

## Electrical & Electronics Technology

S#	Items /Equipment/Machinery	Specification	GCT Swabi	GCT Kohat	GCT DI Khan	GCT Bannu	Total Quantity	Unit Price (Inclusive All Taxes & Transportation)	Total Price (Inclusive All Taxes & Transportation)
1.	A.V.O meter Digital	Multi-Function ACV 0 – 600V, DCV 5mV – 1000V, DCA 100 Micro Ampere – 5 Amp, AC A 100 m A – 10 A. Resistance 0 - 20 M Ohm, Continuity Beeper With protection With all standard accessories	12				12		
2.	3 phase energy meter (Analog & Digital)	Demonstration & Trainer Type		2			2		
3.	3 phase reverse/forward drum switch	400V, 20A		2			2		
4.	3 phase star delta (automatic) with timer	Demonstration & Trainer Type		1			1		
5.	3 Point & 4 Point DC Motor Starter	Demonstration Type		2			2		
6.	3 speed drum switch	380V/10A		1			1		
7.	3-phase AC Magnetic Contactor	0-400 V, 10 A		6			6		
8.	Abbs Refracto Meter	Abbs 5ml to 10ml			1		1		
9.	AC milli-Volt Meter analog and digital	(100uV~1V) With all standard accessories		6			6		
10.	AC Starter	Slip Ring Starter (Rheostat Type)		2			2		
11.	AC Time Delay Relay	220 v along with Base		8			2		
12.	AC Voltage Transducer:	Input Voltage: 100V, 100W3V,110V			1		1		

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13.	Air Circuit Breaker	Poles Number 3 Pole Power 7.5KARated current 100Classification Type B, Type C, Type D Rated short circuit breaking capacity 10KARated current: 10 to 50 Amp Rated Short Circuit Breaking Capacity: 7.5kA				2	2		
14.	Air Circuit Breaker, single, double & three pole	10 A, 15 A, 20 A		3			3		
15.	Alternator (single & 3-phase)	2 KVA, Demonstration & Trainer Type		1			1		
16.	Am Meter Portable (Universal):	Range: 1-5A with mirror under lay			5		5		
17.	Ammeter AC/DC Portable	Multi-Range 60-120-300-600 mA & 1, 2, 3, 6 A		6	2		8		
18.	Ammeter AC/DC Portable:	Multi Range: 3-7-5-15-30A Scale 120mm to 135mm with mirror under lay			2		2		
19.	Voltmeter AC/DC Portable:	Multi-Range: 3-6-12-30V			1		1		
20.	Ampere Meter Analog 100/5	product or component type Dial current transformer ratio 100/5scale type 62 mm over 90°mounting support Front face type of measurement Current scale 0-100 A				5	5		
21.	Ampere Meter Analog 200/5	product or component type Dial current transformer ratio 200/5scale type 62 mm over 90°mounting support Front face type of measurement Current scale 0-200 A				5	5		
22.	Ampere Meter Analog 50/5	product or component type Dial current transformer ratio 50/5scale type 62 mm over 90°mounting support Front face type of measurement Current scale 0-50 A				10	10		
23.	Analog & Digital Power factor meter	DEMONSTRATION TYPE Capable of measuring Power Factor of Single and Three Phase		2		2	2		
24.	Analog CLAMP ON METER	Multi-Function ACV 0 – 750V, DCV100mV – 300V, DCA 100 Micro Ampere –5 Amp, AC A		6		2	6		

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		100 m A – 30 A. Resistance 0 - 10 M Ohm, Diode & Transistor Test. Hold facility Frequency: 0 - 1 kHz Capable of measuring POWER (0 - 500 Watts) & (0 - 500 VARS) Enable to Measure Power Factor Enable to Measure Power Factor Continuity Beeper With protection With all standard accessories						
25.	Analog oscilloscope	Dual channel 40 mHz with its Probes and all relevant accessories		2			2	
26.	AND Gate IC	74LS08, 74LS21, 71LS114081 (CMOS), 2- Input 4-Input 3-Inputs 2-Input				1	1	
27.	AND-OR-Inverter (AOI)	74LS54				1	1	
28.	Armature test growler	to operate on AC 250V, single phase 50 cycle supply used to detect earth open circuit short circuit reserved connection. Incorrect earth open circuit short circuit reserved connection. Incorrect turns and coil spacing equivalent., can perform no of practical's to the students according to the DAE curricula		1			1	
29.	Attraction, Repulsion Type Instruments Demonstration Module	can perform no of practical's to the students according to the DAE curricula in Instruments Subject		2			2	
30.	Automatic Changeover Switch (Manual & Drum Type)	Standard Type		4			4	
31.	Automatic Rewinding machine	can rewind all kind of Single & three phase machines etc.		1			1	

