K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

May – June 2024	
(B. Tech) Program: Electronics and Telecommunication Engineering	
~~Regular~~ Supplmentry Scheme II Examination: SY Semester: IV	
Course Code: **EXC403** and Course Name: **Linear Integrated Circuit**	

Date of Exam: 30/07/24   Duration: 2.5 Hours   Max. Marks: 60

Instructions:
(1)All questions are compulsory.
(2)Draw neat diagrams wherever applicable.
(3)Assume suitable data, if necessary.

		Max. Marks	CO	BT level
Q 1	**Solve any six questions out of eight:**	12		
i)	Define input offset current and input bias current.	2	1	U
ii)	Draw circuit diagram of practical differentiator.	2	2	U
iii)	What are the values of R and C if the frequency of oscillation is 5KHZ for RC phase shift oscillator?	2	3	R
iv)	Determine the frequency and duty cycle for the 555 astable Multivibrator output for C =0.01micro F, RA =2K ohm and RB = 100 KOhm.	2	4	U
v)	Define load regulation in voltage regulator.	2	5	R
vi)	Define free running state in PLL.	2	6	R
vii)	Explain Barkhauson's criteria for sustained oscillation.	2	2	U
viii)	Draw circuit diagram and waveform of Zero crossing detector.	2	3	U
Q.2	**Solve any four questions out of six.**	16		
i)	Compare ideal and practical characteristics values of opamp.	4	1	U
ii)	Compare between RC Phase shift and wein bridge oscillator.	4	2	U
iii)	Compare comparator and Schmitt trigger.	4	3	U
iv)	Compare between astable and monostable Multivibrator.	4	4	U
V)	Design an adjustable voltage regulator using IC 7805 to vary output voltage between 5 to 7 V.	4	5	A

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Vi)	Draw pin configuration of IC 565.	4	6	U
Q.3	**Solve any two questions out of three.**	16		
i)	Derive expression for non inverting summing amplifier.	8	1	A
ii)	Design the Astable Multivibrator using IC555 to provide output square Wave with frequency of 2 KHz, for duty cycle of. 75%.	8	4	A
iii)	Explain functional block diagram of IC 723 in details.	8	5	R
Q.4	**Solve any two questions out of three.**	16		
i)	Design 2nd order HPF for cut off frequency of 10 KHZ and pass band gain of 1.5	8	2	A
ii)	Design a triangular wave generator so that Fo=2 KHZ, & Vo pp = 7 V. The op amp is operating @ +- 15 V.	8	3	A
iii)	Draw and explain VCO block in details with its IC configuration.	8	6	U

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