

**BILL OF MATERIAL REQUIRED FOR EACH TRAINEE OF THE FOLLOWING
TRADES DURING THE ALL INDIA TRADE TEST OF CRAFTSMEN
(CONVENTIONAL PATTERN) UNDER CRAFTSMEN TRAINING SCHEME
TO BE HELD IN THE MONTH OF JULY – 2017**

1. **DRAUGHTSMAN (MECHANICAL)**
i) Drawing Sheets : As required
2. **DRAUGHTSMAN (CIVIL)**
i) Drawing Sheets : As required
3. **SURVEYOR ***
4. **FITTER**
i) MS flat 75 mm x 50 mm x 8 mm : 2 Nos.
5. **TURNER**
i) MS Rod \varnothing 50 mm x 70 mm : 1 No.
ii) MS Rod \varnothing 20 mm x 70 mm : 1 No.
6. **MACHINIST**
i) MS Rod ϕ 60 x 50 mm : 1 No.
7. **MACHINIST (GRINDER)**
i) MS Rod ϕ 45 x 120 mm : 1 No.
8. **MECHANIC REFRIGERATION AND AIR CONDITIONING**
i) Double door refrigerator
ii) Refrigerant R134a : As required
iii) Tools and equipments required for repairing and charging
9. **INSTRUMENT MECHANIC**
i) Voltmeter
ii) Ammeter
iii) 12 volt battery
iv) Resistors
v) Graph paper
vi) Transistor
vii) Single phase transformer
viii) DC shunt motor
ix) 3 phase Wattmeter
x) Flow meter
10. **TOOL & DIE MAKER (PRESS, TOOLS, JIGS & FIXTURES)**
i) MS Plate 82 x 72 x 22 mm : 1 No.
ii) MS Rod ϕ 35 x 105 mm : 1 No.
11. **TOOL & DIE MAKER (DIES & MOULDS)**
i) MS Plate 82 x 72 x 22 mm : 1 No.
ii) MS Rod ϕ 35 x 45 mm : 1 No.

12. **MECHANIC MACHINE TOOL MAINTENANCE**
 i) MS Flat sheet 100 mm x 100 mm x 6 mm : 1 No. for each trainee
13. **MECHANIC MINING MACHINERY**
 i) Brakes and clutch assembly of any wheel mounted vehicle and tools
 ii) Pipe $\phi 25 \times 50$ mm
 iii) Outside Caliper
 iv) Steel rule
 v) Hexagonal rod of size A/F 16 x 10 mm : 1 No.
 vi) Hex Head/square head bolt M10x1.5P of 20mm or : 1 No.
 suitable length
14. **MARINE FITTER**
 i) MS Rod $\phi 40 \times 160$ mm : 1 No.
 ii) A diesel engine in working condition
15. **VESSEL NAVIGATOR ***
17. **ELECTRICIAN**
 i) Combination plier (insulated) 200 mm : 1 No.
 ii) Screw driver 150 mm : 1 No.
 iii) Screw driver (connector) 150mm : 1 No.
 iv) Electrician knife 75 mm : 1 No.
 v) D.C. / D.C. Shunt Motor-Generator Set : 1 Set
 (3KW, 230V, 1500 R.P.M)
 vi) Voltmeter (M.C. Type) 0-300V : 1 No.
 vii) Amperemeter (M.C. Type) 0-5 Amp, 0-10 Amp : 1 No. each
 viii) Wire wound rheostat 0-300 Ω , 0.8 Amp and : 1 No. each
 0-30 Ω , 2.8 Amp
 ix) Hand tachometer 0-1500-3000 R.P.M : 1 No.
 x) Single phase transformer 230/115V,5KVA, 50 c/s : 1 No.
 xi) Voltmeter (M.I. Type) 0-300, 0-150 V : 1 No. each
 xii) Ampere meter (M.I. Type) 0-10, 0-50 Amp : 1 No. each
 xiii) Single phase variac 0-300V, 15 Amp : 1 No.
 xiv) Series test lamp with bulb 100W, 230V, : 1 No.
 xv) P.V.C wire 7/22 S.W.G. 600V, Grade : 15 meter
 xvi) D.C. supply source
 xvii) Single phase A.C. supply source
18. **ELECTROPLATER**
 i) Ammeter
 ii) Voltmeter
 iii) Tachometer
 iv) Hydrometer
 v) Nickle plate
 vi) Bath
19. **WIREMAN***

20. **LIFT MECHANIC**

- i) DC compound motor 2 KW, 220V with switch fuse unit, voltmeter, ammeter, field regulator, armature regulator and four point starter.
- ii) Plate, earth wire (GI), earthing material for filling like charcoal etc.
- iii) Digital AC drive trainer – 3 Phase, 2 KW
- iv) Elevator control panel, suitable for 5/8 passenger lift having separate input, output and cable alley chamber. Fitted with PLC controller and related accessories
- v) Required tools and equipments

