



B.Tech III Semester Supplementary Examinations, July 2022

BASIC ELECTRONICS
(MECHANICAL ENGINEERING)

Maximum Marks: 70

Date:23.07.2022 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 Draw the symbol of Diode.
- 2 Define the cut-in voltage of Diode.
- 3 Write down the Zener diode applications?
- 4 Define the avalanche break down in Zener diode.
- 5 State the advantages of bridge rectifier.
- 6 What is the function of filter?
- 7 Define thermal run away.
- 8 Give the biasing conditions for a transistor to operate as an amplifier.
- 9 Write down the universal gate?
- 10 Write the truth table of OR gate.

Part-B

Answer All the following questions.

(10M X 5=50Marks)

- 11 Explain the formation of PN junction diode with its VI characteristics. 10
- OR
- 12 (a) Explain in detail about static and dynamic resistances. 5
(b) Explain the equivalent circuit of PN junction diode 5
- 13 Explain the construction and operation of SCR with its V-I characteristics. 10
- OR
- 14 Explain the operation of Zener diode with its V-I characteristics. 10
- 15 List the differences between Half wave rectifier, Full wave rectifier and Bridge rectifier. 10
- OR
- 16 Explain the operation of half wave rectifier with neat circuit diagram and necessary waveforms. 10
- 17 Explain NPN and PNP Transistors current equations. 10
- OR
- 18 Explain in detail about input and output characteristics of CE configuration of a NPN transistor. 10
- 19 Design a full adder, construct the truth table, simplify the output equations and draw the logic diagram. 10
- OR
- 20 Design a half adder, construct the truth table, simplify the output equations and draw the logic diagram. 10