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

~~Nov- Dec 2024~~ Jan - Feb 2025

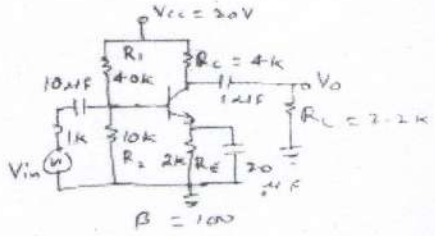
Program: B.Tech. (Electronics and Telecommunication)Scheme IIB

Supplementary ~~Regular~~ Examination: SY Semester: III

Course Code: EXC 303 and Course Name: Electronic Devices & Circuits

Date of Exam: 29-01-25 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 drift current and diffusion current.		1	1
b)	Draw the circuit diagram of zener diode as a voltage regulator and explain its operation?		2	2
c)	Draw the circuit diagram of voltage divider biasing for BJT amplifier and explain its operation?		3	3
Q 2	Solve any **two** questions out of three: (05 marks each)	10		
a)	Draw the circuit diagram of voltage divider biasing for MOSFET amplifier and explain its operation?		3	2
b)	Explain the effect of coupling and bypass capacitors in frequency response of the amplifier?		4	3
c)	What is the function of power amplifiers? Explain its classification?		6	3
Q.3	Solve any **two** questions out of three. (10 marks each)	20		
a)	Determine low cut off frequency for the amplifier shown below…V CC =14 Volts,β =100,V BE =0.7 Volts 		2	4
b)	What are different types of coupling methods used in multistage amplifiers? State its advantages, disadvantages and applications..		5	2

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

~~Nov – Dec 2024~~ Jan - Feb 2025
Program: B.Tech. (Electronics and Telecommunication)Scheme IIB
(Supplementary/~~Regular~~ Examination: SY Semester: III
Course Code: EXC 303 and Course Name: Electronic Devices & Circuits
Date of Exam: 29-01-25 Duration: 02.5 Hours Max. Marks: 60

c)	Compare Voltage amplifier and power amplifer.		6	2
Q.4	Solve any **two** questions out of three. (10 marks each)	20		
a)	Draw the circuit diagram and explain the operation of MOSFET differential amplifier? Define CMRR,Differential and common mode gain		3	3
b)	Draw the circuit diagram and derive the equation of voltage gain,input and output impedance for CS MOSFET amplifiers?		3	3
c)	Calculate the forward bias current of a Si diode when forward bias voltage of 0.4V is applied, the reverse saturation current is 1.17×10^{-9}A and the thermal voltage is 25.2mV.Assume $\eta = 1$.		1	4

****