

SYLLABUS FOR TAMILNADU COMMON ENTRANCE TEST (TANCET)

PART – III

4. ELECTRONICS AND COMMUNICATION ENGINEERING

Circuit Analysis: DC Circuit analysis, Thevenin's and Norton's equivalent circuits, Sinusoidal steady state analysis, Transient and resonance in RLC circuits.

Electronic Devices: Diodes, Bipolar Junction Transistors, FET, MOSFET, UJT, Thyristor.

Electronic Circuits: Small signal amplifiers using BJT and FET devices, Large signal amplifiers, Power supplies, Feed back amplifiers, Oscillators, Pulse shaping circuits. **Digital Electronics:** Logic gates, Combinational circuits, Sequential circuits. **Linear Integrated Circuits:** Operational amplifiers and its applications, PLL, Voltage regulators, A/D and D/A converters. **Measurements and Instrumentation:** Transducers, Digital Instruments, Display and Recording systems. **Microprocessor and its applications:** Microprocessors-8085 and 8086 architectures and interfaces, Micro-controller and applications.

Electromagnetic Fields: Static Electric and Magnetic fields, Time varying Electric and Magnetic fields, Maxwell equations. **Transmission Lines and Networks:** Transmission line equations, impedance matching, Filters. **EM waves and waveguides:** Guided waves, Rectangular and cylindrical waveguides. **Antennas and Propagation:** Aperture antennas, arrays, Propagation of radio waves. **Microwave Engineering:** Microwave tubes, semiconductor devices, Passive components, Microwave measurements.

Communication Theory and Systems: AM, FM and PM, Sampling and Quantization, PCM, DM, ADM, Multiplexing. **Digital Communication:** Base band signaling, Band pass signaling, Error control coding, Spread spectrum techniques. **Computer Communication Networks:** Definition of layers, data link protocols, Network interconnection. Message routing technologies, End-End protocols.

Optical Communication: Optical Fibers, optical transmitters and receivers.

Signals and Systems: Continuous time signals and systems-Fourier Transform, Laplace transform, Discrete time signals and systems-DTFT, DFT, Z-Transform. **Digital Signal Processing:** IIR and FIR filters, Realization and implementation, Quantization effects. **Control Systems:** Transfer function, Time and frequency response analysis, Stability analysis, state variable analysis