Question Paper Code: R18A22EC03

R18

ANURAG Engineering College

(An Autonomous Institution)

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

ELECTRONIC CIRCUIT ANALYSIS

ELECTRICAL 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.	Illustrate the different types of Distortion in amplifiers?	CO1	L2	2M
2.	Recall Miller's theorem and its dual?	CO1	L1	3M
3.	What is the significance of logarithmic scale?	CO2	L1	2M
4.	Show the expression for gain bandwidth product of voltage and current?	CO2	L2	3M
5.	Define cascaded amplifier. State the need of cascading amplifiers.	CO3	L1	2M
6.	Outline the use of transformer coupling in the output stage of multistage amplifier?	CO3	L2	3M
7.	Summarize the advantages of complementary symmetry (Class B) push – pull amplifier?	CO4	L2	2M
8.	List the types of heat sinks?	CO4	L1	3M
9.	Explain the effect of cascading double tuned amplifiers on bandwidth?	CO5	L2	2M
10.	How the stagger tuning is achieved in tuned amplifiers?	CO5	L1	3M

Section B (Essay Questions)

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

11. A)	Develop the equivalent circuit of RC coupled amplifier for Mid-band, Low frequency range, high frequency range and derive the expressions for current gain, voltage gain.	CO1	L3	10M
	OR			
B)	Demonstrate simplified Hybrid model for a transistor in the CC configuration?	CO1	L2	10M
12. A)	Simplify the expression for short circuit current gain of CE amplifier.	CO2	L3	10M
	OR			
B)	A Transistor amplifier in CE configuration is operated at high frequency with the following specifications. f_T= 6 MHz, g_m = 0.04, h_{fe} = 50, $r_{bb'}$ =100 ohms, R_s= 500 ohms, $C_{b'c}$= 10 pF, R_L = 100 ohms. Solve the voltage gain, upper 3 dB cut-off frequency and gain bandwidth product (GBW).	CO2	L3	10M
13. A)	Make use of a neat circuit diagram, describe the working of a cascode amplifier.	CO3	L3	10M
	OR			
B)	Explain the circuit diagram of Darlington amplifier and derive the expressions for overall current gain and overall input impedance.	CO3	L2	10M

14. A)	Solve the expression for maximum theoretical efficiency in the case of complementary symmetry class B power amplifier	CO4	L3	10M
	OR			
B)	Analyze transformer coupled class A power amplifier and derive efficiency, Maximum efficiency, power dissipation.	CO4	L3	10M
15. A)	In a tuned amplifier circuit C = 500 pF, L = 20 μH, R_1 = 1.5 kohms and the transistor has hfe = 50 and input resistance of 200 ohms. The coil used has Q factor 30. Identify, i) Resonant frequency of the tuned circuit ii) Impedance of the tuned circuit iii) Voltage gain of the stage.	CO5	L3	10M
	OR			
B)	Outline the Stability of Tuned Amplifiers.	CO5	L2	10M