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32.	Automatic Star Delta starter	Function: Star-delta contactor Rated control supply voltage Us at AC 50HZ: 230 - 230V•Rated control supply voltage Us at AC 60HZ: 230 - 230V•Rated control supply voltage Us at DC: 0 - 0V•Voltage type for actuating: AC •Rated operation current at AC-3, 400 V: 17A•Rated operation power at AC-3, 400 V: 18.5kW•Type of electrical connection of main circuit: Screw connection Degree of protection (IP): IP20				2	2		
33.	Automatic Transfer Switch	Microprocessor-based transfer control device• Two measurements inputs for three-phase + neutral voltage• 230 / 400 V AC at 50 / 60 Hz power supply ,Method of connection 3-phase 4-wire system, 3-phase 3-wire system ,Auxiliary supply 24 V DC, Conductor cross section (min max)0.5 to 2.5 mm <sup>2</sup> (20 to 12 AWG),Weight 1095 g Housing materials Thermoplast Bay blend FR3010• 10-LED status indicators• 4-key membrane keypad• 3 mounting methods: panel-door mounting, plate mounting and DIN rail mounting• Control of motorized circuit breakers or motorized switches• Generator control with output signal to start and stop generator• Overvoltage protection, under voltage protection, phase failure protection• Monitoring of the fire alarm signal• Integrated double power supply (DPS) functionality for switch motor operators				2	2		
34.	Banana Plug/Socket (pairs)	10 A, 15 A, 20 A (5 Dozen each)		15			15		
35.	BCD Counter	74LS90				1	1		
36.	BCD IC	74LS47                      0 to 9				1	1		
37.	Binary Adder	74LS283                      4 Bit				1	1		

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38.	Brushless Motor (Demonstration Type)	can perform no of practical's to the students according the DAE curricula		2			2		
39.	Buchholz's Relay (Demonstrational Model)	Showing all its operating mechanism		2			2		
40.	Burglar Alarm (Demonstrational Model)	Functional Model		2			2		
41.	Bus bar (Demonstrational Model)	(rectangular, circular, square)		2			2		
42.	C.T & P.T Test Set	Can test no. of different parameters		1			1		
43.	Capacitor	Polypropylene Film Capacitor, 400vAC, 3.5 $\mu$ Material of Case: ABS / PP Plastic, Tolerance: $\pm$ 5%				20	20		
44.	Capacitor	4.7 $\mu$ F,10 $\mu$ F ,47 $\mu$ F ,100 $\mu$ F, 1000 $\mu$ F, 2200 $\mu$ F,100 nF , 2.2 $\mu$ F(16,25V,220V)				1	1		
45.	Capacitor Functional Model	containing different kind of Capacitors explain their working mechanism		3			3		
46.	Change Over switch	Three pole ,50 A ,500 V				5	5		
47.	Circuit Breaker Demonstration Module	Containing different kind of Breakers such as Air C.B and its types etc. along with their working mechanism		1			1		
48.	Clamp meter Digital	Made in Japan	3				3		
49.	Curve Tracer	for tracing the curves of BJT, FETs etc. electronic devices		2			2		
50.	D Flip Flop	74LS74                      2 inputs				1	1		
51.	Dampers Different types	Used in Transmission lines		2			2		
52.	DC electronic Relay	12 v				1	1		
53.	DC electronic Relay	24 v				2	2		
54.	DC motor manual starter 3 point and 4 point	Demonstration & Trainer Type		2			2		

