

**TRADE: ELECTRICIAN****LIST OF TOOLS & EQUIPMENTS FOR 16 TRAINEES + 1****A. TRAINEES TOOL KIT FOR 16 TRAINEES +1 INSTRUCTOR**

| <b>TOOL KIT</b>  |  |                 |  |
|--|--|-----------------|--|
| <b>Sl. No.</b>   | <b>Name of the items</b>   | <b>Quantity</b> | <b>Remarks</b>   |
| 1  | Steel Tape, 15 m length  | 17 Nos.         | Sr. No. 1 to 18 tool kits to be Common for 1 to 4 semesters. |
| 2  | Plier Insulated, 150 mm  | 17 Nos.         |  |
| 3  | Plier Side Cutting, 150 mm   | 17 Nos.         |  |
| 4  | Screw Driver, 100 mm   | 17 Nos.         |  |
| 5  | Screw Driver, 150 mm   | 17 Nos.         |  |
| 6  | Electrician Connector, screw driver insulated handle thin stem, 100 mm | 17 Nos.         |  |
| 7  | Heavy Duty Screw Driver , 200 mm                                       | 17 Nos.         |  |
| 8  | Electrician Screw Driver thin stem insulated handle, 250 mm            | 17 Nos.         |  |
| 9  | Punch Centre , 150 mm X 9 mm   | 17 Nos.         |  |
| 10   | Knife Double Bladed Electrician  | 17 Nos.         |  |
| 11   | Neon Tester  | 17 Nos.         |  |
| 12   | Steel Rule 300 mm  | 17 Nos.         |  |
| 13   | Hammer, cross peen with handle   | 17 Nos.         |  |
| 14   | Hammer, ball peen With handle  | 17 Nos.         |  |
| 15   | Gimlet 6 mm.   | 17 Nos.         |  |
| 16   | Bradawl  | 17 Nos.         |  |
| 17   | Scriber (Knurled centre position )                                     | 17 Nos.         |  |
| 18   | Pincer 150 mm  | 17 Nos.         |  |
| <b>NOTE: For 2nd Unit of the Trade, only Trainees Tool Kit (from Sl No- 1 to 18) is required additionally.</b> |  |                 |  |

**B. SHOP TOOLS, INSTRUMENTS and MACHINERY**

|   |                                    |            |                              |
|---|------------------------------------|------------|------------------------------|
| 1 | C- Clamp 200 mm, 150 mm and 100 mm | 2 Nos each | Common for 1 to 4 semesters. |
| 2 | Spanner Adjustable 150 mm,300mm    | 2 Nos each |                              |

|    |   |            |                              |
|----|---|------------|------------------------------|
| 3  | Blow lamp 0.5 ltr                             | 1          |                              |
| 4  | Melting Pot                                   | 1          |                              |
| 5  | Ladel   | 1No        |                              |
| 6  | Chisel Cold firmer 25 mm X 200 mm             | 2          | Common for 1 to 4 semesters. |
| 7  | Chisel 25 mm and 6 mm                         | 2 Nos each |                              |
| 8  | Hand Drill Machine                            | 1          |                              |
| 9  | Portable Electric Drill Machine 6 mm capacity | 1          |                              |
| 10 | Pillar Electric Drill Machine 12 mm capacity  | 1          |                              |
| 11 | Allen Key                                     | 1 set      |                              |
| 12 | Oil Can 0.12 ltr                              | 1          |                              |
| 13 | Grease Gun                                    | 1 No       |                              |
| 14 | Out Side Micrometer                           | 2          | Common for 1 to 3 semesters. |
| 15 | Motorised Bench Grinder                       | 1          | Common for 1 to 4 semesters. |
| 16 | Rawl plug tool and bit                        | 2 set      |                              |
| 17 | Pully Puller                                  | 2          |                              |
| 18 | Bearing Puller                                | 2          |                              |
| 19 | Pipe vice                                     | 4          |                              |
| 20 | Thermometer 0 to 100 deg Centigrade           | 1 No.      |                              |
| 21 | Scissors blade 150 mm                         | 4 Nos.     | Common for 1 & 3 semesters   |
| 22 | Crimping Tool                                 | 2 sets     | Common for 1 to 4 semesters. |
| 23 | Wire stripper 20 cm                           | 2 Nos.     |                              |
| 24 | Chisel Cold flat 12 mm                        | 2 Nos.     |                              |
| 25 | Mallet hard wood 0.50 kg                      | 4 Nos.     |                              |
| 26 | Hammer Extractor type 0.40 kg                 | 4 Nos.     |                              |
| 27 | Hacksaw frame 200 mm 300 mm adjustable        | 2 Nos.each |                              |
| 28 | Try Square 150 mm blade                       | 4 Nos.     | Common for 1 to 3 semesters  |
| 29 | Outside and Inside Divider Calliper           | 2 Nos.each |                              |
| 30 | Pliers flat nose 150 mm                       | 4 Nos.     | Common for 1 to 4 semesters. |
| 31 | Pliers round nose 100 mm                      | 4 Nos.     |                              |
| 32 | Tweezers 100 mm                               | 4 Nos.     |                              |
| 33 | Snip Straight and Bent 150 mm                 | 2 Nos.each | Common for 1, & 3 semesters. |

