

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 CE, ME & CAD)

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)

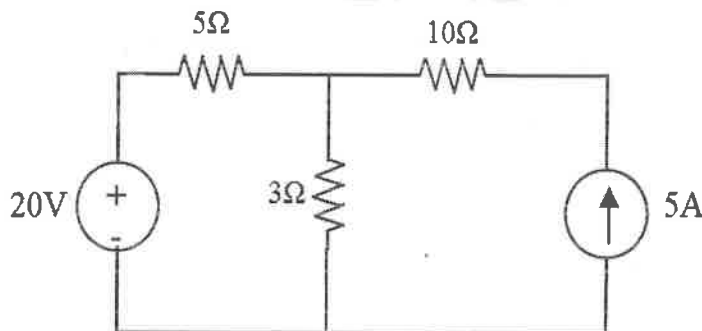
(Answer all the Questions 5 x 1 = 5 Marks)

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|---|---|---|-----|----|----|
| 1 | a | State Ohm's law. | CO1 | L1 | 1M |
| | b | Define Active Power. | CO1 | L1 | 1M |
| | c | What are The types of MI instruments? | CO2 | L1 | 1M |
| | d | List any Five parts of a Transformer. | CO2 | L1 | 1M |
| | e | What are the different types of Earthing? | CO3 | L1 | 1M |

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

UNIT-I

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|-----------|---|---|-----|----|----|
| 2 | a | Explain phase and Phase difference | CO2 | L1 | 5M |
| | b | Derive an expression for average value of sine wave form | CO2 | L2 | 5M |
| OR | | | | | |
| 3 | a | State the Superposition theorem. | CO2 | L1 | 5M |
| | b | By using the superposition theorem find the current flowing through the 3 ohm resistor. | CO2 | L4 | 5M |

**UNIT-II**

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|-----------|--|--|-----|----|-----|
| 4 | | Draw and explain the construction of DC machine | CO2 | L4 | 10M |
| OR | | | | | |
| 5 | | Explain the construction and operating principle of Permanent Magnet Moving Coil (PMMC) instruments. | CO2 | L2 | 10M |

UNIT-III

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|-----------|---|---|-----|----|-----|
| 6 | | What is solar power plant? Explain the operation with layout | CO3 | L1 | 10M |
| OR | | | | | |
| 7 | a | What are the functions of an electric fuse? | CO4 | L1 | 5M |
| | b | What is an electric shock? How to prevent electric shock at home? | CO4 | L1 | 5M |

PART-B(ELECTRONICS)

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

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|---|---|---|-----|----|----|
| 1 | f | Define doping | CO1 | L1 | 1M |
| | g | The transducer used for? | CO2 | L1 | 1M |
| | h | What is the necessary of the coupling capacitor? | CO2 | L4 | 1M |
| | i | What are the basic properties of Boolean algebra? | CO4 | L1 | 1M |
| | j | What is an Excess3 code? | CO3 | L1 | 1M |

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

UNIT-IV

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|---|--|---|-----|----|-----|
| 8 | | Explain the operation of pn junction diode under forward bias and reverse bias conditions with the help of V-I characteristics curve. | CO5 | L5 | 10M |
|---|--|---|-----|----|-----|

OR

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|---|--|--|-----|----|-----|
| 9 | | With a neat sketch Explain the input and output and current gain characteristics of a transistor in common Collector (CC) configuration. | CO2 | L1 | 10M |
|---|--|--|-----|----|-----|

UNIT-V

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|----|--|---|-----|----|-----|
| 10 | | Explain the Block diagram description of a DC power supply with a detailed explanation of all blocks. | CO2 | L1 | 10M |
|----|--|---|-----|----|-----|

OR

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|----|--|---|-----|----|-----|
| 11 | | What is an Amplifier? What is a Common Emitter Amplifier? | CO2 | L1 | 10M |
|----|--|---|-----|----|-----|

UNIT-VI

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|----|---|--|-----|----|----|
| 12 | a | Convert the following into Gray code. | CO3 | L3 | 5M |
| | | i) $(1001100)_2$ ii) $(110101110)_2$ | | | |
| | b | What is Hamming code and how does it work? | CO3 | L2 | 5M |

OR

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|----|--|---|-----|----|-----|
| 13 | | Define sequential circuit. And explain about Flip flops, registers, and counters. | CO3 | L2 | 10M |
|----|--|---|-----|----|-----|

***** END *****