O.P.Code: 23EE0201b	R23	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. I Year II Semester Regular & Supplementary Examinations June-2025
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to CCC, CIC, CAI, CIA)

Time: 3 Hours **Max. Marks: 70**

***Note:** Answer **PART-A** from pages **2 to 20** and **PART-B** from **21 to 39.**

PART-A (ELECTRICAL)

(Answer all the Questions **5 x 1 = 5** Marks)

1	a	State Kirchoff's laws.	CO1	L2	1M
	b	Write any three applications of a DC Motor.	CO2	L1	1M
	c	What are the Conventional Energy sources?	CO3	L1	1M
	d	Define the unit of Electrical Energy.	CO3	L1	1M
	e	What is the function of Fuse?	CO3	L1	1M

(Answer all Three Units 3 x 10 = 30 Marks) (ELECTRICAL)

UNIT-I

2	a	Determine the Equivalent Capacitance when the Capacitors are connected in Series & Parallel.	CO2	L3	5M
	b	Explain about Energy Sources.	CO4	L2	5M

OR

3	a	Define the following terms i)Impedance, ii)Active power, iii) Reactive power	CO3	L1	5M
	b	Explain the Terms Apparent power and power factor	CO3	L2	5M

UNIT-II

4		Draw and Explain the constructional diagram of a three-phase Induction motor.	CO2	L4	10M

OR

5	a	Explain the operating principles of Moving Iron Instruments	CO1	L2	5M
	b	Determine the unknown resistance using Wheatstone bridge	CO3	L3	5M

UNIT-III

6		Explain the Layout and operation of the Hydel power generating station	CO3	L2	10M

OR

7	a	What are the working principles of fuse and MCB?	CO1	L1	5M
	b	Define Earthing and explain the types of earthing	CO4	L1	5M

PART-B(ELECTRONICS)

(Answer all the Questions **5 x 1 = 5** Marks)

1	**f**	What is meant by semiconductor?	**CO1**	**L4**	**1M**
	g	Define biasing.	**CO1**	**L1**	**1M**
	h	What is an emitter?	**CO2**	**L1**	**1M**
	i	What is hamming code?	**CO3**	**L1**	**1M**
	j	List the names of universal gates with symbols.	**CO3**	**L4**	**1M**

(Answer all Three Units 3 x 10 = 30 Marks) (ELECTRONICS)

UNIT-IV

8	**a**	Define the Zener diode and its characteristics.	**CO1**	**L1**	**5M**
	b	What is the Zener effect?	**CO1**	**L1**	**5M**

OR

9		Briefly explain the operation of a small signal CE amplifier.	**CO2**	**L2**	**10M**

UNIT-V

10		Explain the working of a full wave bridge rectifier with a neat diagram with waveforms.	**CO2**	**L1**	**10M**

OR

11		Draw the block diagram of the Electronic Instrumentation System and explain the function of each block.	**CO2**	**L1**	**10M**

UNIT-VI

12	**a**	What are BCD codes and what are the various BCD codes .	**CO3**	**L3**	**5M**
	b	Perform the following Decimal addition to the 8421 BCD code. i)48+58 ii)186+237	**CO3**	**L3**	**5M**

OR

13		Explain Basic Theorems and properties of Boolean Algebra.	**CO3**	**L1**	**10M**

***** END *****