|    |   |             |                               |
|----|---|-------------|-------------------------------|
| 34 | D.E. metric Spanner                                       | 2 Nos.      | Common for 1 to 4 semesters.  |
| 35 | Drill hand brace  | 4 Nos.      |                               |
| 36 | Drill S.S. Twist block 2 mm, 5 mm 6 mm set of 3           | 4 Set       |                               |
| 37 | Plane, smoothing cutters 50 mm                            | 2 Nos.each  |                               |
| 38 | Gauge, wire imperial                                      | 2 Nos.      |                               |
| 39 | File flat 200 mm 2nd cut                                  | 8 Nos.      |                               |
| 40 | File half round 200 mm 2nd cut                            | 4 Nos.      |                               |
| 41 | File round 200 mm 2nd cut                                 | 4 Nos.      |                               |
| 42 | File flat 150 mm rough                                    | 4 Nos.      |                               |
| 43 | File flat 250 mm bastard                                  | 4 Nos.      |                               |
| 44 | File flat 250 mm smooth                                   | 4 Nos.      |                               |
| 45 | File Rasp, half round 200 mm bastard                      | 4 Nos.      |                               |
| 46 | Soldering Iron 25 watt, 65 watt, 125 watt                 | 2 Nos.each  |                               |
| 47 | Copper bit soldering iron 0.25 kg.                        | 2 Nos.      |                               |
| 48 | Desoldering Gun   | 4 Nos.      | Common for 1 to 4 semesters.  |
| 49 | Hand Vice 50 mm jaw                                       | 4 Nos.      |                               |
| 50 | Table Vice 100 mm jaw                                     | 8 Nos.      |                               |
| 51 | Pipe Cutter to cut pipes upto 5 cm. dia                   | 4 Nos.      | Common for 1, to 3 semesters. |
| 52 | Pipe Cutter to cut pipes above 5 cm dia                   | 2 Nos.      |                               |
| 53 | Stock and Die set for 20 mm to 50 mm G.I. pipe            | 1 set       |                               |
| 54 | Stock and Dies conduit                                    | 1 No.       |                               |
| 55 | Ohm Meter; Series Type & Shunt Type                       | 2 Nos. each | Common for 1 to 4 semesters.  |
| 56 | Multi Meter (analog) 0 to 1000 M Ohms,2.5 to 500 V        | 2 Nos.      |                               |
| 57 | Digital Multi Meter                                       | 6 Nos.      |                               |
| 58 | A.C. Voltmeter M.I. 0 -500V A.C                           | 1 No.       |                               |
| 59 | Milli Voltmeter centre zero 100 - 0 - 100 m volt          | 1 No.       |                               |
| 60 | D.C. Milli ammeter 0 -500m A                              | 1 No.       |                               |
| 61 | Ammeter MC 0-5 A, 0- 25 A                                 | 1 No. each  |                               |
| 62 | A.C. Ammeter M.I. 0-5A, 0-25 A                            | 1 No. each  |                               |
| 63 | Kilo Wattmeter 0-1-3 kw                                   | 1 No.       |                               |
| 64 | A.C. Energy Meter, Single phase 5 amp. Three Phase 15 amp | 1 No. each  |                               |
| 65 | Power Factor Meter  | 1 No.       |                               |
| 66 | Frequency Meter   | 1 No.       |                               |
| 67 | Flux meter  | 1 No.       |                               |
| 68 | Wheat Stone Bridge with galvanometer and battery          | 1 No.       |                               |
| 69 | Laboratory Type Induction Coil                            | 1 No.       |                               |
| 70 | DC Power Supply 0-30V, 2 amp                              | 1 No.       | Common                        |

