

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

Nov – Dec 2024

(B. Tech) Program: Electronics & Telecommunication Scheme III

Regular Examination: SY Semester: III

Course Code: EXC203_III and Course Name: Electronic Devices & Linear Circuits

Date of Exam: 21/11/24

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)	Explain meaning of virtual ground in OPAMP? In which configuration it is present?		2	2
b)	Draw the circuit diagram and explain the operation of BJT as a switch?		1	2
c)	Draw the block diagram and explain the operation of PLL IC 565		6	2
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	What is barkhausen criterion? Compare RC phase shift and wein bridge oscillator?		3	2
b)	Define following parameters of OPAMP. State its ideal value and practical value for IC 741. i) C.M.R.R., ii) Slew rate.		2	2
c)	Draw the circuit diagram and explain the operation of half wave precision rectifier?		4	2
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	Draw the circuit diagram of a triangular waveform generator using an op-amp and explain its working with the help of waveforms.		4	2
b)	Draw internal block diagram of IC 555 and explain its operation? What is significance of digits 5,5,5 in number of IC?		5	2
c)	Compare Differentiator and Integrator using OPAMP?		3	2
Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	Explain the operation of Schmitt trigger using OPAMP? Sketch input, output wave forms and transfer characteristics?		4	2
b)	Design inverting amplifier using OPAMP for gain -10. Draw the circuit diagram and indicate component values.		3	3
c)	Explain various biasing circuits used for MOSFET amplifier?		1	2