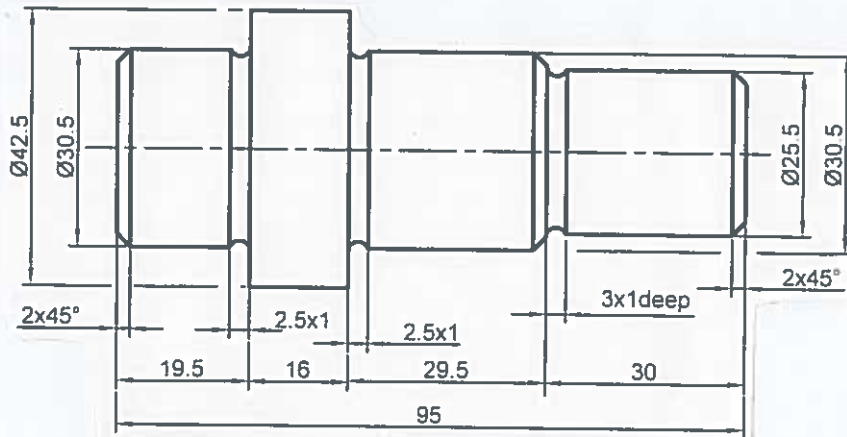


**BILL OF MATERIAL REQUIRED FOR EACH TRAINEE FOR ALL INDIA TRADE  
TEST OF CRAFTSMAN TRAINING SCHEME (SEMESTER PATTERN)  
ENGINEERING/ NON- ENGINEERING TRADES TO BE HELD IN JANUARY -2019  
SEMESTER – IV**

- 30. ATTENDENT OPERATOR (CHEMICAL PLANT)**  
i) Plate & Frame filter press  
ii) Ball mill  
iii) Apparatus to determine used bulb temperature
- 31/ 217. DRAUGHTSMAN CIVIL**  
i) Drawing sheet (Imperials size)  
ii) Field book  
iii) Metallic Tape  
iv) Wooden pegs  
v) Mallet  
vi) Dumpy level  
vii) Leveling sill  
viii) Measuring tape
- 32/ 224. DRAUGHTSMAN (MECHANICAL)**  
i) Drawing sheets, Pencils, Eraser, Emery Paper – As required  
ii) Drawing Board – 01  
iii) Mini drafter – 01
- 33/ 231. ELECTRICIAN**
- |  |   |          |
|--|---|----------|
| i) Control Panel with required accessories                               | : | 01 set   |
| ii) Induction motor  | : | 01 No    |
| iii) Control Cabinet with required accessories for<br>3 – phase AC motor | : | 01 set   |
| iv) Washing machine with given faults                                    | : | 01 No.   |
| v) Spares for washing machines (as per faults)                           | : | Assorted |
| vi) Circuit breaker  | : | 01 No.   |
| vii) Tools, Cables & Wires etc   | : | Assorted |
- 34/ 219. ELECTRONIC MECHANIC**  
i) Online UPS with batteries, Digital multimeter, Variac (0-300V, 8 A), CRO, Isolation transformer 230 V/ 0 – 9 V, Frequency meter 0 – 100 Hz. 230 V). Resistive loads upto 2000 min case of 2 KVA UPS  
ii) SMPS AT type, SMPS ATX type, Trainees kit, Logic probe  
iii) Photovoltaic panel (BP Solar 10W, 12 V), Solar panel rack (Support and Change positions of a PV panel). 2 multimeters (or an ammeter and a voltmeter) or a AVO meter, Insulated wires with alligator clips or other cables, One resistor Panel (1Ω, 4.7Ω, 10Ω, 22Ω, 32Ω, 47Ω, 51Ω, 82Ω, 100Ω, 220Ω, 10W)  
iv) Mobile Phone Hand Set

