

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

B.Tech I Year I Semester Regular Examinations February-2024
BASIC ELECTRICAL & ELECTRONICS ENGINEERING

(Common to CSE & ECE)

Time: 3 Hours

Max. Marks: 70

PART-A (ELECTRICAL)

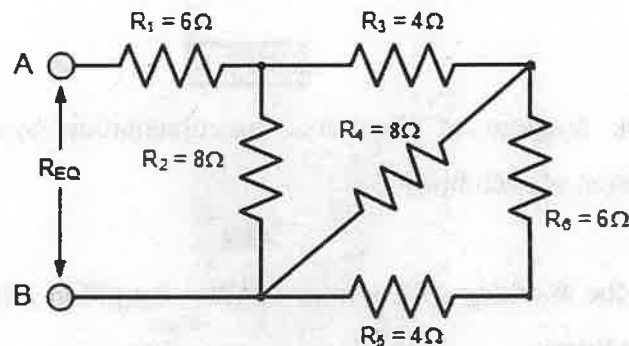
(Answer all the Questions 5 x 1 = 5 Marks)

- | | | | | |
|---|---|-----|----|----|
| 1 | a Define Impedance. | CO1 | L1 | 1M |
| | b List any Five parts of a Transformer. | CO2 | L1 | 1M |
| | c What are the different types of Earthing? | CO3 | L1 | 1M |
| | d Define Faradays law. | CO2 | L1 | 1M |
| | e What is a step-down transformer? | CO2 | 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. | CO3 | L3 | 4M |
| | b Find the equivalent resistance for the circuit shown below. | CO2 | L3 | 6M |



OR

- | | | | | |
|---|---|-----|----|----|
| 3 | a Explain the concept of impedance in an A.C circuits. | CO3 | L1 | 2M |
| | b Define the following | CO3 | L1 | 8M |
| | i) Waveform, ii) Time period, iii) frequency, iv) Amplitude | | | |

UNIT-II

- | | | | | |
|---|--|-----|----|-----|
| 4 | Draw and Explain the constructional diagram of a single phase transformer in detail. | 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 | a Define Earthing and explain the types of earthing | CO4 | L1 | 6M |
| | b What are the advantages of earthing? | CO4 | L1 | 4M |

OR

- | | | | | |
|---|--|-----|----|-----|
| 7 | What is solar power plant? Explain the operation with layout | CO3 | L1 | 10M |
|---|--|-----|----|-----|

PART-B(ELECTRONICS)

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

- | | | | | | |
|---|---|---|-----|----|----|
| 1 | f | Define biasing. | CO1 | L1 | 1M |
| | g | How PN diode is formed? | CO1 | L1 | 1M |
| | h | What is an emitter? | CO2 | L1 | 1M |
| | i | List the names of universal gates with symbols. | CO3 | L4 | 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 | a | Define Zener diode and its characteristics. | CO1 | L1 | 5M |
| | b | What is Zener effect? | CO1 | L1 | 5M |

OR

- | | | | | | |
|---|--|--|-----|----|-----|
| 9 | | With the neat sketch ,Explain the operation of an NPN transistor and PNP transistor. | CO1 | L5 | 10M |
|---|--|--|-----|----|-----|

UNIT-V

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

OR

- | | | | | | |
|----|--|---|-----|----|-----|
| 11 | | Briefly explain the Working of Common Emitter Amplifier with proper circuit and wave forms. | CO2 | L1 | 10M |
|----|--|---|-----|----|-----|

UNIT-VI

- | | | | | | |
|----|---|--|-----|----|----|
| 12 | a | Explain differences between combinational and sequential circuits. | CO3 | L4 | 5M |
| | b | Perform the following addition using excess-3 code
i)386+756 ii)12+38 | CO3 | L4 | 5M |

OR

- | | | | | | |
|----|---|---|-----|----|----|
| 13 | a | What is BCD codes and what are the various BCD codes | CO3 | L3 | 6M |
| | b | Perform the following Decimal addition to 8421 BCD code.
i)48+58, ii)186+237 | CO3 | L3 | 4M |

*** END ***