

**TENDER SCHEDULE NO:- U/2**

Bill of Quantities/ Schedule of Requirements for TRADE : "ELECTRICIAN "

Shortfall of Machinery

DELEVERY POINTS:- Hooghly ITC, Vivekananda Road, P.O. &amp; Dist. Hooghly, -712103

Sl.No.	Description of Item with Specification	QtyRequired	UNIT	RATE (Rs)	TOTAL AM
					In figures
1	Starters for 3 phase , 400v , 50 cycles , 2 to HP AC motor a) Auto Transformer type starter b) Star delta starter with manual , semi auto and automatic c) Direct on line starter	1No.	each		
2	Electrical Machine Trainer (Basic Unit) with flat Demo panel table top rack with set of panels. Essential accessories and following 300W chasis mounted machines (7Nos). DC machine with swinging stator has torque speed sensor mounted to measure shaft power. a] Integrated DC m/c mounted as Dynamometer & with speed/torque sensor. b] Integrated 3 phase AC 300W m/c chasis mounted c] Integrated 1 phase AC 300W motor chasis mounted d] Integrated 1 phase AC generator & Sync.300W M e] Universal Motor AC/DC, 300W, Chasis mounted f] Repulsion motor chasis mounted g] Squirrel cage 3 phase AC 300W, 2 speed chasis mounted motor.	1Set.	set		
3	MG Set Consisting of Squirrel Case Induction Motor 7HP 400V, 50 cycles with directly coupled DC shunt generator 5 KW 250V with built in panel board laboratory type MG Set should be mounted on a base plate. The Panel Board Consist of : 3-Phase Cir Circuit Breakers Star Delta Starter (Contact type & points) Shuck Field Regulator DC Circuit Breaker Suitable voltmeter on AC & DC side Suitable line ammeters on AC & DC side Field Circuit ammeter Indicating lamps on both the sides (AC & DC)	1Set	set		

	Accessories: • Tachometer for Speed Measurement. • The circuit diagram will be supplied with the Motor. • Instruction Manual				
4	Motor Generator ( DC to AC ) Set Consisting of : Motor shunt 5 HP , 440 volts with starting compensator and switch directly coupled to generator AC , 3.5 KVA , 400/230 volts , 3- phase , 4 wire , 0.8 PF 50cycles with exciter and 1 switch board mounted with regulator , circuit breaker , ammeter , voltmeter	1Set	set		
5	Motor Series DC , 220 volt , 0.5 to 2 HP , coupled with mechanical load.	1No.	each		
6	DC Shunt Motor 3HP 250V with 3 point starter and speed regulator Laboratory type Motor should be mounted on a base plate. The Panel Board Consist of : <ul style="list-style-type: none"> <li>• 3 Point DC Starter.</li> <li>• Speed Regulator.</li> <li>• Suitable Analog Voltmeter.</li> <li>• Suitable Analog Ammeter.</li> </ul> Accessories: • Tachometer for Speed Measurement. • The circuit diagram will be supplied with the Motor. • Instruction Manual	2Nos.	each		
7	AC Squirrel Case Induction Motor 3HP , 400V with DOL Starter Laboratory type Motor should be mounted on a base plate. The Panel Board Consist of : <ul style="list-style-type: none"> <li>• DOL Starter</li> <li>• Suitable Analog Voltmeter.</li> <li>• Suitable Analog Ammeter.</li> </ul> Accessories : • Tachometer for Speed Measurement. • The circuit diagram will be supplied with the Motor. • Instruction Manual	1No.	each		
8	DC Compound 3HP 250V with 4 Point Starter and Laboratory type Motor should be mounted on a base plate. The Panel Board Consist of : <ul style="list-style-type: none"> <li>• 4 Point DC Starter.</li> <li>• Field Regulator</li> <li>• Suitable Analog Voltmeter.</li> <li>• Suitable Analog Ammeter.</li> </ul> Accessories: • Tachometer for Speed Measurement. • The circuit diagram will be supplied with the Motor. • Instruction Manual	2Nos.	each		

