R22

ANURAG Engineering College
(An Autonomous Institution)
II B.Tech I Semester Regular Examinations, Jan/Feb–2024
ANALOG CIRCUITS
(ELECTRONICS AND COMMUNICATION ENGINEERING)

Time: 3 Hours   Max. Marks: 60

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

		Course Outcome	B.T Level	Marks
1.	What is stability factor?	CO1	L1	1M
2.	Why common emitter configuration is most widely used in amplifiers.	CO1	L2	1M
3.	Define trans conductance.	CO2	L1	1M
4.	State the drain current equation of JFET.	CO2	L1	1M
5.	What is gain-bandwidth product?	CO3	L1	1M
6.	What is Darlington connection?	CO3	L2	1M
7.	Define De-sensitivity.	CO4	L2	1M
8.	Write about the effect of feedback on distortion in an amplifier	CO4	L2	1M
9.	Distinguish Phase sift oscillator and Wein bride oscillator	CO5	L2	1M
10.	State Barkausen criterion.	CO5	L2	1M

Section B (Essay Questions)
Answer all questions, each question carries equal marks.   (5 X 10M = 50M)

			Course Outcome	B.T Level	Marks
11.	A)	Draw the voltage divider bias circuit of BJT and also derive its stability factor.	CO1	L3	10M
		OR			
	B)	Draw the hybrid model for a CE amplifier with an emitter resistance and derive input resistance, output resistance, A_V and A_I.	CO1	L3	10M
12.	A)	Outline the small signal model of MOSFET and derive its parameters.	CO2	L2	10M
		OR			
	B)	Summarize the small signal amplifier for common gate and derive the expression for voltage gain, input resistance and output resistance.	CO2	L2	10M
13.	A)	Explain Hybrid $-\pi$ model of Common Emitter transistor model with required details.	CO3	L2	10M
		OR			
	B)	Draw the Cascode amplifier and explain its operations.	CO3	L2	10M
14.	A)	i) Elaborate the characteristics of negative feedback.		L2	5M
		ii) In an Amplifier , the Voltage gain without feedback is 60 dB. It decreases to 40 dB with feedback. Calculate the feedback factor.	CO4	L3	5M
		OR			
	B)	Explain the Current series and Current shunt Feedback configurations with neat circuit diagram.	CO4	L2	10M

15. A) With a neat diagram, explain the working principle of Wien bridge oscillator. CO5 L2 10M

OR

B) Explain the working principle of Hartley oscillator with a neat diagram. CO5 L2 10M