Q.P. Code: 16EC401 **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year I Semester Supplementary Examinations December-2021

BASIC ELECTRONIC DEVICES

(Common to EEE & ECE)

Time: 3 hours Max. Marks: 60

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

UNIT-I

1	a	Discuss the Energy bands in intrinsic and extrinsic silicon.	L2	6M
	b	Write notes on carrier transport in semiconductor.	L2	6M
		OR		
2	a	Derive the Diode Current Equation.	L1	6M
	b	Write notes on Diode Resistance.	L2	6M
		UNIT-II		
3	a	Draw and explain VI characteristics of Tunnel Diode.	L2	6M
	b	Discuss the basic structure and characteristics of TRIAC.	L2	6M
		OR		
4	a	With neat diagram, describe the working principle and characteristics of UJT.	L1	6M
	b	Write notes on Photo Transistor.	L2	6M
		UNIT-III		
5		Derive the expressions for Average DC current, Average DC Voltage, RMS Value of Current, DC Power Output and AC Power Input of a Half Wave Rectifier.	L1	12M
		OR		
6	a	Draw the circuit of capacitor filter and explain its operation.	L1	6M
	b	Derive the expression for ripple factor of HWR and FWR with capacitor filter.	L2	6M
		UNIT-IV		
7	a	If the base current in a transistor is 20μA when the emitter current is 6.4mA, what are the values of α and β? Also calculate the collector current.	L3	8M
	b	Write notes on early effect of a BJT?	L1	4M
		OR		
8	a	Discuss the operation and drain characteristics of n-channel depletion type MOSFET.	L2	6M
	b	Give the comparison between JFET and MOSFET.	L4	6M
		UNIT-V		
9	a	Describe Thermistor and Sensistor Compensation Techniques.	L1	6M
	b	Discuss about Thermal Runaway and Thermal Resistance.	L2	6M
		OR		
10	a	Derive the expression for Stability Factor S of a Fixed Bias Circuit.	L3	6M
	b	Discuss about Thermal Runaway and Thermal Resistance.	L2	6M

*** **END** ***