Roll No. ..... **Total Pages : 03**

BT-3/D-20 43138

ELECTRONIC DEVICES

EC-201

Time : Three Hours] [Maximum Marks : 75

Note : All questions in Part A and Part B are compulsory. Attempt any *Four* questions from Part C, selecting *one* question from each Unit.

Part A 15

1. Explain the following in brief :

(i) Diffusion and drift current

(ii) Base width modulation

(iii) Drain and Transfer characteristics

(iv) Opamp Series regulator

(v) Stability Factor.

Part B 15

2. Enumerate the concept of Zener breakdown in PN junction with its VI characteristics. **5**

3. Draw and explain the practical transistor CB amplifier. Also explain the function of each component. **5**

4. What is MOSFET ? Explain the construction and characteristics of N channel MOSFET with suitable diagram. **5**

5. What do you understand by Voltage Regulation ? With neat sketch explain the working of Zener diode shunt voltage regulator. **5**

Part C **40**

Unit I

6. Explain the current flow in a forward biased PN junction with relevant expression for minority carrier concentration and diagram to illustrate the carrier density close to depletion layer. **10**

7. Explain hole electron pair generation and recombination with diagrams in details. **10**

Unit II

8. Draw and explain the practical transistor CE amplifier. Also explain the function of each component. **10**

9. Draw and explain 11 parameters and PI model of CE Transistor. **10**

Unit III

10. Explain the following terms in details :

(a) Pinch off voltage

(b) Channel length modulation

(c) Veloicty saturation

(d) AC drain resistance

(e) Amplification factor. **10**

11. With help of neat sketches explain the operation and characteristics of junction FET. **10**

Unit IV

12. Outline the construction of Zener voltage regulator with neat circuit diagram. **10**

13. Write short notes on the following : **10**

(i) Transistor shunt voltage Regulator

(ii) DC Regulated power supply.