EC-8353 Electron Devices and Circuits

Important 13Mark Questions

Unit I

1. Explain the working of Zener diode as voltage regulator.
2. Explain the principle and operation of Light Emitting Diode (LED) with necessary expressions for current densities and efficiency of light generation.

Unit II

1. Outline the structure of a SCR and explain its operation. Also illustrate its V-I characteristics.
2. Enumerate the characteristics of N channel depletion MOSFET with suitable graphs.

Unit III

1. Explain the high frequency MOSFET model under CS configuration and its simplified equivalent circuit.
2. Draw the circuit of a CE amplifier with DC sources eliminated and deduce the small signal model for amplifier operation.

Unit IV

1. Illustrate the behavior of a MOSFET based amplifier circuit with tuned load. Also deduce expressions for voltage gain at centre frequency, Q and bandwidth.
2. Explain the working of a single ended input differential amplifier.

Unit V

1. Outline the principle of LC tuned oscillators. With a neat circuit diagram deduce the necessary condition for oscillation and expression for oscillation frequency in the case of Colpitt's oscillator.
2. With proper mathematical derivations, Prove that bandwidth increases and output resistance reduces in a negative feedback amplifier. Assume a series shunt feedback scheme.