O.P.Code: 20EC0445	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech I Year I Semester Supplementary Examinations February-2024

BASIC ELECTRONICS ENGINEERING

(Common to CSE,CSM, CAD,CAI,CCC,CSIT & CIC)

Time: 3 Hours **Max. Marks: 60**

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	Draw the atomic structure of a semiconductor and explain why an Intrinsic semiconductor is relatively a poor conductor of electricity.	CO1	L4	6M
	b	Explain diffusion current with expressions.	CO4	L2	6M
		OR			
2	a	Describe the charge neutrality in semiconductors in detail.	CO1	L2	6M
	b	Compare p-type and n-type semiconductors.	CO1	L4	6M
		UNIT-II			
3	a	Illustrate the action of PN junction diode under forward bias and reverse bias and sketch its V-I Characteristics.	CO1	L2	6M
	b	Discuss about Breakdown mechanisms in PN Junction Diode.	CO5	L2	6M
		OR			
4	a	Analyze the current components in a PN diode and derive the expression for diode current.	CO4	L4	6M
	b	Explain the Zener voltage regulator with a neat diagram.	CO3	L2	6M
		UNIT-III			
5	a	Derive the expressions for Average DC current, Average DC Voltage, RMS Value of Current, DC Power Output, AC Power input and Efficiency of a Half Wave Rectifier.	CO2	L4	6M
	b	A voltage of 200cosωt is applied to Half Wave Rectifier with load resistance of 5 kohm, find the maximum dc current, rms current and ripple factor.	CO2	L3	6M
		OR			
6	a	Demonstrate the working principle of LC filter with neat diagram and derive the expression for its ripple factor	CO3	L2	8M
	b	Compare the Full wave and Half wave rectifiers.	CO2	L4	4M
		UNIT-IV			
7	a	Explain the current components of PNP transistor.	CO4	L3	6M
	b	Draw the Input and Output characteristics of a BJT in CB Configuration.	CO1	L4	6M
		OR			
8	a	Define Transistor Biasing and explain the need for Biasing.	CO2	L2	8M
	b	Discuss about Sensistor Compensation Technique.	CO2	L2	4M
		UNIT-V			
9	a	Explain the construction and working principle of N-channel JFET.	CO1	L3	6M
	b	List the types of JFET Biasing and Explain Briefly the setting of Operating Point.	CO1	L2	6M
		OR			
10	a	Sketch the transfer and drain characteristics of E-only MOSFET.	CO5	L3	6M
	b	Derive the Drain to Source resistance, Trans-conductance and amplification factor from Characteristics of JFET.	CO4	L4	6M

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