Regulation R18 *Subject code: 2E1AH*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech I Semester Supplementary Examinations, April 2022

ELECTRONIC DEVICES AND CIRCUITS

(Common to ECE & CSE)

Maximum Marks: 70 Date:07.05.2022 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 Define space charge region in a PN junction Diode

2 Define cutin volage of PN junction diode.

3 Draw the symbol and V-I characteristics of SCR diode.

4 Write the applications of Varactor Diode

5 Write the difference between HWR and FWR.

6 Draw the circuit diagram of Bridge Rectifier using pi filter.

7 Define Early effect.

8 Explain Thermal runaway

9 Write the differences between BJT and FET.

10 Draw the symbols of JFET and MOSFET?

Part-B

Answer All the following questions. (5X10M=50Marks)

11 Draw and explain forward and reverse bias characteristics of P-N junction diode with neat sketches. [10]

OR

12 a. Explain Diode Resistance and derive Dynamic resistance. [5]

b. Determine the value of forward current for a pn junction with Io = 15 μA , V_f = 0,6V , at T=300K.Assume silicon diode. [5]

13 Explain the operation of a Tunnel Diode using Energy band diagrams. [10]

OR

14 Explain the V-I characteristics of Zenar diode and its applications. [10]

15 Draw the circuit and explain the operation of a Bridge Rectifier. [10]

OR

16 Draw and explain the circuit diagram of full wave rectifier with L-section filter. [10]

17 Explain the input and output characteristics of CE configured transistor circuit with a neat circuit diagram. [10]

OR

18 a. Define α β and Υ .Write relation between α β and Υ

b. Determine the operating point for a fixed bias circuit whose V_{cc}=12V, R_c=4KΩ, R_b=930KΩ, β=50 for a silicon transistor. [5+5]

19 Explain Drain & transfer characteristics of JFET and give the advantages of JFET. [10]

OR

20 Explain the construction and operation of a Enhancement MOSFET and draw its characteristics. [10]