

**BILL OF MATERIAL REQUIRED FOR EACH TRAINEE FOR ALL INDIA TRADE TEST
OF CRAFTSMEN UNDER CRAFTSMEN TRAINING SCHEME
(SEMESTER PATTERN) FOR ENGINEERING/ NON- ENGINEERING TRADES
TO BE HELD IN JULY/AUGUST, 2018
SEMESTER - IV**

- 030. ATTENDANT OPERATOR (CHEMICAL PLANT)**
- i) Tray drier apparatus, air circulating blower and heater, watch to measure time, 50 gms. of CaCO₃, weights in the range of 2 gm., 80 ml. of water
 - 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) Packed glass column, air blowers, pump and manometer, rotameter to measure water and air flow rates, raschig rings of two different sizes
- 031/217. DRAUGHTSMAN (CIVIL)**
- i) Theodolite : 1 No.
 - ii) Dumpy level : 1 No.
 - iii) Staff, chain etc. : As required
 - iv) Total station
- 032/224. DRAUGHTSMAN (MECHANICAL)**
- i) Drawing Board : 1 No.
 - ii) Drawing Sheet : As required
 - iii) Drawing Instruments : As required
 - iv) Mini Drafter : 1 No.
 - v) Pencil HB, H & 2H : 1 No. each
 - vi) Eraser : 1 No.
- 033/231. ELECTRICIAN**
- i) Mixer grinder with at least two electrical faults : 1 No.
 - ii) Series testing board : 1 No.
 - iii) Multi meter, spares and tools : 1 Set
 - iv) Pin insulator 11 KV : 1 No.
 - v) Shackle insulator 11 KV : 1 No.
 - vi) Copper conductor – 8 SWG (Approximately 50 cm long) : 2 Nos.
 - vii) Copper binding wire - 16 SWG : 4 m
 - viii) Wire cutter, plier etc. : 1 Set
 - ix) Megger : 1 No.
 - x) Insulated cable – with at least five different types of insulation : 5 Nos.
 - xi) Set-up or model of house wiring with known faults : 1 Set
- 034/219. ELECTRONICS MECHANIC**
- i) Experimental board
 - ii) PNP Transistor
 - iii) Power Supply
 - iv) Mill ammeter
 - v) Multimeter
 - vi) LED, DTH
 - vii) +5V DC power supply
 - viii) Breadboard
 - ix) Connecting wires

035/233. ELECTROPLATER

- i) Silver plating tank
- ii) Micrometer
- iii) BNF jet tester
- iv) Anodizing unit with bath
- v) Chromate conversion bath
- vi) Standard cleaning line
- vii) Wires for carrying jobs during process
- viii) Personnel protective equipments (Apron, gloves, face shield, mask etc.)

036/227. FITTER

- i) MS Flat 100 mm x 85 mm x 9 mm : 1 No.

037. INSTRUMENT MECHANIC

- i) Radiation pyrometer with all accessories : 1 Set
- ii) Diaphragm valve with two known faults : 1 No.
- iii) Set-up to check the diaphragm valve : 1 Set
- iv) Hydraulic Trainer : 1 No.
- v) pH meter : 1 No.
- vi) Tools & associated instruments : Assorted

038. INSTRUMENT MECHANIC (CHEMICAL PLANT)

- i) Shell & Tube heat exchanger, thermometer
- ii) ON-OFF controller set up, stop control
- iii) Air to close pneumatic control valve with electro-pneumatic valve positioner, electronic calibrator

039/220. ITESM/ICTSM

- i) PC, window server software, Linux server software
- ii) Hub, switch, LAN cable, RJ connector
- iii) Internet
- iv) Router

040. LABORATORY ASSISTANT (CHEMICAL PLANT)

- i) REAGENTS AND APPARATUS: Flasks Kjeldhal 250ml, connecting tubes for Kjeldhal distillation, Erlenmeyer flasks, Burette, Digestion tubes, thermometer, Potassium sulphate, K_2SO_4+Se tablets (2 for each digestion tube), Concentrated H_2SO_4 (in the hood), 35 P% (w/v) NaOH for each digestion tube (already prepared), 4.0 % (w/v) Boric acid, H_3BO_3 (already prepared), 0.1 M HCl (already prepared, exact concentration will be given) Methyl orange (in droppers) and Milk.
- ii) Reagents and Apparatus: Thimbles - 33 x 80 mm, Whatmaan. Soxhlet extraction apparatus - Extraction tube id 40 mm, heating mantles - 6 units, steam bath or water bath. Filter paper - 9 cm, Aluminum dishes - Disposable, 60 mm diameter x 18 mm depth, Glass beads - Hollow, perforated, 4 mm diameter or carborundum chips #12 granules Oven - Mechanical convection oven. Analytical balance - Capable of weighing 0.1 mg, Aluminum weighing paddles - L-shaped, approximately 25mm long, 12.5mm wide.

