Paper: MJ-PH (TH) – 304 (2 Credits)

UNIT 1 Electronics I

Voltage sources (1.3), current sources (1.4), Thevenin's theorem (1.5), Norton's theorem (1.6).

Emitter bias (7.1), voltage-divider bias (7.5), accurate VDB analysis (7.6), VDB load line and Q point (7.7), two-supply emitter bias (7.8), other types of bias (7.9).

Base-baised amplifier (8.1), emitter-baised amplifier (8.2), small-signal operation (8.3), AC beta (8.4), AC resistance of the emitter diode (8.5), two transistor models (8.6), analyzing an amplifier (8.7).

UNIT 2 Physical Optics

Introduction (18.1), single slit diffraction patern (18.2), diffraction by a circular aperture (18.3), resolving power of a microscope (18.5.1), the diffraction grating (18.8), the grating spectrum (18.8.1), resolving power of a grating (18.8.2), oblique incidence (18.9).

Introduction (22.1), Malus' law (22.2), the wire grid polarizer and the polaroid (22.3.1), polarization by reflection (22.3.2), polarization by double refraction (22.3.3), polarization by scattering (22.3.4), interference of polarized light: quarter wave plates and half-wave plates (22.6), optical activity (22.8).

Reference books:

1. Electronics Principles by A. P. Malvino, 8th Ed., Tata McGraw Hill Publishing Co. Ltd., New Delhi, 1999.
2. Optics by Ajoy Ghatak 6th Ed., McGraw Hill Education (India) Pvt. Ltd. New Delhi, 2017.