

ANURAG Engineering College

(An Autonomous Institution)

II B.Tech I Semester Supplementary Examinations, June/July – 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. Define transistor biasing	CO1	L1	1M
2. List the typical h- parameters of a CE model.	CO1	L2	1M
3. Draw the MOS Small signal model	CO2	L1	1M
4. List two characteristics of common drain amplifier	CO2	L1	1M
5. Define Cascode amplifier.	CO3	L1	1M
6. Draw the Hybrid $-\pi$ model of Common Emitter transistor	CO3	L2	1M
7. Draw the block diagram of Voltage shunt feedback.	CO4	L2	1M
8. Does the negative feedback decrease or increase the voltage gain.	CO4	L2	1M
9. Which types of oscillators are suitable for low frequency application	CO5	L1	1M
10. What is the condition for sustained oscillations	CO5	L1	1M

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

11. A) Model a Fixed Bias circuit for the following specification $V_{CC} = 15V$; $V_{CE} = 5V$; $V_{BE} = 0.7V$; $I_C = 5mA$; and $\beta = 100$ after calculating required resistance values.	CO1	L3	10M
OR			
B) Perform the generalized analysis of transistor amplifier model using h-parameters.	CO1	L3	10M
12. A) Explain the small signal model of the common gate amplifier and derive equation for voltage gain.	CO2	L2	10M
OR			
B) Describe operation of Common source amplifier with diode connected load	CO2	L2	10M
13. A) Draw the circuit diagram of Darlington pair amplifier and derive its Input resistance.	CO3	L2	10M
OR			
B) List the Different coupling schemes used in amplifiers and explain any one with circuit diagram.	CO3	L2	10M
14. A) A voltage-series negative feedback amplifier has a voltage gain without feedback $A=500$, input resistance $R_i=3k\Omega$, output resistance $R_o=20k\Omega$ and feedback ratio $\beta=0.01$. Determine the voltage gain with feedback A_f , input resistance R_{if} and output resistance R_{of} of the amplifier with feedback.	CO4	L3	10M
OR			
B) Develop the block diagram of current series feedback amplifier and explain.	CO4	L3	10M

15. A) Calculate the range over which the capacitor is required to vary in transistorized RC phase shift oscillator, with $1K\Omega$ Resistor to have the frequency range 1KHz to 1.5KHz. CO5 L3 10M
- OR**
- B) Build the Colpitt's oscillator by using BJT and derive the expression for frequency of oscillations. CO5 L3 10M