Question Paper Code: R15A12EC01

R15

ANURAG Engineering College

(An Autonomous Institution)

I B.Tech II Semester Supplementary Examinations, Jan/Feb–2024

ELECTRONIC DEVICES AND CIRCUITS

(ELECTRONICS AND COMMUNICATION ENGINEERING)

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

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

Answer All Questions		Course Outcome	B.T Level	Marks
1.	Define zener break down.	CO1	L1	2M
2.	Find ripple factor for Half wave Rectifier?	CO1	L1	3M
3.	What is pinch-off voltage? Give its expression.	CO2	L1	2M
4.	Compare CB, CE and CC configurations of a transistor	CO2	L2	3M
5.	What is the need for biasing?	CO3	L1	2M
6.	Explain when a FET acts as a voltage variable resistor.	CO3	L2	3M
7.	Sketch a simplified CE Hybrid model of a transistor.	CO4	L1	2M
8.	Describe how h_{fe} and h_{ie} can be determined from BJT characteristics.	CO4	L2	3M
9.	What is the difference between amplifier and oscillator?	CO5	L1	2M
10.	List any three characteristics of an amplifier which are modified by negative feedback.	CO5	L1	3M

Section B (Essay Questions)

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

11. A)	Explain the construction, operation and characteristics of Tunnel diode.	CO1	L2	10M
	OR			
B)	With neat circuit diagram and waveforms, explain the working of full wave bridge rectifier with capacitor filter.	CO1	L2	10M
12. A)	Illustrate the input and output characteristics of all three configurations of a BJT transistor Also give the important equations related to those configurations.	CO2	L2	10M
	OR			
B)	Draw and explain construction and operation of Enhancement mode MOSFET with its characteristics.	CO2	L2	10M
13. A)	Explain the operation of common emitter BJT circuit with self-bias and derive the expression for stability factor S.	CO3	L2	10M
	OR			
B)	What is the difference between bias stabilization & bias compensation?	CO3	L2	10M
14. A)	With neat diagram determine the h parameters for CE configuration and calculate current gain, voltage gain, input and output impedances.	CO4	L3	10M
	OR			
B)	Sketch the circuit of a small-signal model of Common drain FET amplifier and derive the expressions for voltage gain and output resistance.	CO4	L3	10M

15. A)	Discuss about characteristics of negative feedback amplifiers.	CO5	L3	10M
	OR			
B)	With a neat diagram explain about Hartley, Colpitts oscillator and obtain the expression for frequency of oscillation and conditions for oscillation.	CO5	L2	10M