O.P.Code: 23EE0201(a) | R23 | H.T.No.

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech I Year II Semester Regular & Supplementary Examinations May/June-2026
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to CE, ME, CAD, CSM)

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	What are the passive elements?	CO1	L1	1M
	b	List any Five parts of a Transformer.	CO2	L1	1M
	c	What is the power rating of Air Conditioner and Fan?	CO3	L1	1M
	d	Define Impedance.	CO1	L1	1M
	e	What are The types of MI instruments?	CO2	L1	1M

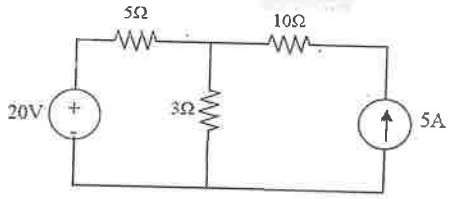
(Answer all Three Units 3 x 10 = 30 Marks) (ELECTRICAL)

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	State the Super position theorem.	CO2	L1	4M
	b	By using superposition theorem find the current flowing through the 3 ohm resistor.	CO2	L4	6M



UNIT-II

4		Explain the Working principle of single phase transformer.	CO1	L2	10M

OR

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

UNIT-III

6		What is solar power plant? Explain the operation with layout.	CO3	L1	10M

OR

7		Explain Layout and operation of Wind power generating station.	CO3	L2	10M

PART-B(ELECTRONICS)

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

1	f	What is meant by semiconductor?	CO1	L4	1M
	g	How PN diode is formed?	CO1	L1	1M
	h	Define amplifier.	CO2	L4	1M
	i	Write the names of basic logical operators.	CO4	L3	1M
	j	What are the basic properties of Boolean algebra?	CO4	L1	1M

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

UNIT-IV

8		Distinguish between PN Junction diode and Zener diode.	CO1	L3	10M

OR

9		With the neat sketch ,Explain the operation of an NPN transistor and PNP transistor.	CO2	L3	10M

UNIT-V

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

OR

11		With the help of a neat diagram explain the operations of positive and negative half cycles.	CO2	L3	10M

UNIT-VI

12		Convert the following into binary to decimal, decimal into hexa decimal i) $(1101.1)_2$ ii) $(1100.001)_2$ iii) $(5386.34)_{10}$ iv) $(214.35)_{10}$	CO3	L1	10M

OR

13		Explain about Logic gates with symbols and truth table.	CO3	L1	10M

*** END ***