Code No: **R1641022** **R16** **Set No. 1**

IV B.Tech I Semester Regular/Supplementary Examinations, Jan/Feb - 2022

LINEAR IC APPLICATIONS

(Electrical and Electronics Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1.	a)	What is meant by differential amplifier?	[2]
	b)	Define input offset current.	[3]
	c)	List the advantages of Voltage Follower.	[2]
	d)	Define frequency scaling.	[2]
	e)	List the applications of Monostable Multivibrator.	[3]
	f)	Write the expression for Accuracy.	[2]

PART–B *(4x14 = 56 Marks)*

2.	a)	Write brief notes on level translator with necessary schematics.	[7]
	b)	Discuss the analysis of differential amplifier.	[7]
3.	a)	Draw and explain the output stage of IC 741 op-amp.	[7]
	b)	What is the stability of an op-amp? Explain the various stability specifications.	[7]
4.	a)	Mention some applications of an instrumentation amplifier.	[7]
	b)	Derive the output voltage V_0 of an integrator circuit.	[7]
5.	a)	Derive the expression for the transfer function of II order highpass filter.	[7]
	b)	Design a wide band reject filter having f_H = 200 Hz and f_L = 1 kHz. Assume suitable data.	[7]
6.	a)	Derive the expression of time delay of a monostable multivibrator using 555 timer.	[7]
	b)	Draw the block schematic of 555 IC.	[7]
7.	a)	With a neat circuit diagram, explain the functioning of an inverted R-2R ladder type digital to analog converter.	[7]
	b)	Calculate the conversion time for a full scale input in case of a 12-bit counter type analog to digital converter driven by 2 MHz clock.	[7]