R18 Regulation *Subject code:2P3DC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech III Semester Supplementary Examinations, July 2024

Analog Electronic Circuit Analysis

(ECE)

Maximum Marks: 70 Date:23.07.2024 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		CO	Bloom Tx
1	State Miller's theorem.	1	L1
2	What is bandwidth of an amplifier?	1	L1
3	Define dB.	2	L1
4	Define f_T.	2	L1
5	Draw the characteristics of JFET.	3	L1
6	Draw the symbol of N-channel JFET	3	L1
7	Define Feedback.	4	L1
8	What is a Power Amplifier?	4	L1
9	What is Barkhausen criterion?	5	L1
10	What is a Tuned circuit?	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)			
11	a) Draw the circuit diagram of a common Emitter amplifier along with its equivalent circuit. Derive expressions for A_V, R_I, A_I and R_0. [5M] b) What is an Amplifier? Explain the classification of Amplifiers. [5M]	1	L2
	OR		
12	Explain the Darlington Pair and derive the values of A_I, R_I, A_V & R_O. [10M]	1	L2
13	Using hybrid –π model analysis, derive the expression for CE short circuit current gain. [10M]	2	L2
	OR		
14	Draw the hybrid –π model of a transistor at high frequency and explain its parameters. [10M]	2	L2
15	a) Explain small signal model of MOSFET. [5M] b) Draw the characteristics of MOSFET. [5M]	3	L2

	OR		
16	Explain the analysis of common source JFET amplifier. [10M]	3	L3
17	a) Derive the expression for the frequency of RC phase shift Oscillator. [5M] b) In a Colpitt's oscillator, C1 = 0.2μF and C2 = 0.04μF. If the frequency of oscillation is 10KHz, find the value of Inductor. [5M]	4	L2
	OR		
18	Derive the expression for the input resistance with feedback R_{if} and output resistance with feedback R_{Of} in the case of [10M] (a) Current series feedback amplifier. (b) Current shunt feedback amplifier.	4	L2
19	Explain the Operation of Class B Push-Pull Amplifier and derive maximum Power Efficiency. [10M]	5	L2
	OR		
20	Explain Single tuned and Double tuned Amplifiers. [10M]	5	L2