

October 2017 / IN - SEM (T2)
F. Y. B.TECH. (COMMON) (SEMESTER - I)
COURSE NAME: Basic Electronics Engineering
(2017 PATTERN)

Q.NO	Sub Q.NO	Marking Scheme	Marks	Difficulty Level	Cognitive level	CO Mapped
Q1	a)	Diagram of N channel Enhancement-MOSFET with transfer and output characteristics: 4M Explanation of transfer and output characteristics: 2M	[6]	M	Knowledge / Comprehension	CO2
	b)	V-I Characteristics diagram: 4M V-I Characteristics Explanation: 2M	[6]	M	Knowledge / Comprehension	CO2
	c)	$K = 6.17 \text{ mA/V}^2$: 2M $I_D = 98.7 \text{ mA}$: 2M	[4]	L	Comprehension	CO2

OR

Q2	a)	V-I Characteristics diagram: 4M TRIAC working Explanation : 2M	[6]	M	Comprehension	CO2
	b)	controlled full wave rectifier using SCR Circuit diagram : 3M Controlled Rectified output waveforms: 1M working Explanation : 2M	[6]	H	Comprehension /Application	CO2
	c)	Four points on features of BJT and MOSFET: 2M Symbols of P-Channel and N-Channel E-MOSFET: 2M	[4]	L	Knowledge	CO2
	a)	Circuit diagram of close loop inverting amplifier: 2M Derivation of the expression for gain: 3M Input & Output waveforms: 1M	[6]	M	Comprehension	CO3
	b)	Block diagram of Op-Amp: 2M Stating function of each block: 2M	[4]	L	Knowledge	CO3
	c)	Vout equation: 2M $V_{out} = -(3V+1V+8V) = -12V$:2M	[4]	L	Comprehension	CO3

OR

Q4	a)	Circuit diagram of close loop non inverting amplifier: 2M Derivation of the expression for gain: 3M Input & Output waveforms: 1M	[6]	M	Comprehension	CO3
	b)	Explanation of Slew rate: 2M	[4]	L	Knowledge	CO3

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		Explanation of Input offset current:1M Explanation of Input bias current : 1M				
	c)	$CMRR = A_{ol} / A_{cm} = 100,000 / 0.2 =$ 500,000 :2M $CMRR = 20 \log (500,000) = 114 \text{ dB: 2M}$	[4]	L	Comprehension	CO3