9	Motor AC Single Phase, 230Volt, 1HP Repulsion type complete with starter and switch.	1No.	each		
10	Motor AC Single Phase 230volt 50 cycles ¼ HP with starter / switch	1No.	each		
11	Motor AC Single Phase 230 volt 50cycles 1 HP capacitor type with starter switch 1 HP	1No.	each		
12	DC Compound 3HP 250V with 4 Point Starter and Laboratory type Motor should be mounted on a base plate.	1No.	each		
13	The Panel Board Consist of : <ul style="list-style-type: none"> <li>• 4 Point DC Starter.</li> <li>• Field Regulator</li> <li>• Suitable Analog Voltmeter.</li> <li>• Suitable Analog Ammeter.</li> </ul> Accessories: • Tachometer for Speed Measurement. • The circuit diagram will be supplied with the Motor. • Instruction Manual				
14	Oscilloscope Dual Trace /Double beam 20 MHz Vertical Deflection System Deflection Factor Range: 5mV per Division to 10V per Division in a 1 - 2 - 5 sequence of 11 steps Accuracy: (+) 3% Approx. Variable Control Range: Continuously variable and uncalibrated between step setting. Increases deflection factor by at least 2.5 to 1 Bandwidth (-3 db): 20 MHz or more Rise Time: 17.5 nS or less AC Coupled Cut Off Frequency: 10 Hz or less Common Mode Rejection Ratio: At least 10 to 1 at 20 MHz Input Characteristics Direct Input Via 10 : 1 probe Resistance 1 M.Ohms + 2% 10 M.Ohms + 5% Capacitance 30 pF + 5 pF 20 pF + 5 pF Max. Safe Input Voltage (DC or AC Coupled) 400 V ( DC + AC ) Peak Channel Isolation: Greater than 100 : 1 at 10 MHz Visual Delay Time: 40 ns or more Invert Mode: In Channel 2 only Trigger System	2Nos.	each		

Trigger Sensitivity (For Auto & Norm. Mode)  
Internal Signal: 0.1 Div  
External Signal: 0.2 V p-p  
TV Field Mode (Composite Sync.)  
Internal: 2 Div  
External: 0.3 Div  
Horizontal Deflection System  
Sweep Rate: 0.2s per Div to 0.1 Micro Sec per Div in a 1 - 2 - 5  
sequence of 20 steps. Magnification extends Max. usable  
sweep speed to 20ns per Div.  
Accuracy: ( + ) 3 % Approx.  
Variable Control: > or = 2.5 : 1  
Sweep Linearity: ( + ) 10 %  
X-Y Operation  
Deflector Factor: 0.2V/div ~0.5V/div  
Frequency Bandwidth (-3dB): DC:0~1MHz; AC: 10Hz ~ 1MHz  
Calibration Signal  
Deflection Factor: 5mV per Division to 10V per Division in a 1 - 2 - 5  
sequence of 11 steps  
Accuracy: (+) 3% Approx.  
Bandwidth: DC to at least 1 MHz  
Phase Difference Between X and Y Axis Amplifiers: < 'OR' = 3° from  
DC to 50 kHz  
Z Modulation  
Sensitivity: 5V cause noticeable modulation positive going input  
decreases intensity  
Usable Frequency Range: DC - 1 MHz  
Max. Safe Input Voltage: 50 V (DC + AC)pk  
Input Resistance: 10 K.Ohms  
Trace Rotation: Possible  
Probe Adjustment Signal Output  
Voltage into 1M.Ohms load: 0.5V + 2%  
Repetition Rate: 1 KHz + 2%  
Wave Form: Square Wave  
Cathode Ray Tube  
Display Area: 8 Div x 10 Div ( 1 Div = 1 cm )

	Nominal Accelerating Voltage: 2 KV Power Requirement Line Voltage Range: 220V + 10% Line Frequency: 50 Hz + 2 Hz Max. Power Consumption: 40W Mechanical Characteristics Weight: 7.2kg Dimensions: 320mm (L) x 124mm (W) x 380mm (D)				
15	Oil Testing Kit Confirms to IS 6792, IEC 156 Tests insulating oils to IS, IEC, ASTM, etc. Test voltage to 0 – 60 kV. One piece construction with safety interlock Test voltage can be held at any level up to maximum kV meter continues to indicate 'bdv' even after breakdown Light weight, portable, rugged and reliable Specifications Input : 240 V ±10%, AC, 1Phase, 50/60Hz. Display : Analog models: 96mm square Accuracy : ±4% of full scale deflection/range Shut down sensitivity in HV circuit : 20mA approx. Rate of rise of voltage : Motorized sets only: 2kV/second approx. (±20% max.) Dimension : 50x55x48	2Nos.	each		

We agree to supply the above goods in accordance with the technical specification as per terms and conditions specified in Tender Notice.

We also confirm that the normal commercial Warrantee/Gurantee of 12 months shall apply to all the offered goods.

We also confirm that we have taken steps to ensure that no person acting for us or on our behalf will engage in corrupt, fraudulent, collusive, coercive or obstructive practice.

We agree to make necessary arrangements for Inspection and Testing of all the above items at places within Kolkata Metropolitan area before dispatch to the consignee.

Signature of Supplier.









