

BT-3/D-23**43145****ELECTRONIC DEVICES****EC-201A**

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Explain hole electron pair generation and recombination with diagram in detail. 7
(b) Define diffusion and transition capacitance of p - n junction diode. Prove that diffusion capacitance is proportional to current I . 8
2. How is Zener Diode used as voltage regulator ? Explain the working principal of Zener voltage regulator. 15

Unit II

3. (a) Derive the relation between α and β . 8
(b) Discuss, how the h -parameters are determined from transistor characteristics. 7

4. (a) Draw the circuit diagram of a PNP junction transistor in CE configuration and describe its characteristics. 8
- (b) Give comparison of CB, CC, CE configurations. 7

Unit III

5. (a) Write a short note on Small Signal Model of JFET. 8
- (b) Draw and explain drain and transfer characteristics of depletion type MOSFET. 7
6. Explain the constructional features of a depletion mode P-channel and Enhancement mode MOSFET and explain its basic operation. 15

Unit IV

7. Explain Zener diode voltage regulator : 15
- (a) Series voltage regulators
- (b) Shunt voltage regulators.
8. Explain Op-Amp series and shunt voltage regulator in detail. 15