

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

May-June 2026		
B. Tech Program: EXTC Scheme :IIB		
Backlog Regular Examination: SY Semester: IV		
Course Code: EXC403 and Course Name: Linear Integrated Circuit		
Date of Exam: 21/5/26	Duration: 02.5 Hours	Max. Marks: 60

Instructions:

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

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any two questions out of three: (05 marks each)	10		
a)	Compare ideal and practical op amp.		CO1	U
b)	What are active filters? State its advantages over passive filters.		CO2	U
c)	Draw a precision half wave rectifier circuit and explain its operation		CO3	A
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	Design IC 555 timer with symmetrical square wave generator for 1KHz frequency of VCC = 5V, Draw waveforms for voltage across timing capacitor and output.		CO4	A
b)	Explain with a circuit diagram: 1) Short circuit current protection. 2) Fold back limiting in the 723 IC voltage regulator		CO5	U
c)	Explain the use of PLL as a frequency Multiplier.		CO6	U
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	Write Short notes on: 1) Comparison of linear and switching regulators. 2) Active filters using op amp. 3) Voltage to Current converter.		CO2	U
b)	Explain Monostable timer circuit and design a Monostable 555 timer circuit to produce an output pulse 10 sec wide.		CO4	U
c)	Draw a neat diagram of PLL IC 565 & explain the terms i) Free running frequency ii) Capture range iii) Lock Range		CO6	A

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Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	Define the following: a. slew rate b. CMRR c. Input Offset Voltage d. Output offset voltage e. PSRR & Explain the significance of virtual ground in an opamp.		CO1	U
b)	Draw the circuit diagram of a square and triangular waveform generator using op- amp. With the help of waveforms at suitable points in the circuit, explain its working. Explain how duty cycles can be varied?		CO3	A
c)	Write Short notes on: Three terminal fixed voltage regulator and Monolithic switching regulator.		CO5	U
