Question Paper Code: R18A21EC01/R15A21EC01

R18/R15

ANURAG Engineering College

(An Autonomous Institution)

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

ELECTRONIC DEVICES AND CIRCUITS

(COMMON TO (R18-EEE, ECE & CSE) & (R15-CSE))

Time: 3 Hours **Max.Marks:75**

Section – A (Short Answer type questions) (25 Marks)

Answer All Questions		Course Outcome	B.T Level	Marks
1.	Draw the Piece-wise linear approximation model of the diode with relevant V-I graph.	CO1	L1	2M
2.	Discuss Avalanche breakdown mechanism.	CO1	L2	3M
3.	Define faithful amplification.	CO2	L1	2M
4.	Draw the symbols of BJT, FET and MOSFET.	CO2	L1	3M
5.	What is meant by Operating Point?	CO3	L2	2M
6.	Write the need for biasing in Transistors.	CO3	L1	3M
7.	Define Intrinsic stand-off ratio.	CO4	L1	2M
8.	Mention the advantages and limitations of FET over BJT.	CO4	L1	3M
9.	What are the feedback used in amplifiers, and oscillators?	CO5	L1	2M
10.	Discuss Barkhausen Criterion.	CO5	L2	3M

Section B (Essay Questions)

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

11. A)	Explain the behavior of PN-junction diode under forward, and reverse biased conditions with the help of neat diagrams and graphs.	CO1	L3	10M
	OR			
B)	What is the role of filter circuit in a Rectifier? List and compare the working principles of different filters that are used in Rectifiers.	CO1	L3	10M
12. A)	Discuss the working principle and the operation of NPN transistor with diagrams and graphs.	CO2	L3	10M
	OR			
B)	Explain in detail the construction and principle of operation of n-channel JFET with neat diagrams and graphs.	CO2	L3	10M
13. A)	Analyze the working of Fixed Bias, Collector Feedback Bias, Emitter Feedback Bias, Voltage Divider Bias circuits in eliminating thermal runaway.	CO3	L3	10M
	OR			
B)	Discuss in detail Stabilization against variation in I_{CO}, V_{BE} and β.	CO3	L3	10M
14. A)	Analyse a transistor amplifier circuit using h-parameter model and evaluate Current gain, Voltage gain, Input resistance, and Output admittances for CE configuration.	CO4	L3	10M
	OR			
B)	Explain the operation of UJT with neat diagrams and V-I characteristics.	CO4	L3	10M
15. A)	Draw the circuit diagram of voltage series feedback amplifier and derive expressions for gain, input resistance and output resistance.	CO5	L3	10M
	OR			
B)	Explain Hartley oscillator with necessary derivations and diagrams.	CO5	L3	10M