Contd...2/-

- 35/ 233. ELECTROPLATER**  
 i) Sodium bicarbonate, Safety glasses, Hydroxide (NaOH) solution, dish soap, Hot water, 5 gallon plastic tub or cooler, 15 – 20% Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>) solution, 12 volt power supply, 5 gallon plastic tub or cooler, Lead cathode, Aluminium wire  
 ii) Sledge hammer, Burnishing tool, Sharp tool, Bench vice, Grinding wheel (abrasive), Heating coil, Different plated job, Micrometer unit, Salt spray test apparatus, Cotton cloth  
 iii) Acid dipping bath, Cyanide dipping bath, Swilling bath, Hot water bath, Drag out bath, Tin plating tank with complete setup, Vapour Degreaser, Centrifugal dryer, Plating jig (Copper), Tin plating solution
- 36/ 227. FITTER**  
 Mild Steel Flat: 130 mm x 100 mm x 10 mm : 01 No.
- 37. INSTRUMENT MECHANIC**  
 i) Expt. Set – up to measure temperatures using RTD : 1 set  
 ii) Set of various electropneumatic components : 1 set  
 iii) 5/2 way double solenoid directional control valve set up or Suitable set – up to develop AND, OR logic by pneumatic components : 1 set
- 38. INSTRUMENT MECHANIC (CP)**  
 i) Venturimeter fitted across a pipeline leading to a collecting tank, stopwatch, U- Tube manometer connecting across entry and throat sections etc.  
 ii) Current source capable of delivering 30 mA of maximum output of transducer with the required compliance voltage, supply pressure of at least 20psig., a millimeter or 0-10 VDC voltmeter with a 250 ohm resistor.  
 iii) pH meter, standard flask, magnetic stirrer, funnel, beaker, wash bottle, tissue paper, forceps, buffer solution of pH 4.01, 7.0 and 9.2, potassium chloride, distilled water  
 iv) Shell & Tube heat exchanger with flow & temperature measuring devices
- 39/ 220. ITESM/ ICTSM**  
 Computer system, Required Software, Modem, Broadband connection, Cable, LAN connector, Crimping/ Punching tool, Video conferencing set up
- 40. LABORATORY ASSISTANT (CP)**  
 i) Burette, pipette, conical flask, glass rod etc. Ethyl alcohol, Std. KOH solution, Oil, Phenolphthalein, Acetone, Benzene etc.  
 ii) Redwood viscometer (1/2), thermometer, given lubricating oil, oil cup, flask  
 iii) Flame photometer
- 41/ 234. LIFT MECHANIC/ LIFT & ESCALATOR MACHINE**  
 A working Model of Passenger lift
- 42/ 222. MACHINIST**  
 M.S. Flat 80 mm x 55 mm x 10 mm : 02 Nos.  
 Contd...3/-

43/223. **MACHINIST (GRINDER)**

All dimensions are in mm  
Gen. tolerance + 0.1mm.

44. **MAINTENANCE MECHANIC (CP)**

- i) Vertical tube evaporator
- ii) Shell and Tube heat exchanger
- iii) Screw driver
- iv) Cleaning cloth
- v) Hand plier
- vi) Lining Thread
- vii) Plot and Frame filter press

45. **MARINE FITTER**

- i) Old Fuel Pump
- ii) A 4 cylinder diesel engine in working condition with fully charged battery

47/ 216. **MECHANIC AGRICULTURAL MACHINERY**

- i) Tractor, Thrasher in working condition
- ii) A complete set of tools
- iii) Raw materials/ Consumables such as spares for threshing unit, cotton waste, diesel, emery papers (fine and coarse), hack saw blades, grease, engine oil, fuel filter element, oil filter element, fan belt, engine packing set, spares for sprayer etc. (as per requirement)
- iv) Measuring instruments like try square etc.
- v) Any other item may be required after moderation of the paper

48. **MECHANIC COMPUTER HARDWARE\***49/ 273. **MECHANIC CONSUMER ELECTRONIC APPLIANCES**

- |                    |                      |
|--------------------|----------------------|
| i) OFC trainer kit | ii) Vacuum cleaner   |
| iii) DMP           | iv) Connecting wires |
| v) Ammeter         | vi) Voltmeter        |
| vii) Diodes        |                      |

Contd...4/-

- 50. MECHANIC-CUM-OPERATOR ELECTRONICS COMMUNICATION SYSTEM**  
Antenna with transmitter and receiver module kit, Multimeter, Frequency meter, Amplifier kit with class A and Class B type, CRO, Connecting wires and probe, Tracing paper, Receiver circuit kit, Multimeter, Connecting leads, FM transmitter and receiver circuit kit
- 51. MECHANIC INDUSTRIAL ELECTRONICS**  
DC motor, DC motor drive, Power supply, Connecting wires, 0 – 20 A AC Ammeter, 0 – 600 V AC, Voltmeter, Start contactor (Y), ON – delay timer (T1), Main contactor MC, Computer with software loaded
- 52/225. MECHANIC MACHINE TOOL MAINTENANCE**  
i) Centrifugal pump in working condition  
ii) Tools & Equipments as per STL
- 53. MECHANIC MECHATRONICS**  
i) Old gear pump  
ii) Other materials as per requirements
- 54. MECHANIC MEDICAL ELECTRONICS**  
X- ray machine, Ultra sound scanner, Blood pressure meter, Faulty strip chart recorder, Defibrillator, Monitoring display used in CUI
- 55/215. MECHANIC MOTOR VEHICLES**  
i) Running Vehicle fitted with fuel pump (Petrol)  
ii) Petrol  
iii) Diesel (For cleaning)  
iv) Clean cloth  
v) Cleaning brush (Painting brush)  
vi) Cleaning tray  
vii) Emery Paper (fine)  
viii) Startor motor  
ix) Electric Wire  
x) Battery
- 56/ 218. MECHANIC REFRIGERATION & AIR CONDITIONING**  
i) Split AC 1.5 ton  
ii) Refrigerant R134a – As per required  
iii) Other materials as per requirement
- 57. MECHANIC RADIO & TV**  
i) Bread Board  
ii) Colour TV Trainer kit  
iii) Car music player  
iv) CRO  
v) Function generator  
vi) Multimeter  
vii) Digital Trainer Kit  
viii) Connecting wires  
ix) Function generator