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55.	Different kind of Damping (Demonstration Module)	can perform no of practical's to the students according the DAE curricula in Instruments Subject		2			2	
56.	Digital Battery Tester	Capable to test 0-48 V DC batteries and display faults		1			1	
57.	DIGITAL CLAMP-ON MULTI-METERS Of reputable brand	Multi-Function ACV 0 – 750V, DCV 100mV – 300V, DCA 100 Micro Ampere -5 Amp, AC A 100 m A -30A. Resistance 0 - 10 M Ohm, Diode & Transistor Test. Hold facility Frequency: 0 -1kHz Capable of measuring POWER (0 -500 Watts) & (0-500 VARS) Enable to Measure Power Factor Enable to Measure Power Factor Continuity Beeper With protection With all standard accessories		1			1	
58.	Digital Comparator	74LS85                      4 Bit				1	1	
59.	Digital Counter (synchronous)	74LS193                      4 Bit				1	1	
60.	Digital Counter (Asynchronous)	74LS93                      4 Bit				1	1	
61.	Digital storage oscilloscope:	70 MHz Bandwidth with 2/4 Input Channels with color display and with probes		4			4	
62.	Digital Timer	555				1	1	
63.	Diode	1N5400,4,8 watt				2	2	
64.	DIODE, TRANSISTOR/AND IC TESTERS	Unbreakable and Durable		6			6	
65.	Earth switch	Demonstration type used in Grids		2			2	

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66.	Earth Test Digital	Earth Resistance: 0-10-100-1000 ohm. Can perform an number of practical's		2			2	
67.	Earth Tester Analog:	Earth Resistance: 0-10-100-1000 Ohm				1	1	
68.	Earth Tester Digital:	Earth Resistance: 0-10-100-1000 Ohm	2			1	3	
69.	Energy Meter (model) for Single & Three phase Induction type	Working model for demonstration		2			2	
70.	Energy Meter (model) for Single & Three phase Static type	Working model for demonstration		2			2	
71.	Energy Meter Single Phase Analog	Voltage: 220-240V				1	1	
72.	Energy Meter Single phase Analog:	Voltage: 220-240V				1	1	
73.	Energy Meter Single phase Digital:	Voltage: 220-240V				1	1	
74.	Energy Meter Three phase Analog:	40A				2	2	
75.	Energy Meter Three phase Digital:	40A				2	2	
76.	FLUX METER / MAGNETO METER	DEMONSTRATION TYPE In Ranges: 0 – 500 m Weber, 0 –1000 m Weber, 0 - 2 Weber		6			6	
77.	Frequency meter Digital/Analog	DEMONSTRATION TYPE Multi Range: 0-50, 0-100 Hz, 0-1000 Hz		6			6	
78.	Frequency Transducer:	Input Frequency Range: 45-55Hz,55,65Hz,45-65Hz,360-440Hz				1	1	
79.	Function Generator	Can generate different kind of frequencies i.e. from 0 - 1000 MHz, Sinusoidal, Triangular, Square wave, provide DC as well and extra relevant features		4			4	
80.	Insulation and Continuity Tester Analog:	600v+5% (AC) (1-1000 M ohm)				1	1	

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81.	JK Flip Flop	74LS76	2 inputs				1	1	
82.	Laser Distance Meter LDM-80	Imported				1		1	
83.	LCR Meter Digital & Analog (Inductance – Capacitance-Resistance meter)	Capable to measure following ranges: Resistance: 0-5 Kilo Ohms Inductor: 0-1 Henry Capacitor: 0-1 Farad With all standard accessories			6			6	
84.	Magnetic Contactors AC TYPE	230VAC,4 Pole Contactor, Coil Voltage 230 V ac Contact Current Rating 32 A Contact Voltage Rating 690 V ac Normal State Configuration 4NONumber Of Auxiliary Contacts 2Terminal Type Screw Length 91mmWidth 45mmDepth 97mmCAD Drawing 3D CAD Model Maximum Operating Temperature+60°CMinimum Operating Temperature -5°C					20	20	
85.	Magnetic Contactors DC TYPE	Coil Voltage 24 V dc,3 Pole, Contact Current Rating 9 A Contact Voltage Rating 690 V ac Normal State Configuration 3NONumber Of Auxiliary Contacts 2Power Rating 4 kW Terminal Type Screw Length 77mmWidth 45mmMinimum Operating Temperature -5°CDepth 93mmCAD Drawing 3D CAD Model Maximum Operating Temperature+60°C, Operating time closing 12 to 22 ms Operating time opening 4 to 19 ms					5	5	
86.	Maximum Demand Indicator (Analog & Digital)	Demonstrational & Functional model						2	
87.	Megger	500V, 500M ohm		2		1		3	
88.	Micro Ammeter AC & DC Portable	Multi-Range 15-30-75-150-750-1500-2000 micro Ampere			6	1		7	