- 041/234. LIFT MECHANIC/LIFT & ESCALATOR MECHANIC**
 i) Lift available in lab
 ii) Drawing of lift
 iii) Required tools and equipment
- 042/222. MACHINIST**
 i) M.S Rod \varnothing 26 mm x 100 mm : 1 No.
 Tools & equipment required in general w/s with CNC machine
- 043/223. MACHINIST GRINDER**
 i) End mill cutter : 1 No.
 ii) Tap : 1 No.
- 044. MECHANIC MAINTENANCE (CHEMICAL PLANT)**
 i) Personnel protective equipments (Hand gloves, goggles, safety shoes)
 ii) Cotton clothe
 iii) Antirust compound
 iv) Standard tool kit
- 045. MARINE FITTER**
 i) Raw material required for servicing and over hauling of Governor and fuel pump of a diesel engine.
 ii) Common tools & equipments used in marine diesel engine shop.
- 046. MECHANIC MINING MACHINERY ***
- 047/216. MECHANIC AGRICULTURE MACHINERY**
 i) Common tools and equipments used in electrical equipment shop of MAM Trade.
 ii) Raw material & consumables required to repair and service an A.C. Motor.
- 048. MECHANIC COMPUTER HARDWARE**
 i) Wires & cables : As required
 ii) Computer PC
- 049/273. MECHANIC CONSUMER ELECTRONICS/MECHANIC CONSUMER ELECTRONICS**
 i) DTH set up
 ii) Steam Iron
 iii) LCD TV
 iv) Required tools, spare parts & accessories
- 050. MECHANIC-CUM-OPERATOR ELECTRONICS COMMUNICATION SYSTEM**
 i) Yagi Antenna, Trainer kit
 ii) Radio receiver with trainer kit
 iii) VCO
 iv) Radio-amplifier trainer kit frequency
 v) Required tools, equipment & accessories, instruments
 vi) Connecting wires

051. MECHANIC INDUSTRIAL ELECTRONICS *

052/225. MECHANIC MACHINE TOOL MAINTENANCE

- i) Centrifugal pump
- ii) Old Hydraulic power press
- iii) Resistor
- iv) Paper type capacitor
- v) Inductor
- vi) SCR
- vii) CRO
- viii) Power supply unit
- ix) Rectifier circuit
- x) Pneumatic compressor

053. MECHANIC MECHATRONICS

- i) Tools / Instruments
- ii) Resistors
- iii) Transistors

054. MECHANIC MEDICAL ELECTRONICS

- i) Ultrasound scanner board
- ii) Cuff
- iii) Inflator
- iv) Power supply
- v) Stethoscope
- vi) Sphygmometer
- vii) Semi-automatic BP measuring unit
- viii) Automatic BP measuring unit
- ix) ECG sensor with leads
- x) Computer interface
- xi) PC
- xii) Gel
- xiii) EMG machine control panel

055/215. MECHANIC MOTOR VEHICLE

- i) Emery sheet
- ii) Flux
- iii) Lead
- iv) Cotton waste
- v) Related tools & instrument

: As required

056/218. MECHANIC RAC *

057. MECHANIC RADIO & T.V

- i) Logic trainer kit
- ii) NAND gates (IC 7400)
- iii) Wires
- iv) Logic gates / ICs
- v) Picture tube

Contd...5/-

- vi) Loudspeaker Video detector
- vii) Camera
- viii) Tuner
- ix) Color T.V. Trainer Kit
- x) Digital voltmeter
- xi) Cathode Ray oscilloscope
- xii) DVD player
- xiii) Related tools, spare parts, accessories, instruments & connecting wires

058/226.

OPERATOR ADVANCED MACHINE TOOLS

- i) M.S Plate \varnothing 250 mm x 10 mm : 1 No.

059.

PAINTER GENERAL

- i) Metal sheet
 - ii) Wet sanding setup
 - iii) Emery paper
 - iv) Paints
 - v) Primer
 - vi) Spray gun
 - vii) Paint booth
 - viii) Oven
 - ix) Gloss tester
 - x) Knife
 - xi) Stop watch
- : As required

060.

RADIOLOGY TECHNICIAN

- i) MRI machine
- ii) Materials required for maintenance of charts
- iii) Equipments and chemicals required for radiographic calibration
- iv) Materials used in shock first aid box

061/235.

SPINNING TECHNICIAN

- i) Draw frame (miniature) for reference
- ii) Necessary tools

062.

SURVEYOR

- i) Chain and Tape
- ii) PC with AUTO CAD

063/236.

