R22 Regulation *Subject code: 4E3AJ*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Regular/Supplementary Examinations, June 2024

ELECTRONIC DEVICES & CIRCUITS

(Common to ECE & IT)

Maximum Marks: 60 Date:04.07.2024 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 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 (10X1M=10 Marks)			CO	Bloom Tx
1.	a	Write the diode Current Equation for PN Diode?	1	L1
	b	Draw the symbol for PN diode.	1	L1
	c	Define rectifier.	2	L1
	d	List the advantages of bridge rectifier.	2	L1
	e	Mention the three configurations of transistor.	3	L1
	f	Draw the input characteristics of CB configuration.	3	L1
	g	Give the significance of the operating point.	4	L1
	h	What is need of the biasing.	4	L1
	i	Draw the symbols of EMOSFET and DMOSFET	5	L1
	j	Why JFET is called voltage-controlled device?	5	L1

Part-B

Answer All the following questions. (5X10M=50 Marks)			
2	A. Discuss the formation of PN Junction with schematic diagrams. [5M] B. Define Transition and Diffusion Capacitances of PN Junction Diode. [5M]	1	L2
	OR		
3	A. Discuss the equivalent circuit of a diode. [3M] B. Analize the diode current equation and explain the parameters. [7M]	1	L3
4	Illustrate the operation of a Full wave rectifier with neat circuit diagram and evaluate the values of ripple factor, Efficiency, PIV. [10M]	2	L3
	OR		
5	A. Explain the significance of filters in rectifier circuits. [5M] B. Draw the half wave rectifier circuit with proper waveforms. [5M]	2	L2
6	Explain input and output characteristics of transistor in CE configuration with neat diagram. [10M]	3	L2
	OR		

7	A. Compare CB, CE & CC configurations. [5M] B. Why we call BJT as current controlling device? Relate α, β, γ ? [5M]	3	L3
8	Draw the fixed bias circuit and derive the expression for stability factor. [10M]	4	L2
	OR		
9	Draw the circuit diagram for self-bias circuit and derive the expression for stability factor. [10M]	4	L3
10	Explain the construction and principle of operation of N-channel JFET [10M]	5	L2
	OR		
11	Explain the operation of Enhancement mode MOSFET with characteristics. [10M]	5	L2