Contd...5/-

- 58/ 226. OPERATOR ADVANCE MACHINE TOOLS**  
 i) Machine tool – CNC Turning center, CNC milling  
 ii) Cutting tool – Longitudinal turning, Radiuses end mill  $\Phi$  10 mm  
 iii) Measuring Tools – Steel rule, Outside caliper, Vernier caliper, Micrometer  
 iv) Bar stock – 110 mm dia x 260 mm  
 v) Material – Mild Steel
- 59. PAINTER GENERAL**  
 Thinner, Primer, Brushes, Paint, Spray Gun, Paint, Spray Booth, Safety Goggle, Rubber glove, Sandpaper, Paint thickness gauge, Abrasion tester, Color meter, Gloss meter hardness meter, Job (Car Door, Lathe/ Shaper Part, Flat job for screen printing), Screen printing set up, Screen, Stencil, Screen link, Squeegee
- 60. RADIOLOGY TECHNICIAN**  
 i) Material used in shock first aid box  
 ii) CT scan machine  
 iii) Material and Chemicals required for Thermoplastic mould  
 iv) Chemicals and tools required in lab
- 61/235. SPINNING TECHNICIAN**  
 i) Well equipped lab as per syllabus  
 ii) 4 type of yarn assorted for different testing questions
- 62. SURVEYOR**  
 i) Measuring Tape  
 ii) Arrows  
 iii) Theodolite  
 iv) Chain  
 v) Drawing sheets  
 vi) White paper  
 vii) Pencils H & HB  
 viii) Eraser  
 ix) Drawing board  
 x) Mini Drafter  
 xi) Daughter software  
 xi) PC with AUTO CAD
- 63/236. TEXTILE MECHATRONICS**  
 Ring Frame in working condition
- 64/237. TEXTILE WET PROCESSING**  
 i) Crock meter  
 ii) 0.5 m of silk fabric  
 iii) 0.5 m of wool fabric  
 iv) 100 gms of cotton yarn  
 v) Acid dye  
 vi) Grey scale  
 vii) 100 gms Caustic Soda  
 viii) Screen and Other accessories
- 65/228. TOOL & DIE MAKER (DIES AND MOULDS)**  
 M.S Flat 75 mm x 50 mm x 15 mm

: 01 No.

Contd...6/-

- 66/229. **TOOL & DIE MAKER (PRESS TOOLS, JIGS & FIXTURE)**  
M.S Flat 75 mm x 75 mm x 20 mm : 01 No.
- 67/221. **TURNER**  
i) M.S Rod  $\phi$  60 mm x 120 mm : 01 No.
68. **VESSEL NAVIGATOR\***
- 69/238. **WEAVING TECHNICIAN**  
i) Shuttle less loom in complete running condition  
ii) Drawing board  
iii) Graph paper  
iv) Measuring scale  
v) Pencil
- 70/232. **WIREMAN**  
1 (a) 3-phase induction motor trainer kit : 01 No.  
(b) Cables & tools : Assorted  
2 (a) Single phase transformer : 01 No.  
(b) Different loads of suitable valves : Assorted  
(c) Measuring instruments, tools, cables etc : Assorted  
3 Generator trainer kit : 01 No.  
4 (a) 3-phase DOL starter : 01 No.  
(b) 3-phase Motor : 01 No.  
(c) Tools & Cables etc : Assorted  
5 (a) Wooden boards : 04 Nos.  
(b) Lamp Holders : 04 Nos.  
(c) Lamp 40 W : 04 Nos.  
(d) PVC conduit pipe : As per set up  
(e) PVC cable single core : As per set up  
(f) Tools, screws etc : Assorted
133. **DENTAL LABORATORY EQUIPMENT TECHNICIAN**  
Wax (Modeling wax), Maxillary craft den belong, Mandibular craft den belong, Metal band, Wire, Pliers, Cutters, Marburg, Buckle tube, Solder, Casting machine, Ceramic, Carver
134. **ARCHITECTURAL DRAUGHTSMANSHIP\***
265. **TECHNICIAN POWER ELECTRONIC**  
i) SCR Chopper based DC drive with 1 HP DC : 01 set  
ii) Solar panel, charger controller, inverter and batteries : 01 set  
iii) Star – Delta starter with squirrel cage induction motor : 01 set  
iv) Electronic Pneumatic Trainer kit : 01 set  
v) Electronic components as per circuit diagram : 01 set  
vi) Servo motor : 01 No.  
vii) DC power supply : 01 No.  
viii) Soldering Iron, Wires, Cables and tools etc. : Assorted

Contd...7/-