21. **MECHANIC (RADIO & TV)***22. **ELECTRONIC MECHANIC**

- i) Digital Trainer Kit : 1 No.
- ii) Digital Multimeter : 1 No.
- iii) CRO or CRO trainer kit : 1 No.
- iv) DC Power supply (variable)
- v) A low voltage adjustable AC supply
- vi) Variable frequency source (Signal Generator) : 1 No.
- vii) Defective AM radio receiver set or trainer kit : 1 No.
- viii) Signal Generator : 1 No.
- ix) Soldering Iron, Tools etc.
- x) Different types of capacitors (10 diff. values & types)
with two defectives pcs. (one open & one shorted) : 10 Pcs.
- xi) Low Voltage AC source (transformer) : 1 No.
- xii) TV with the known defects : 1 No.

23. **MECHANIC COMPUTER HARDWARE ***24. **MECHANIC CONSUMER ELECTRONICS**

- i) DSO
- ii) Bread Board
- iii) Soldering iron and solder material
- iv) Connecting wires
- v) 8051 microcontroller
- vi) DC power supply
- vii) LED
- viii) Switches
- ix) Function generator
- x) Different types of electronic and electrical cables, connectors
- xi) Crimping tools
- xii) Soldering & De soldering station
- xiii) Relay, lamp
- xiv) CRO
- xv) OP-AMP - μ A741
- xvi) Regulated power supply
- xvii) Signal Generator
- xviii) TRIAC
- xix) SCR
- xx) Intercom

- xxi) Photocopier
- xxii) TV
- xxiii) Photo Diode
- xxiv) Flip Flop ICs
- xxv) Digital IC trainer
- xxvi) Required Capacitors and resistors, diodes, transistors, LED etc.
- xxvii) Required meters, accessories, tools and equipment.

25. **MECHANIC INDUSTRIAL ELECTRONICS**

- i) Bread board, discrete components, ICs, CRO, function generator, power supply
- ii) 8085 microprocessor kit
- iii) LDR, VDR, power supply, Multimeter
- iv) DC motor speed control circuit board
- v) Multimeter
- vi) All required tools and other required components (Discrete/ICs etc.)

26. **MECHANIC MECHATRONICS**

- i) DC motor,
- ii) Multimeter
- iii) Wires
- iv) Lathe machine
- v) Set of keys
- vi) Cartridge sheet

27. **INFORMATION TECHNOLOGY & ELECTRONIC SYSTEM MAINTENANCE***

28. **MECHANIC-CUM-OPERATOR ELECTRONIC COMMUNICATION SYSTEM**

- i) Cathode Ray Oscilloscope (0-20MHz)
- ii) Audio Frequency Oscillator (0-2) MHz
- iii) Regulated power supply (0-30V), 1A
- iv) Resistors – 1.5K Ω , 10 K Ω , 20 K Ω , 100 K Ω
- v) Capacitors – 0.1 μ f 0.01 μ f 0.001 μ f 22 μ f
- vi) Semiconductor Device (Transistor) BC 108
- vii) Semiconductor Device (Diode) OA79
- viii) Function generator
- ix) Soldering iron and solder material
- x) Capacitors and resistors, diodes, transistors, LED : As required
- xi) Multimeter

29. **MEDICAL ELECTRONICS**

- i) ECG machine
- ii) IC
- iii) CRO
- iv) Bread board
- v) Connecting wires
- vi) Multimeter
- vii) Resistor
- viii) PCB
- ix) X-Ray machine
- x) Transistor

- xi) Diode
- xii) Transformer
- xiii) LED
- xiv) 8085 microprocessor kit
- xv) Incubator
- xvi) Capacitor
- xvii) Human model
- xviii) Zener diode
- xix) Potentiometer

30. RADIOLOGY TECHNICIAN (RADIO DIAGNOSIS & RADIO THERAPY)

- i) C.T scan machine
- ii) USG machine
- iii) Intensifying screens
- iv) Chemicals : As required
- v) Materials and chemicals used in First-aid : As required
- vi) Radiographic charts
- vii) Diodes

31. MECHANIC (MOTOR VEHICLE)

- i) A diesel/petrol driven front wheel drive vehicle in working condition
- ii) Set of complete tools
- iii) Battery, Battery charger in working condition
- iv) Raw materials/Consumables such as engine oil, cotton waste, diesel, petrol, consumables for brake system and suspension steering system
- v) Measuring instruments like feeler gauge, outside micrometer, inside micrometer, vernier caliper, dial gauge
- vi) Special tools like hub puller, bearing puller etc.