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89.	MILLI AMPERE METER (AC & DC)	DEMONSTRATION TYPE Multi range: 0 – 100 m A, 0 – 250 mA, 0 – 500 m A, 0 – 1000 m A, 0 – 5000 m A, i.e. in 5 or 10 equal ranges		6	4		10	
90.	Multi meter Analog:	AC/DC Volt: 0 to 1000V in 4-ranges			2		2	
91.	Multi meter Digital:	AC/DC Volt: 0 to 1000V in 4-ranges			2		2	
92.	Multi meter Electronic FET	2.5 to 2500v			1		1	
93.	Multiplexer/Data selector	74LS157 74 LS151 74LS150 4 into 1 line 8 into 1 line 16 into 1 line		1		1	1	
94.	NAND Gate IC	74LS0074LS1074LS204011(CMOS)2- Inputs3-Inputs4-Inputs2- Inputs				1	1	
95.	NANO AMPERE METER (AC & DC)	DEMONSTRATION TYPE Multi range: 0 – 100 n A, 0 – 500 n A, 0 – 1000 n A, 0 – 2000 n A, 0 – 5000 n A, i.e. in 5 or 10 equal ranges		6			6	
96.	NOT Gate IC	74LS044069(CMOS)1 –Input1-Input		1		1	1	
97.	Ohm meter digital japan	Multi Range; 0-50. 0100 and 0-300 ohm	3				3	
98.	Ohm meter Portable Analog	Multi Range; 0-50. 0100 and 0-300 ohm			2		2	
99.	Mega Ohm Meter Portable Analog:	Measuring Range: 0.2 ohm to 50M ohm with range selector			5		5	
100.	On/Off push button starter three phase	4 pole	6				6	
101.	OR Gate IC	74LS324071(CMOS)2- Inputs2- Inputs				1	1	

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102.	Oscilloscope Analog	(Frequency 20 MHz)( with operational & service manual) Specification 20 MHz Bandwidth with 2 Input Channels with color display. (With all accessories mention in the brochure and instructional manual)			1		1	
103.	Permanent Magnet & Dynamo meter Type Instruments Demonstration Module	can perform no of practical's to the students according the DAE curricula in Instruments Subject		2			2	
104.	PH meter	PH 0-14			1		1	
105.	Phase Rotation Indicator	Voltage Range 40-700 V Frequency Range 15-400 Hz Operating Timer Continuous Size 124 x 61 x 27 mm Weight 200 g Power supply From unit under test				2	2	
106.	Portable Variable Capacitive Load	(500V, 3-Phase, 1KVAR, 0-100 Micro Farad)		3			3	
107.	Portable Variable Inductive Load	(500V, 3-Phase, 1KVAR, 0-10 Henry)		3			3	
108.	Portable Variable Resistive load	(500v,3-phase,1KW, 0-10 kilo ohm)		3			3	
109.	Potential Transformer 50 VA	Primary Rating: 220/440/2200/3300V		2	1		3	

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110.	Potential Transformer (PT)	Subcategory: General Purpose Transformers Series: X Type: Control Phase:1 VA Rating:200 Volt-Amps Primary Voltage:240/480 Secondary Voltage:24/120 Enclosed: No Primary Fuse holder: Included Secondary Fuse holder: Included Termination: Integrally Molded Terminal Blocks Terminal Covers: No Insulation Class:130 Temperature Rise (F):176 Degrees F Comments: Fuses and IP20 touch safe covers sold separately. Circuit Diag. No.:ABBG_XFMR_X45-500 ABBG_XFMR_X4PSF H x W x D: 1 in x 1 in x 1 in		8			8	
111.	Potentiometer/Resistance Substitution Box:	Low Range: 15 to 10,000 Ohms			1		1	
112.	Power Analyzer Three phase	Display Current, Voltage, Power, Frequency, Energy, Power Factor etc. With all standard accessories		2			2	
113.	Power Clamp Meter Digital:	AC Current: 40-100A Min, in 4 ranges			1		1	
114.	Power Factor Meter Portable	Rated Voltage: 150, 300, 450V 0-10 AMP			3		3	
115.	Power Factor Meter 1-phase & 3-Phase (Analog/Digital type)	Demonstration & Trainer Type Rated Voltage: 150, 300, 450V 0-10 AMP		2			2	
116.	Power Line Transducer	500 watt			1		1	
117.	Power Supply AC/DC Digital:	Output AC Range: 0 to 220V, 500mA			1		1	
118.	Probes of Analog / Digital Oscilloscope	40 MHz		6			6	
119.	Protection relays	(Analog/ Digital)			1		1	
120.	Relay experiment set (learning for basic	Trainer Type along with its working mechanism		1			1	