TEXTILE MECHATRONICS

- i) Weaving machine : As required
- ii) Tool box : 1 No.
- iii) Safety gadgets : As applicable

064/237.

TEXTILE WET PROCESSING TECHNICIAN

- i) P/C fabric 0.25 meter (100% cotton)
- ii) Vessel : 1 No.
- iii) Mechanical stirrer : 1 No.
- iv) Measuring jar / mug : 2 Nos.
- v) Any necessary chemicals : As required

Contd...6/-

vi) Safety gadgets	: As required
vii) Dispersing agent	: As required
viii) Sequestering agent	: As required
ix) Leveling agent	: As required
x) Carrier	: As required
xi) Disperse dyes	: As required
xii) Selected Direct dyes	: As required
xiii) Acetic acid (50%)	: As required
xiv) Glauber salt	: As required
xv) Weighing balance (100 Kg capacity)	: 1 No.
xvi) Trolley	: 1 No.
xvii) Tub	: 2 Nos.
xviii) Burner	: 1 No.
xix) pH meter	: 1 No.
xx) Thermometer	: 1 No.
xxi) Calculator	: 1 No.
xxii) Screen printing machine	: 1 No.
xxiii) Cotton yarn / fabric	: As required
xxiv) Amylase enzyme	: As required
xxv) Turkey red oil	: As required
xxvi) Resisting Reagents	: As required

065/228. TOOL & DIE MAKER (DIES & MOULDS)

i) MS Block 160 mm x 160 mm x 55 mm	: 1 No.
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066/229. TOOL & DIE MAKER (PRESS TOOLS, JIGS & FIXTURES)

- i) Hydraulic & pneumatic system in working condition
- ii) CNC milling machine with CAD/CAM software & simulator

067/221. TURNER

i) M.S Round \varnothing 45 mm x 145 mm	: 1 No.
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068. VESSEL NAVIGATOR

i) Steel wire rope and other raw material	: As required
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069/238. WEAVING TECHNICIAN

- i) Running rapier Loom
- ii) Fabric samples to analyze weave, EPI, PPI etc. (4 per student)
- iii) Fabric samples containing various defects (4 per student)

070/232. WIREMAN

i) 3-phase, 5 KVA, 440/220V, A.C. supply, Step-Down Transformer	: 1 Set
ii) Multi meter	: 1 Set
iii) Isolator 4 Pole 32 Ampere, 440V capacity	: 1 Set
iv) 400 Ampere capacity 3-phase, 440 V manual draw out type A.C.B.	: 1 Set
v) Double testing lamp	: 1 Set

- vi) Heat Shrinkable Cable End Joint” for a 3.5 C x 35 mm²
XLPE Armoured cable, 440/660V grade : 1 Set
- vii) Main Switch 200 Ampere, 3-phase, 440V A.C.
capacity : 1 Set
- viii) 3-Phase, 440/660V grade cable suitable for 200
Ampere : 1 Lot
- ix) XLPE Single Core Multi strand copper single core
flexible wire size-1.5 mm² of 440/660 V grade. : 1 Lot
- x) Tools & accessories : As required

230. METAL CUTTING ATTENDANT (FOR VISUALLY IMPAIRED PERSON) *

265. TECHNICIAN POWER ELECTRONICS SYSTEM

- i) Solar panels for 12 volt system : 1 Set
- ii) Solar charge controller with battery 12 volt : 1 Set
- iii) Cables, connectors and other accessories : 1 Set
- iv) Siemens MM420 AC drive with 1 HP AC motor : 1 Set
- v) PLC system with input, output modules and software : 1 Set

275. MECHANIC AIR-CONDITIONING PLANT

- i) Central air conditioning plant
- ii) Other materials as per requirement

277. INFORMATION TECHNOLOGY

- i) PC
- ii) MySQL software
- iii) PHP, HTML, CSS, Core Java
- iv) Internet
- v) Appachi Tomcat software

284. CIVIL ENGINEER ASSISTANT

- i) Cement : 5 kg
- ii) Sand : 10 kg
- iii) Aggregate : 20 kg
- iv) Tools : As required
- v) Hot Bitumen

133. DENTAL LABORATORY EQUIPMENT TECHNICIAN

- i) Casting machines
- ii) Wires
- iii) Cutters
- iv) Marker
- v) Wax sheet
- vi) Cold cure acrylic
- vii) Cold mould
- viii) Pliers
- ix) Welding machine
- x) Related Dental tools, equipments, accessories and instruments

134.

ARCHITECTURAL DRAUGHTSMANSHIP

- i) Personal computer with LCD monitor
- ii) Drafting software AUTO CAD
- iii) A0 plotter for sheet printing at the end of exam
- iv) A0 plotter sheet roll for printing

Note: *Tools & Equipments as per syllabus of respective trade may be kept ready in working condition.
