Reg. No.

MANIPAL INSTITUTE OF TECHNOLOGY

(A constituent unit of MAHE, Manipal)

IV SEMESTER B.TECH (ELECTRICAL & ELECTRONICS ENGINEERING) MAKE UP EXAMINATIONS, JUNE 2019

SUBJECT: ANALOG SYSTEM DESIGN [ELE 2204]

REVISED CREDIT SYSTEM

Time	e: 3 Hours	Date: 19 June 2019	Max. Marks: 50
Instructions to Candidates:			
	 Answer ALL the questions. 		
	 Missing data may be suitably 	assumed.	
	 Draw circuit diagrams where 	ever necessary.	
1A.	Design a four input summing a $R_F = 30K$.	amplifier such that $V_0 = 4V_A - 3V_B - 2V_C - V_C$	D_D . Assume (04)
1B	Derive expressions for input and o	output resistance of non inverting amplifier with	h feedback. (02)
1C	Draw the circuit of an Instrumer	ntation Amplifier and explain the working wit	th relevant
	expressions.		
2A	Design a second order Butterword $C = 0.1 \mu F$ if required.	rth LPF having a corner frequency $f_c = 5KH$	z. Assume (03)
2B.	Design a differentiator to differe Assume $C=0.01\mu F$ if required.	ntiate an input signal that varies from 100H	z to 5kHz. (03)
2C.	Design a non-inverting Schmitt tr 15V.	igger with trigger points +/-5V. The Suppy vo	ltage is +/- (04)
3A	Design a circuit schematic t	o obtain a solution for the differential	equation
	$d^2 v dv dv$		
	$\frac{dt^2}{dt^2} + 3\frac{dt}{dt} + 4v + 1 = 0.$		(04)
3B	Design an opamp based circuit to	get a phase lead of 45°.	(03)
3C.	Write a note on Phase Locked Loo	n	(02)
	Write a note on r hase bocked hoo	p.	(03)
4 A	Design a mono stable multivibrato	r using 555 timer which can generate 10ms one	shot pulse.
4 D	Also design the triggering circuit.	Clearly state the assumptions made.	(04)
4D	Discuss the working of Sample and	i Hold circuit.	(02)
4C	Design a full wave precision rect rectification.	ifier and derive suitable expressions to justify	/ full wave (04)
5A	Draw the circuit of a RC Phase shif	t oscillator and discuss the conditions to be sati	sfied to get
	sustained oscillations.		(03)
5B	With relevant circuit diagram of	VCO, derive expression for frequency in terms	of control
	input.		(03)
5C	Classify the Feedback amplifiers b	ased on different types of summing and sampli	ng. (04)