrometer screw to read to 1 mm is fitted on one frame. One end of a sensitive spirit level is pivoted to one of the frame, the other end rests on the points of a micrometer screw fitted in the other frame. Complete with chucks, ceiling attachment and tension weight. With case. Consists of a brass scale 10 cm long and vernier to read 1/10 mm with V slides clamps, guides for wire ceiling attachment and tension weight	No	1	2		
2	UNIVERSAL TESTING MACHINE (UTM) (Computerized)	TECHNICAL SPECIFICATIONS: <ul style="list-style-type: none">• Maximum tensile load: 1000 KN• Maximum compression load: 1000 KN• Distance between the jaws: 700mm or more• Distance between the compression planets: 700mm• Distance between the columns: 650	No	1	2		

		mm • Piston's stroke: 250 mm • Speed test: 100 mm/min • Precision and repeatability: $\pm 1\%$ of read value • Power supply: 230 V 1 ph 50 Hz 2.5 kW • Bending test pressed rolling distance 70 to 600 mm • Shear test fitting with size of shearing specimen = 0-20 mm • Grip for round and deformed (20-60 mm) and flat (40 mm thick x 80mm wide) samples. Extensometer.					
3	BEAM DEFLECTION APPARATUS.	Simply supported and cantilever beam tests with up to four supports with any loading - Three load cells/scales with digital/analog indicators measure reaction forces or act as rigid sinking supports - Precision digital/analog indicators for accurate deflection measurements - Weights and hangers supplied to apply point loads - supplied with five different test beams - with complete set of loads, frame and bench.	No	1	2		

ADP Scheme - 778 **(Package-7)**

TRANSPORTATION ENGINEERING (1.GPI Peshawar 2. GPI Mardan)

S#	Name of Items	Specification	Unit	For one college Qty	For 2 college Qty	Unit Price (Both in Figures and words) Inclusive all taxes	Total Price (both in Figures and words) Inclusive all taxes
1	DUCTILOMETER, ASTM D113.	(to determine the bituminous ductility, The Ductilometer basically consists of a moving carriage travelling along guide ways. The carriage is driven by an electrical motor, inside a large tank which is fitted with a thermostat and heater, and pump unit. The equipment works in an automatic way at a speed of 50 mm/min., and can accept up to 3 specimens simultaneously. Carriage travel: 1500 mm. Power supply: 220 V. 50 Hz. - 1000 W. Accessories: • BRIQUETTE MOULD to prepare specimens in "8" form • BASE PLATE FOR BRIQUETTE MOULD. • COMPLETE REFRIGERATING SYSTEM, for test temperatures of + 5°C	No	1	2		
2	RING AND BALL APPARATUS ASTM D36	COMPLETE, Suitable for the determination of the softening point of bitumen, formed by: two test balls, two rings, two centering guides, a cover adjustable in height and a heat resistant container. Accessories: • THERMOMETER OF 0-100°C • THERMOMETER OF 0-200°C • THERMOMETER ASTM 15C. • THERMOMETER ASTM 16C. • MAGNETIC STIRRER, with heating. BUNSEN BURNER • ASBESTOS MESH, 100 x 100 mm. Spare Parts: • TEST BALL. • CENTERING GUIDES. • BRASS RING	No	1	2		

3	CLEVELAND OPEN CUP APPARATUS ASTM D92	<ul style="list-style-type: none"> • (For Flash and Fire point of bitumen) <p>With electric heater, supplied complete with cast aluminum cup, thermometer from - 6 to + 400°C, electric thermo regulator, heating plate, rod and clip for the thermometer.</p> <p>Power supply: 220 V. 50 Hz. 700 W</p>	No	1	2		
4	MARSHALLST ABILITYTEST MACHINES. ASTM-D-1559.	<ul style="list-style-type: none"> • MOTORISED MARSHALL MACHINE, capacity 50 KN, Constituted by two sturdy supporting columns joined by an adjustable upper beam fitted with ball joint. The application of the load is to be made by means of a mechanical jack operated through a constant speed gear motor complete with double limit switch up/down and head positioning switch <p>Power supply: 220 V. 50 Hz. Horizontal clearance: 270 mm. Piston stroke: 65 mm. Accessories:</p> <ul style="list-style-type: none"> • LOAD RAM, to be mounted on the load measuring ring. • EXTRUDER, for extruding the specimens from the moulds. • BREAKING HEAD STABILITY MOULD, made from steel founding. It is supplied with device to support the measuring deformation dial gauge. Inside diameter: 101.6 mm. • DIAL GAUGE, 10 x 0.01 mm, to be mounted on the breaking head stability mould. • BRACKET DEVICE, to maintain the max reached load value on the dial gauge for the proving ring 	No	1	2		
5	SAYBOLT VISCOMETER, ASTM D 88	<p>Made entirely in stainless steel. The temperature is regulated by digital precision thermo-regulator. With Standard- orifice, 60 ml. capacity flask, heater, temperature controller, stirrer and cooling device. Power supply: 220 V. 50 Hz. - 300 W.</p>	No	1	2		
6	PORTABLE CORE DRILLING MACHINE FOR ROAD PAVING	<p>Operated by a 4 stroke petrol explosion engine. With device for water cooling. Engine power: 8 Hp. Core bit connection: 1 1/4"</p> <p>Accessories:</p> <ul style="list-style-type: none"> • SPECIAL CARRIAGE, designed for shift and use of the core drilling machine in-situ. Supplied with tank for cooling water. <p>a) DIAMOND CORE BIT, Ø 50 x 350</p>	No	1	2		

