

Reg. No:

--	--	--	--	--	--	--	--	--	--

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

B.Tech I Year II Semester Regular Examinations May 2019
BASIC ELECTRICAL ENGINEERING
(Common to ECE,CSE & CSIT)

Time: 3 hours

Max. Marks: 60

PART-A

(Answer all the Questions 5 x 2 = 10 Marks)

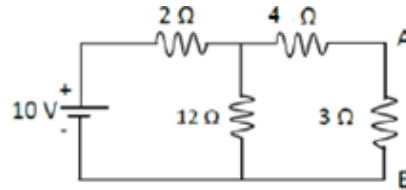
- | | | | |
|---|---|--|----|
| 1 | a | State Ohm's law and its limitations. | 2M |
| | b | Define RMS value. | 2M |
| | c | Write the formulae's for hysteresis and Eddy current losses. | 2M |
| | d | Why single-phase induction motor is not self-starting? | 2M |
| | e | What is Earthing? | 2M |

PART-B

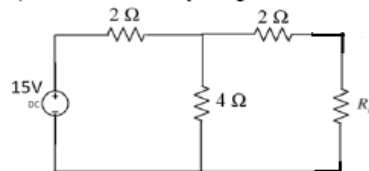
(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

- | | | | |
|---|---|---|----|
| 2 | a | State and explain KVL and KCL . | 5M |
| | b | Find the current in the 3Ω resistor in the network shown in figure. | 5M |

**OR**

- | | | | |
|---|---|--|----|
| 3 | a | State and explain Thevenin's theorem. | 4M |
| | b | Using Thevenin's theorem, calculate the current flowing through the $R_L = 3\Omega$ resistor in the network shown in figure. | 6M |

**UNIT-II**

- | | | | |
|---|---|---|----|
| 4 | a | Derive an expression for RMS value of sine wave form. | 6M |
| | b | An alternating current is expressed as $i = 10 \sin 314t$. Determine following | 4M |
| | | (i) Maximum current (ii) rms current (iii) Frequency | |
| | | (iv) Instantaneous current when $t = 0.02\text{msec}$ | |

OR

- | | | |
|---|--|-----|
| 5 | Derive the voltage and current relations in three phase-balanced circuits for star connection. | 10M |
|---|--|-----|

UNIT-III

- | | | | |
|---|---|--|----|
| 6 | a | Explain the various losses taking place in a transformer. | 5M |
| | b | A 250KVA single-phase transformer has iron loss of 1.8KW, the full load copper loss is 2000W. Calculate efficiency at full load at 0.8 lagging power factor. | 5M |

OR

- | | | | |
|---|---|---|----|
| 7 | a | Derive the EMF equation of the transformer. | 5M |
| | b | A 25KVA transformer has 500 turns on primary winding and 40 turns on secondary winding. The primary is connected to 3000V, 50Hz supply. Calculate secondary induced emf and maximum flux in the core. | 5M |

UNIT-IV

8 Explain the operating principle of three-phase induction motor. 10M

OR

9 Explain the working principle of synchronous generator. 10M

UNIT-V

10 a Explain the CTS electrical wiring system with necessary diagram. 5M

b Explain the Concealed wiring system with necessary diagram. 5M

OR

11 Explain about PVC cables and weatherproof cables. 10M

END