Question Paper Code: R22A12EC01

R22

ANURAG Engineering College

(An Autonomous Institution)

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

ELECTRONIC DEVICES AND CIRCUITS

(COMMON TO ECE, CSE, IT & AIML)

Time: 3 Hours **Max. Marks: 60**

Section – A (Short Answer type questions) (10 Marks)

Answer All Questions		Course Outcome	B.T Level	Marks
1.	How many junctions in a diode.	CO1	L1	1M
2.	Does depletion region depend on doping of semiconductors.	CO1	L1	1M
3.	List two applications of diode.	CO2	L1	1M
4.	What is the maximum percentage efficiency of Full wave rectifier.	CO2	L1	1M
5.	Among Emitter, Base and Collector which region is heavily doped.	CO3	L2	1M
6.	Current gain of Common Base is low or high.	CO3	L1	1M
7.	Expand FET.	CO4	L1	1M
8.	Define Pinch-Off voltage.	CO4	L1	1M
9.	Is Zener diode is heavily doped than PN junction diode?	CO5	L1	1M
10.	Is UJT is a three-terminal device.	CO5	L1	1M

Section B (Essay Questions)

Answer all questions, each question carries equal marks. **(5 X 10M = 50M)**

11. A)	The reverse saturation current of Silicon p-n junction diode is 10μ Amps. Calculate the diode current for forward bias voltage of 0.6V at 25^{O}C.	CO1	L3	10M
	OR			
B)	Draw the V- I characteristics of diode and explain the procedure to calculate its static and dynamic resistance.	CO1	L2	10M
12. A)	A Full wave rectifier is supplied from a 230V, at step down ratio of 6:1 to a resistive load of 1KΩ. The diode forward resistance is 75Ω and transformer secondary resistance is 10Ω. Estimate maximum, average, RMS values of current and DC output voltage.	CO2	L3	10M
	OR			
B)	Compare the Half-wave rectifier and Full wave rectifier in terms of its parameters.	CO2	L3	10M
13. A)	A transistor has Base current of 100 μA and Collector current of 2 mA, estimate the following parameters: β, α and Emitter current.	CO3	L3	10M
	OR			
B)	Define the current amplification factors α, β, γ of a transistor and derive the relations between α, β and γ.	CO3	L2	10M
14. A)	Mark the Drain and Transfer characteristics of N channel JFET.	CO4	L2	10M
	OR			
B)	Compare BJT and FET, List the advantages of FET over BJT.	CO4	L3	10M
15. A)	Draw the construction and principle of operation of SCR.	CO5	L2	10M
	OR			
B)	Summarize the V-I characteristics of Zener diode.	CO5	L2	10M