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	Induction & Static relay)						
121.	Resistance Decade Box:	Range: 1 ohm to 10k ohm			1		1
122.	Resistor	1 $\Omega$ , 33 $\Omega$ 330 $\Omega$ ,820 $\Omega$ , 1K, 2.2k,4.7k,10k, 47k, 56k ,( $\frac{1}{4}$ ,1watt)				1	1
123.	Servo Motor	Demonstration & Trainer Type		2			2
124.	Shift Register (Serial In Parallel Out)	74LS164				1	1
125.	Shift Register (Serial In Serial Out)	74LS91A				1	1
126.	Shift Register (Parallel In Serial Out)	74LS165				1	1
127.	shrinkage limit test set	Complete set			1		1
128.	Single Phase Energy Meter	Connection Type Single Phase Two Wire Accuracy Class 1.0 IS13779, IEC 62052-11/IEC 62053-21,CBIP TR 88 / 304Voltage Voltage Nominal : 240 V (L-N)Operating : -40% to +20%Current 10-60A, 5-30A, 10-40A, 20-100A, 10-100APower Factor Range Zero (lag) - unity - Zero (lead)Frequency 50Hz $\pm$ 5%Starting Current 0.2% of Ib at Vref & Unity Power Factor Power Consumption Voltage Circuit : 1.5 W / 8.0 VA ; Current Circuit : 4.0 VA Temperature Range -10 $^{\circ}$ to +60 $^{\circ}$ C Humidity $\leq$ 95%	12			5	17
129.	Stabilizer Automatic	5000w	6				6
130.	Stalagmo meter	10ml			15		15
131.	TACHOMETER (Analog & Digital) Laser Type	DEMONSTRATION TYPE Range 0-3000 RPM and above With all standard accessories		3			3
132.	Tangent Galvanometer	Demonstration & Trainer Type		1			1
133.	Three phase energy	do	6				6

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	meter Digital							
134.	Transistor NPN	2N2222                      2N4891(MOSFET)				2	2	
135.	VAR METER (Analog & Digital)	DEMONSTRATION TYPE Multi range: 0– 10 VAR, 0– 100 VAR, 0 – 500 VAR, 0– 1 KVAR, 0 – 5 KVAR & 0 - 10 KVAR i.e. in 5 or 10 equal ranges		6			6	
136.	VOLT METER (Analog & Digital)	DEMONSTRATION TYPE Multi range: 0 – 10 V, 0 – 100 V, 0 – 500 V, 0 – 1 K V, 0 – 5 K V & 0 - 10 K V i.e. in 5 or 10 equal ranges		6			6	
137.	Volt Meter Analog	range compatibility Prisma G doorscale0-500 V technology type Ferromagnetic scale type62 mm over 90°mounting support Front face accuracy class Class 1.5 power consumption in VA3 VA power consumption in VA3 VA overload withstand1.2Un,permanently2 Un, 5 s device mounting Flush operating position30°/vertical				5	5	
138.	Voltmeter AC Portable:	Range: 75-300V with mirror under lay				5	5	
139.	Voltmeter AC/DC Portable:	Multi-Range: 3-6-12-30V				1	1	
140.	Voltmeter AC/DC Portable:	Multi-Range: 7.5-15-30-75-150-300-600V				2	2	
141.	Voltmeter Dc Portable:	Range: 75-300V with mirror under lay				5	5	
142.	WATT METER (Analog & Digital)	DEMONSTRATION TYPE Multi range: 0 – 10 W, 0 – 100 W, 0 – 500W, 0 – 1 KW, 0 – 5 KW & 0 - 10 KW i.e. in 5 or 10 equal ranges		6			6	
143.	Watt meter Digital	DEMONSTRATION TYPE Multi range: 0 – 10 W, 0 – 100 W, 0 – 500W, 0 – 1 KW, 0 – 5 KW &	3				3	

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		0 - 10 KW i.e. in 5 or 10 equal ranges						
144.	Wattmeter Portable single phase	Switchable Current Range: 1 & 5A AC/DC			1		1	
145.	Wattmeter Portable three phase	Switchable Current Range: 20A AC/DC			1		1	
146.	XNOR Gate IC	4077(CMOS) 2- Inputs				1	1	
147.	XOR Gate IC	76LS86 4030(CMOS) 2- Inputs 2- Inputs				1	1	