32. MECHANIC AGRICULTURAL MACHINERY*

33. PAINTER (GENERAL)

- i) Wooden Plywood sheet : 1 No. of suitable size
- ii) Spray gun : 1 No.
- iii) Paint booth : 1 No.
- iv) Paint & thinners : As required
- v) Papers : As required
- vi) Poster colour & brush : Different types
- vii) Black Ink : As required
- viii) Putty : As required
- ix) Pencils : Different hardness
- x) Letter wiring brush : Different sizes

Contd.....6/-

34. MAINTENANCE MECHANIC (CHEMICAL PLANT)

- i) Centrifugal pump, water reservoir, water collecting tank, energy meter, stop clock, graph paper
- ii) Vertical tube evaporator set up, sodium carbonate, thermometer, feed tank with rotameter, condensed collecting tank, mini boiler, stop clock measuring cylinder, compressed air.
- iii) Searl's conductivity apparatus, four sensitive thermometers, constant head or constant level water head, boiler, heater, measuring cylinder, stop watch, vernier calipers and metre scale.
- iv) Viscometer, circulating water bath with an immersion thermostat, viscometer balls, Pyknometer, retort stand, weighing balance, volumetric flask, stopwatch, Thermometers, glassware, cleaning accessories distilled water/Methanol (laboratory grade)/Glycerin.
- v) Gate valve, spanner, packing hook, standard wrenches, cleaning cloth and liquids, center punch and hammer.

35. ATTENDANT OPERATOR (CHEMICAL PLANT)

- i) Evaporating dish, water bath, oven, desiccators, analytical balance, graduated cylinders, dish tongs, gooch crucibles, filter.
- ii) Standard wrenches, centrifugal pump, spanner, wheel puller, cleaning liquids, gasket sheet, grease, packing hook.
- iii) Vernier caliper, small piece of pipe
- iv) Stop water, graduated cylinders, Reynolds apparatus, Potassium permanganate, thermometer, measuring tank.
- v) Shell & tube heat exchanger set up, pipe wrench, wire brush.

36. INSTRUMENT MECHANIC (CHEMICAL PLANT)

- i) Bread board, resistor as per requirement, power supply, digital Multimeter
- ii) Battery, key, Rheostat, voltmeter, ammeter, resistance, connecting wires, metre scale, sand paper
- iii) General purpose IC Resistors as required, LED, IC 7404 (Hex inverter), 7432, 7402, 7408, 7400. IC base 14 pin, soldering flux, connecting wires, regulating DC power supply unit 5V/500 mA, DC voltmeter (MC) 0-10 V. Multimeter
- iv) Bimetallic thermometer, thermocouple, temperature bath with thermostat
- v) CRO, DC power supply 0-30 V, 1A, Transformer 240/12 V 200 mA.
- vi) Resistors of 1% tolerance, patch cords, Milli ammeter 0-1mA, Volt meter 0-10 volts
- vii) Digital voltmeter, 24VDC power supply, RTD

37. LABORATORY ASSISTANT (CHEMICAL PLANT)

- i) Thermal conductivity apparatus
- ii) Apparatus for measuring expansion coefficient
- iii) HCl
- iv) Flask
- v) Cylinder

Contd.....7/-

39. **TEXTILE MECHATRONICS**

- i) Pirm winding machine
- ii) Loom
- iii) Weft Yarns
- iv) Warp Yarns
- v) Measuring tape

41. **TEXTILE WET PROCESSING TECHNICIAN**

- i) Wool Cotton : As required
- ii) Chemicals : As required
- iii) Auxiliaries : As required
- iv) Fabric to be dyed a) cotton fabric ¼ meter (25 cm) x 2 b) Wool fabric: 25 cm
- v) Different type of fibres and their solvents
- vi) Fabric to perform bleaching

42. **DENTAL LABORATORY TECHNICIAN**

- i) Denture maxilla
- ii) Denture mandible
- iii) Dental stone
- iv) Articulator
- v) Base plate
- vi) Wax sheet
- vii) Burner
- viii) Flask
- ix) Casting machine
- x) Acrylic teeth
- xi) Spatulas
- xii) Bowls
- xiii) Plaster of paris
- xiv) Acrylic
- xv) Lathe machine
- xvi) Micromotor
- xvii) Burs
- xviii) Wire
- xix) Cold mould seal
- xx) Orthodontic wire
- xxi) Orthodontic pliers – universal and adam's
- xxii) Carver
- xxiii) Marker

43. **ARCHITECTURAL DRAUGHTSMANSHIP**

- i) Drawing sheets : As required
- ii) P.C. with AUTOCAD : 1 No.

NOTE:* ALL THE TOOLS, INSTRUMENTS AND EQUIPMENT AS PER THE SYLLABUS OF THE RESPECTIVE TRADE MUST BE KEPT READY.
