

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech. I Year I Semester Regular & Supplementary Examinations December/January-2024/2025
BASIC ELECTRICAL & ELECTRONICS ENGINEERING
(Common to CSE, EEE & CSIT)

Max. Marks: 70

Time: 3 Hours

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

PART-A (ELECTRICAL)

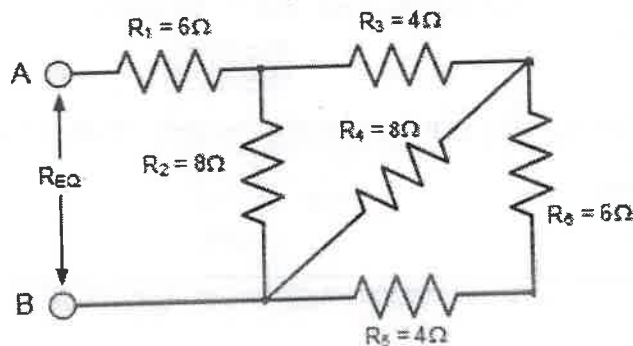
(Answer all the Questions 5 x 1 = 5 Marks)

- | | | | | | |
|---|---|--|-----|----|----|
| 1 | a | What are the passive elements? | CO1 | L1 | 1M |
| | b | Define Faradays law. | CO2 | L1 | 1M |
| | c | Which instrument is used to measure the DC quantity? | CO3 | L3 | 1M |
| | d | Define 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)

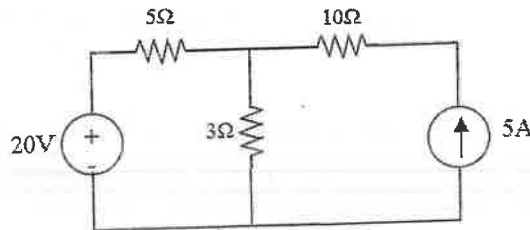
UNIT-I

- | | | | | | |
|---|---|--|-----|----|----|
| 2 | a | Find equivalent resistance when three resistors are connected in parallel. | CO1 | L1 | 5M |
| | b | Find the equivalent resistance for the circuit shown below. | CO1 | L2 | 5M |



OR

- | | | | | | |
|---|---|---|-----|----|----|
| 3 | a | State the Super position theorem. | CO1 | L1 | 5M |
| | b | By using superposition theorem find the current flowing through the 3 ohm resistor. | CO1 | L1 | 5M |



UNIT-II

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|---|---|--|-----|----|-----|
| 4 | a | Draw and Explain the constructional diagram of a single phase transformer. | CO2 | L2 | 10M |
|---|---|--|-----|----|-----|

OR

- | | | | | | |
|---|---|--|-----|----|----|
| 5 | a | Explain the operating principles of Moving Iron instruments. | CO2 | L5 | 5M |
| | b | Determine the unknown resistance using Wheatstone bridge. | CO2 | L3 | 5M |

UNIT-III

- | | | | | | |
|---|---|--|-----|----|-----|
| 6 | a | How does a nuclear plant work? Explain with neat sketch. | CO3 | L1 | 10M |
|---|---|--|-----|----|-----|

OR

- | | | | | | |
|---|---|--|-----|----|----|
| 7 | a | What are the working principles of fuse and MCB? | CO3 | L1 | 4M |
| | b | Define Earthing and explain the types of earthing. | CO3 | L2 | 6M |

PART-B(ELECTRONICS)

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

- | | | | | | |
|---|---|---|-----|----|----|
| 1 | f | How PN diode is formed? | CO1 | L1 | 1M |
| | g | Define amplifier. | CO2 | L3 | 1M |
| | h | What is a step-down transformer? | CO2 | L1 | 1M |
| | i | List the names of universal gates with symbols. | CO3 | L1 | 1M |
| | j | What are the basic properties of Boolean algebra? | CO4 | L3 | 1M |

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

UNIT-IV

- 8 With a neat sketch Explain the input and output and current gain characteristics of a transistor in common Emitter (CE) configuration. CO1 L1 10M

OR

- 9 Distinguish between PN Junction diode and Zener diode. CO1 L4 10M

UNIT-V

- 10 Explain the working of a full wave bridge rectifier with a neat diagram with wave forms. CO2 L2 10M

OR

- 11 Draw the block diagram of Public Addressing System and explain the function of each block. CO2 L2 10M

UNIT-VI

- 12 a What is number system? explain the different types of number systems CO3 L1 7M
b Convert the $(555)_{10}$ into binary, octal and Hexadecimal number systems. CO3 L3 3M

OR

- 13 a Explain about Logic gates with symbols and truth table. CO3 L5 6M
b What is BCD codes and what are the various BCD codes. CO3 L1 4M

***** END *****