

SYLLABUS FOR SUB-INSPECTOR (TECHNICAL)

UNIT -I

ELECTRONIC DEVICES AND COMPONENTS

Conductors – Insulators, Semiconductors – Energy band theory, Semiconductor devices – PN Junction diode, zener diode, Bipolar Junction, Transistor, Field effect Transistor, Unijunction Transistor, Silicon controlled Rectifier, Opto electronic devices, Components – Resistors, Inductors and Capacitors

ELECTRONIC CIRCUITS

Bias and Bias stability – BJT amplifiers, FET amplifiers – power amplifiers – feedback amplifiers and oscillators – wave shaping and sweep circuits – power supply and voltage regulator

UNIT –II

ELECTRICAL CIRCUITS AND MACHINES

Basic electricity – Magnetic circuits – Capacitors – AC circuits – Resonance – Network theorems – Transformers – DC Machines – Types of Generators – AC machines- synchronous machines – Induction motors

MEASUREMENT AND INSTRUMENTS

Electrical indicating Instruments –D.C bridges- RLC bridges – Signal Generators – Oscilloscopes – Recorders and Transducers –Electronic Indicating instruments – Digital Voltmeter – Digital frequency counter

UNIT- III

MICRO ELECTRONICS

Switching algebra and logic gates – fabrication of Integrated circuits – Digital logic families - sequential logic circuits – Operational amplifiers & its applications – voltage regulation – voltage comparators – phase locked loop – timer I.Cs- D/A converters – A/D converters

MICROPROCESSOR AND ITS APPLICATIONS

Introduction to microprocessors – organization of 8085 microprocessor- programming of microprocessor – timing sequences – data transfer methods – Peripheral interfacing techniques – applications

PROGRAMMING AND APPLICATIONS OF COMPUTERS

Classification of computers – Various Input devices, output devices and memory units – computer codes – Network of computers – Local Area network – Wide Area Network - Simple programs in BASIC.

UNIT –IV

NETWORK, ANTENNA AND PROPAGATION

Four terminal networks –equalizers and attenuators – filters – transmission lines – Distortion-less line – waveguides – Antenna feeders – Antennas –Omni directional antenna – Ground Plane antenna – Yagi antenna – Parabolic antenna –Propagation of radio waves – Radiation patterns of different types of antenna – Antenna gain.

UNIT – V

COMMUNICATION ENGINEERING AND SYSTEM

Electro Acoustic transducer – Types of modulation – AM, FM, Pulse modulation & its types, transmitters – receivers, Telephony and Telegraphy – facsimile – microwave devices – Radar systems – digital communication – microwave and satellite communication – optical communication