|    |  |            |                              |
|----|--|------------|------------------------------|
| 71 | Rheostat<br>0 -1 Ohm, 5 Amp<br>0 -10 Ohm, 5 Amp<br>0- 25 Ohm, 1 Amp<br>0- 300 Ohm, 1 Amp | 1 No. each | for 1, to 3 semesters.       |
| 72 | 1 Phase Variable Auto Transformer  | 1 No.      | Common for 1 to 4 semesters. |
| 73 | Battery Charger  | 1 No.      |                              |
| 74 | Hydrometer   | 1 No.      |                              |
| 75 | Miniature Breaker 16 amp ( Raw Material)   | 1 No.      | Common for 1 to 4 semesters. |
| 76 | Working Bench 2.5 m x 1.20 m x 0.75 m  | 4 Nos.     |                              |
| 77 | Fire Extinguisher CO2, 2 KG  | 2 Nos.     |                              |
| 78 | Fire Buckets   | 2 Nos.     |                              |
| 79 | Tachometer   | 1 No.      | Common for 2 to 4 semesters  |
| 80 | Current Transformer<br>415 Volt,50 Hz, CT Ratio 150 / 5 Amp, 5VA                         | 1 No.      |                              |
| 81 | Potential Transformer<br>415 Volt,50Hz, PT Ratio 11KV/ 110V, 10VA                        | 1 No.      |                              |
| 82 | Growler  | 1 No.      | Common for 2 to 4            |
| 83 | Tong Tester / Clamp Meter 0 – 100 amp. AC  | 1 No.      |                              |
| 84 | Megger 500 volts   | 1 No.      | semesters                    |
| 85 | Contactors & auxiliary contacts 3 phase, 440volt, 16amp (Raw Material)                   | 1 No. each |                              |
| 86 | Contactors & auxiliary contacts 3 phase, 440 volt, 32 amp. (Raw Material)                | 1 No. each |                              |
| 87 | Limit Switch (Raw Material)  | 1 No.      |                              |
| 88 | Rotary Switch 16 A (Raw Material)  | 1 No.      |                              |
| 89 | Load Bank 5 KW( Lamp / heater Type)  | 1 No.      |                              |
| 90 | Brake Test arrangement with two spring balance 0 to 25 kg rating                         | 1 No.      |                              |
| 91 | Knife Switch DPDT fitted with fuse terminals 16 amp (Raw Material)                       | 4 Nos.     | Common for 2 to 4 semesters  |
| 92 | Knife Switch TPDT fitted with fuse terminals 16 amp(Raw Material)                        | 4 Nos.     |                              |
| 93 | Voltage Stabiliser Input: 150 – 230 volt AC Output: 220 volt AC                          | 1 No.      |                              |
| 94 | 3- point D.C. Starter  | 1 No.      |                              |