		<p>mm.</p> <p>b) DIAMOND CORE BIT, Ø 75 x 350 mm.</p> <p>c) DIAMOND CORE BIT, Ø 100 x 350 mm.</p> <p>d) DIAMOND CORE BIT, Ø 150 x 350 mm.</p> <p>e) EXTENSION ROD, 500 mm. length</p>					
7	<p>ASPHALT CENTRIFUGE EXTRACTORS ASTM D 2172, CAPACITY 3000 gr</p>	<p>Designed for the determination of the filler content of bituminous conglomerates. Made in steel, sheet provided with four adjustable rubber feet serving to absorb the vibrations due to unbalanced loads. The electric motor and the electronic controls are incorporated in the structure. A driving shaft allows the rotation of the centrifuge container joint with the filter and cover. The discharge is made through the pipe of the bottom bell. The control panel is fitted with the main ON/OFF switch a potentiometer for the adjustment of speed and start/stop and brake switches. Capacity of the basket: 3000 gr. Power supply: 220 V. 50 Hz. Accessories and Spare parts:</p> <ul style="list-style-type: none"> • FILTER DISCS, box of 250 units. • BASKET AND COVER, capacity 3000gr. • CONTAINER WITH 25l.OF TRICHLOROETHYLENE. • TIN WITH 200l.OF TRICHLOROETHYLENE 	No	1			

8	STANDARD PENETROMETER, ASTM D5, D217	<p>(To determine the consistency of a sample of bituminous material under fixed conditions of load, time and temperature).. Apparatus ruggedly constructed, with a base table in light alloy with leveling screws, plated vertical rod and spirit level. The slider is brass made with free fall. The dial of Ø 150 mm. is graduated in 360 divisions of 0.1 mm. With stop and release push button, automatic zero set, regulation of the movements, with magnetic controller device that automatically releases the plunger head and ensures free falling of the needle during the five seconds tests. complete with set of weights 50 and 100 gr., penetration needle, and sample brass containers Ø 55 x 35 and 70 x 45</p> <p>Power supply: 220 V. 50 Hz. Accessories: 1) THERMOSTATIC BATH, formed by a pyrex bath mounted on a heater and closed by a cover, water circulating pump, cooling coil, electronic digital thermoregulator, transfer dish, rubber connections and couplings. Temperature range: from 15 to 60°C ±0.05°C Power supply: 220 V. 50 Hz. Consumption: 350 W. height. 2) MIRROR, suitable to facilitate the zeroing of the needle with the sample. Spare parts: 1) PENETRATION NEEDLE, made from stainless steel. Diameter: 1 mm. 2) TRANSFER DISH, equipped with a device. 3) SAMPLE CUP, brass made, Ø 55 x 35 mm, used for hard bituminous materials. 4) SAMPLE CUP, brass made, Ø 70 x 45 mm, used for soft bituminous material.</p>	No	1	2		
9	LOS ANGELES ABRASION MACHINE, ASTM C 131	<p>(To determine the resistance of aggregates abrasion). It comprises a heavy steel cylinder with 12 ± 0.5 mm. thickness and inside 711 x 508 ± 1 mm. Length and mounted on a substantial base frame. The cylinder rotates at 30-33 rounds/min. The motor and drum are mounted on a steel frame. An automatic digital counter which can be preset to</p>	No	1	2		

		stop the motor at the required number of rounds. Complete with 12 standard steel balls and extractable container. Power: 1 HpPower supply: 220-380 V. 50 Hz. SPARES: SET OF 12 ABRASIVE STEEL BALLS					
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