Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B Tech II Year I Semester Supplementary Examinations August-2021
BASIC ELECTRONIC DEVICES
(Common to ECE & EEE)

Time: 3 hours   Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1 a With neat diagrams, explain forward and reverse biasing of a PN Junction diode.   **6M**
   b Write notes on Diode Resistance.   **6M**

OR

2 a What is transition capacitance? Derive the expression for transition capacitance of a PN Junction Diode.   **6M**
   b Mention the importance of Diffusion capacitance. Derive the expression for Diffusion capacitance of a PN Junction Diode.   **6M**

UNIT-II

3 a Draw and explain VI characteristics of Tunnel Diode.   **8M**
   b Discuss the energy band structure of a Tunnel Diode.   **4M**

OR

4 Draw the basic structure of an SCR. Explain its characteristics and list the Applications   **12M**

UNIT-III

5 a With neat diagram, explain Bridge Rectifier   **6M**
   b A bridge rectifier uses four identical diodes having forward resistance of 5Ω each. Transformer secondary resistance is 5Ω and the secondary voltage of 30V (rms). Determine the DC output voltage for IDC = 200mA and the value of the ripple voltage.   **6M**

OR

6 a Draw the circuit of capacitor filter and explain its operation.   **5M**
   b Derive the expression for ripple factor of HWR and FWR with capacitor filter.   **7M**

UNIT-IV

7 a With a neat diagram, explain how a transistor acts as an amplifier?   **6M**
   b Discuss the Input and Output characteristics of BJT in CC Configuration   **6M**

OR

8 a Discuss the Input and Output characteristics of BJT in CC Configuration   **6M**
   b Give the comparison between JFET and MOSFET.   **6M**

UNIT-V

9 a Define Transistor Biasing and explain the need for Biasing?   **6M**
   b Explain the concept of DC and AC Load lines and discuss the criteria for fixing the Q-point.   **6M**

OR

10 a Explain Collector to Base bias of a Transistor with neat circuit diagram   **6M**
    b Describe the factors to be considered while designing the biasing circuit which are responsible for shifting the operating point.   **6M**

*** END ***