|     |  |                     |                             |
|-----|--|---------------------|-----------------------------|
| 95  | 4- point D.C. Starter  | 1 No.               |                             |
| 96  | Electrical Machine Trainer – Suitable for demonstrating the construction and functioning of different types of DC machines and AC machines (single phase and three phase). Should be fitted with friction brake arrangement, dynamo meter, instrument panel and power supply unit  | 1 for 8 (4+4) Units | Common for 2 to 4 semesters |
| 97  | Motor-Generator (AC to DC) consisting of : Squirrel Cage Induction Motor with star delta starter and directly coupled to DC shunt generator and switch board mounted with regulator, air breaker, ammeter, voltmeter, knife blade switches and fuses, set complete with case iron and plate, fixing bolts, foundation bolts and flexible coupling. Induction Motor rating: 7 HP, 400V, 50 cycles, 3 phase<br>DC Shunt Generator rating: 5 KW, 440V | 1 No.               |                             |
| 98  | Used DC Generators-series, shunt and compound type for overhauling practice  | 1 No. each          |                             |
| 99  | D.C. Shunt Generator with control panel, 2.5 KW, 220V  | 1 No.               |                             |
| 100 | D.C. Compound Generator with control panel including fitted rheostat, voltmeter, ammeter and breaker, 2.5 KW, 220 V  | 1 No.               |                             |
| 101 | Diesel Generator Set with change over switch, over current breaker and water-cooled with armature, star-delta connections AC 3 phase, 5 KVA, 240 volt  | 1 No.               | Common for 2 to 4 semesters |
| 102 | DC Series Motor coupled with mechanical load 0.5 to 2 KW, 220 Volts  | 1 No.               | Common for 2 & 4 semesters  |
| 103 | DC Shunt Motor 2 to 2.5 KW, 220 volts  | 1 No.               |                             |
| 104 | DC compound Motor with starter and switch 2 to 2.5 KW, 220 volts   | 1 No.               |                             |
| 105 | Single phase Transformer, core type, air cooled 1 KVA , 240/415 V, 50 Hz   | 1 No.               |                             |
| 106 | Three phase transformer, shell type oil cooled with all mounting 3 KVA , 415/240 V, 50 Hz , (Delta/Star)   | 1 No.               |                             |
| 107 | Oscilloscope Dual Trace, 30 MHZ  | 1 No.               |                             |
| 108 | Function Generator   | 1 No.               |                             |
| 109 | Discrete Component Trainer   | 1 No.               |                             |
| 110 | Linear I.C. Trainer  | 1 No.               |                             |
| 111 | Digital I.C. Trainer   | 1 No.               |                             |
| 112 | Oil Testing Kit  | 1 No.               | Common for 2 & 4 semesters  |
| 113 | Hygrometer   | 1 set               |                             |

|     |   |            |                            |
|-----|---|------------|----------------------------|
| 114 | a. Cut out Relays<br>b. Reverse current<br>c. Over current<br>d. Under voltage  | 1 No. each | Common for 3 & 4 semesters |
| 115 | Starters for 2 to 5 H.P. A.C Motors a.<br>Resistance type starter<br>b. Direct on line Starter<br>c. Star Delta Starter- manual, semi-automatic and automatic<br>d. Auto Transformer type   | 1 No. each |                            |
| 116 | Motor Generator(DC to AC) set consisting of - Shunt Motor with starting compensator and switch directly coupled to AC generator with exciter and switch board mounted with regulator, breaker, ammeter, voltmeter frequency meter, knife blade switch and fuses etc. Set complete with cast iron bed plate, fixing bolts, foundation bolts and flexible coupling.<br>Shunt Motor rating : 5 HP, 440V<br>AC Generator rating : 3-Phase, 4 wire, 3.5 KVA, 400/230 Volts, 0.8 pf, 50cycles | 1 No.      |                            |
| 117 | AC Squirrel Cage Motor with star delta starter and triple pole iron clad switch fuse. 2 to 3 HP, 3-phase ,400 volts, 50 cycles  | 1 No.      |                            |
| 118 | AC phase-wound slip ring Motor with starter and switch 5 HP, 400 volts, 3-phase, 50 cycles  | 1 No.      |                            |
| 119 | A.C. Series type Motor with mechanical load $\frac{1}{4}$ HP, 230V, 50 Hz   | 1 No.      |                            |
| 120 | Single Phase Capacitor Motor with starter switch 1 HP 230 volt 50 cycles  | 1 No.      |                            |
| 121 | Universal Motor with starter/switch 230 volt, 50 cycles $\frac{1}{4}$ HP  | 1 No.      |                            |
| 122 | Stepper Motor with Digital Controller   | 1 No.      |                            |
| 123 | Shaded Pole Motor   | 1 No.      |                            |
| 124 | Bath Impregnating   | 1 No.      |                            |
| 125 | Oven Stove  | 1 No.      |                            |
| 126 | Synchronous motor 3 Phase, 3 HP, 415V, 50Hz, 4 Pole, with accessories.  | 1 no.      |                            |
| 127 | Lux meter   | 1 no.      |                            |
| 128 | Inverter- 1 KVA with 12 V Battery<br>Input- 12 volt DC,<br>Output- 220 volt AC  | 1 No.      |                            |
| 129 | Domestic Appliances –   |            |                            |

