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

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year I Semester Supplementary Examinations August-2022

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**	Explain Drift and Diffusion current for a semiconductor.	**L2**	**6M**
	b	With expressions, explain mobility and conductivity of a semiconductor.	**L2**	**6M**
		OR		
2	**a**	Describe the Temperature Dependence of PN Junction Diode on VI Characteristics.	**L1**	**6M**
	b	How does the reverse saturation current of PN junction diode varies with temperature? Explain.	**L2**	**6M**

UNIT-II

3	**a**	Draw and explain the basic structure of LED. Mention the applications of LED.	**L2**	**6M**
	b	Write notes on Liquid Crystal Display.	**L2**	**6M**
		OR		
4	**a**	Draw the basic structure of an SCR. Explain its characteristics and list the applications.	**L1**	**6M**
	b	Define Holding Current and Latching Current of SCR.	**L2**	**6M**

UNIT-III

5		Derive the expression for ripple factor of inductor filter. Mention the need of Bleeder resistor.	**L1**	**12M**
		OR		
6	**a**	With neat diagram, explain Bridge Rectifier.	**L2**	**6M**
	b	Discuss the L Section Filter with neat diagram.	**L2**	**6M**

UNIT-IV

7	**a**	Give the current components of PNP transistor and explain.	**L2**	**8M**
	b	With reference to BJT, explain the following terms Emitter Efficiency, Base Transportation Factor and Large signal current gain.	**L1**	**4M**
		OR		
8	**a**	Explain the construction and principle of operation of N-channel JFET.	**L2**	**6M**
	b	Define the JFET Volt-Ampere Characteristics and determine FET parameters.	**L1**	**6M**

UNIT-V

9	**a**	Explain the concept of DC and AC Load lines and discuss the criteria for fixing the Q-point.	**L2**	**6M**
	b	Mention different types of Biasing a Transistor. And explain the Fixed Bias of a Transistor in detail.	**L2**	**6M**
		OR		
10	**a**	Derive the stability factors S, S' and S'' of a Transistor Voltage Divider bias .	**L3**	**6M**
	b	Mention the advantages and disadvantages of various biasing techniques of BJT.	**L2**	**6M**

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