000188

PRN:		Course Code :	U15PC301

Second Year **B. Tech** Semester End Examination Winter 2024

Analog Circuit Design

Day and Date: Fri 22 Nov 2024 Max Marks: **50**

Time : 10:30AM To 12:30PM Duration: **02** hrs

Instructions:
1. All questions are compulsory.
2. Assume suitable data wherever necessary.

		Answer the following Questions.	**Marks**	**Bloom's Level**	**CLO**
Q.1					
	a)	What is meant by positive feedback.Give examples	10	1	1
	b)	Give the difference between BJT and FET			1
	c)	Give the classification of negative feedback amplifiers with block diagram			1
	d)	Define voltage gain and input impedance of amplifiers.			1
	e)	Define regulated and Un-regulated power supply.			1
Q.2		**Answer any two of the following.**			
	a)	Design a single stage RC coupled amplifier circuit for Vcc=16v, V_{CEQ}=8v, I_{CQ}=3mA, hie=2kΩ, hfe=100, Rs=300Ω, R_L=470Ω V_{CEmax}=45v, I_{Cmax}=10mA, f=20Hz.	5	3	3
	b)	Derive expressions for h-parameters of CB configuration of transistor and draw h-parameter equivalent circuit	5	3	3
	c)	Explain any two advantages of negative feedback circuit..	5	3	3
Q.3		**Answer any two of the following.**			
	a)	With neat circuit diagram explain the operation of JFET.	5	2	2
	b)	Explain mutual characteristics of JFET with neat circuit diagram	5	2	2
	c)	Describe the operation of DE-MOSFET with neat diagram.	5	2	2
Q.4		**Answer any two of the following.**			
	a)	Derive expression for frequency of oscillation fo of Colipits oscillator circuit.	5	3	4
	b)	A crystal has the following parameters: L=0.5H,C1=0.06pf, Cm=1pF, R=5kΩ. Find fs, fp, Qs and Qp	5	3	4
	c)	Explain the operation of RC phase shift oscillator circuit.	5	3	4
Q.5		**Answer any two of the following.**			
	a)	Design a low voltage regulator circuit using IC 723 to provide an output voltage of 5volts,if maximum load current is 80mA.Assume Vsense=0.7 volts.	5	3	3
	b)	With block diagram explain LM723 voltage regulator circuit.	5	3	3
	c)	Design an adjustable voltage regulator circuit to produce an output voltage of 7 volts when the input voltage is 12v, if the load current is 200mA.	5	3	3

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