|  |  |   |  |
|--|--|---|--|
|  | a. Electric Hot Plate 1500 watt<br>b. Electric Kettle, 1500 watts<br>c. Electric Iron 1500 watts<br>d. Immersion Heater 1500 watt<br>e. A.C. Fan<br>f. Geyser (Storage type) 15 ltr minimum<br>g. Mixture & Grinder      | 1 No.<br>1 No.<br>1 No.<br>1 No.<br>1 No.<br>1 No.<br>1 No. |  |
| 130  | Thyristor /IGBT controlled D.C. motor drive with tachogenerator feedback arrangement 1 HP  | 1 No.   |  |
| 131  | Thyristor/IGBT controlled A.C. motor drive with VVVF control 3 Phase, 2 HP   | 1 No.   |  |
| 132  | Pentium IV Computer or latest (Server- Linux), 2.8 GHz & above, 1 GB RAM, 80 GB HDD, DVD Combo Drive, 15/17" Monitor, optical scroll mouse, multimedia key board, 32 bit LAN card with UPP port, necessary Drivers, etc. | 2 Nos.  |  |
| 133  | Ink jet/ laser printer   | 1 No.   |  |
| 134  | Washing Machine  | 1 No.   |  |
| 135  | Motor Pump set 1 HP, 1 Phase, 240 V  | 1 No.   |  |
| 136  | Pin Type, shackle type & suspension type insulators (Raw Material)   | 2 Nos. each   |  |
| 137  | Pentium IV Computer or latest (Server- Linux), 2.8 GHz & above, 1 GB RAM, 80 GB HDD, DVD Combo Drive, 15/17" Monitor, optical scroll mouse, multimedia key board, 32 bit LAN card with UPP port, necessary Drivers, etc. | 2 Nos.  |  |
| <p><b>Note: The items which are available in the market nearest of the specification as mentioned above may be procured.</b></p> <p><b>Sl no. 96 , Electrical Machine trainer up to 8 (4+4) units- one no.</b></p> <p><b>Sl no. 97 to 137 for 4(2+2) units no additional items are required.</b></p> |  |   |  |

#### FURNITURE :

| <i>Sl. No.</i> | <i>Name of the items</i>              | <i>Quantity</i> | <i>Remarks</i>              |
|----------------|---------------------------------------|-----------------|-----------------------------|
| 1              | Instructor's table                    | 1 No.           | Common for 1 to 4 semesters |
| 2              | Instructor's chair                    | 2 Nos.          |                             |
| 3              | Metal Rack 100cm x 150cm x 45cm       | 4 Nos.          |                             |
| 4              | Lockers with 16 drawers standard size | 2 Nos.          |                             |
| 5              | Almirah 2.5 m x 1.20 m x 0.5 m        | 1 No.           |                             |
| 6              | Black board/white board               | 1 No.           |                             |