

DETAILED SYLLABUS FOR THE POST OF JUNIOR INSTRUCTOR - ELECTRONIC MECHANIC {INDUSTRIAL TRAINING}

(Cat.No. : 333/2019)

MODULE-I

ACTIVE - PASSIVE COMPONENTS AND IC's

Resistors, Capacitors, Inductors, Series-parallel combinations of resistors, capacitors & inductors, Colour coding of various components, Inductive reactance, Capacitive reactance, Self inductance, Mutual inductance, Q-factor, Transformers, Diodes, Transistors, FET, MOSFET, Surface Mount Device, Regulated IC's. (12 Marks)

MODULE -II

BASIC ELECTRONICS

Semiconductor materials, PN Junction, Diode biasing, PNP & NPN Transistors, α , β , β relationship, Transistor biasing, Transistor configuration, Classification of amplifiers, Single stage and multi stage amplifiers, Oscillators (Sinusoidal and non sinusoidal), Multivibrators, Operational amplifiers. (13 Marks)

Module - III

POWER SUPPLIES

Cell, Batteries, Care and maintenance of cells, Rectifiers, regulated power supplies, SMPS, UPS, Inverter (10 Marks)

MODULE- IV

BASIC ELECTRICAL

Ohms law, Kirchhoff's law, AC & DC measurements, Classification of meters, Network theorems, AC fundamentals, Faradays law electromagnetic induction, Basic concepts of voltage, current, power and energy. (10 Marks)

MODULE- V

ELECTRICAL AND ELECTRONIC MEASURING INSTRUMENTS

Multimeter, Cathode Ray Oscilloscope, Digital Storage Oscilloscope, Function generator.

(5 Marks)

MODULE- VI

SOLDERING AND DESOLDERING

Different soldering techniques, soldering materials, Different types of soldering gun, Flux

(5 Marks)

MODULE - VII

ELECTRONIC COMMUNICATION

Radio wave propagation, Modulation and Demodulation, AM & FM transmitter and Receiver, Digital modulation techniques, Sampling, Quantization and encoding, Multiplexing and Demultiplexing, Optical fibre communication, Mobile communication.

(12 Marks)

MODULE VIII

TRANSDUCERS AND SENSORS

Active and passive transducers, Thermistors, Thermocouple, Strain gauge, Inductive and capacitive transducers, LVDT, Proximity sensors, Opto-electronic devices.

(10 Marks)

MODULE- IX

DIGITAL ELECTRONICS

Different logic gates and truth table, Logic families, Combinational logic circuits, Arithmetic circuits, Encoder, Decoder, Multiplexer, Demultiplexer, Flipflops, Sequential logic circuits, Registers, Counters, ADC and DAC circuits.

(13 Marks)

MODULE- X

MICROPROCESSORS AND MICROCONTROLLERS

8086 Microprocessors, features, Internal architecture, Pin diagram, Addressing modes.

8051 Microcontroller, features, Internal architecture, Pin diagram, Addressing modes. (10 Marks)

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper