Bachelor of Science (S.Y. B.Sc.) Third Semester **B.Sc.23131 - Electronics Paper-I (Amplifiers)**

P. P Tim	ages : ie : Thr	1 $\mathbf{GUG/W/18/12}$ ee Hours* 0 9 7 5 *Max. Marks	262 : 50
	Note	 All questions are compulsory and carry equal marks. Draw neat and well labelled diagram wherever necessary. Use of log table / calculator is allowed. 	
		Either	
1.	a)	What is amplifier ? Explain the different ac and dc notation used in amplifier. Explain the concept of thermal runaway.	6+4
		OR	
	b)	Define h-parameters of CE amplifier. Draw hybrid equivalent circuit of single stage CE amplifier and derive current gain and input impedance expression.	2+8
		Either	
2.	a)	Explain the working of RC coupled amplifier. Explain its performance in low-frequency range and derive the formula for lower cut off frequency f_L .	6+4
		OR	
	b)	 What is distortions in amplifier ? Explain the following distortions. i) Non linear distortion ii) Frequency distortion and iii) Phase distortion 	1+9
		Either	
3.	a)	Explain the working of difference amplifier. Why we need two power supplies in difference amplifier ? Explain.	6+4
		OR	
	b)	Draw the block diagram of Op-Amp and explain the function of each block. Define :	7+3
		i) CMRRii) Slew rateiii) Input Offset Current.	
		Either	
4.	a)	Draw circuit diagram of non-inverting amplifier and obtain equation for output voltage. Explain the concept of virtual ground.	7+3
		OR	
	b)	Draw the circuit diagram of Schmitt trigger using Op-Amp and explain its working. State the advantages of Schmitt trigger.	8+2
5.	a)	What is n-parameters ?	2½
	b)	Explain the working of transformer coupled amplifier.	2 ¹ / ₂
	c)	State the characteristics of ideal Op-Amp.	2 ¹ / ₂

d) Explain use of Op-Amp as a subtractor.

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