Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech (ECE) (Sem.–3)

ELECTRONIC DEVICES & CIRCUITS

Subject Code : EC-201

Paper ID : [A0301]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a. What is recovery time in diode? Mention its types.

b. Define Peak inverse voltage (PIV) of diode and its significance.

c. Explain about diffusion and transient capacitance in semiconductor device.

d. What is biasing?

e. Draw and explain the output characteristics of NPN-BJT for CE configuration.

f. Write advantages of FET over BJT.

g. What is avalanche breakdown?

h. Define base width modulation (early effect) in BJT.

i. Differentiate LEDs and LCDs.

j. Define Rectifiers. List the types of Rectifiers.

SECTION-B

2. Explain the operation of MOSFET in Enhancement mode with neat diagram and derive its current equations.

3. Explain the construction and working of LED with neat sketch.

4. How does the Zener diode act as a voltage regulator? Explain with neat circuit diagram.

5. Draw the construction of UJT and explain its characteristics in detail.

6. Draw and compare CB and CC configurations based on parameters such as input resistance, output resistance, current gain and voltage gain.

SECTION-C

7. Draw and explain the h-parameter equivalent circuit of a transistor in CE configuration. Derive the expressions for input impedance, output impedance, voltage gain and current gain.

8. Draw the circuit diagram and explain the operation of full wave rectifier using center tap transformer and using bridge rectifier. Derive the expression for ripple factor and peak inverse voltage also.

9. Write short notes on following :

   a. RL filter circuits

   b. Phototransistor