

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech I Year I Semester Regular & Supplementary Examinations March-2023
BASIC ELECTRICAL AND MECHANICAL ENGINEERING
 (Common to CE & AGE)

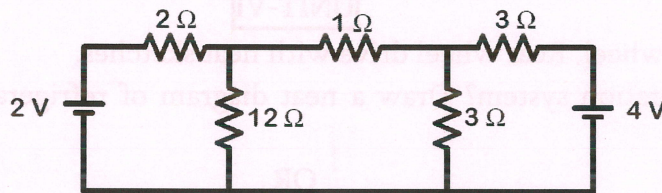
Time: 3 hours

Max. Marks: 60

(Answer all Six Units 6 X 10 = 60 Marks)

PART-A**UNIT-I**

- 1 a Find the current through 12Ω resistor for the given circuit using Kirchoff's law. CO1 L3 5M



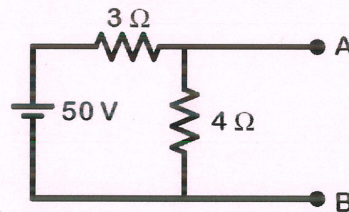
- b State and explain Ohm's law. CO1 L1 5M

OR

- 2 Explain in detail about
 (i) RMS value (ii) Average value (iii) Form factor (iv) peak factor
 (v) prove that the form factor of the sinusoidal wave is 1.11 CO1 L2 10M

UNIT-II

- 3 a State Norton's theorem. CO2 L1 2M
 b Find Norton's equivalent circuit across AB for the circuit shown. CO2 L3 8M



OR

- 4 a Explain in detail about impedance parameters. CO2 L2 5M
 b Briefly discuss about admittance parameters. CO2 L2 5M

UNIT-III

- 5 a Derive torque equation of a DC motor. CO3 L3 5M
 b The counter EMF of shunt motor is 227 V. The field resistance is 160Ω and field current is 1.5 A. If the line current is 36.5 A, find the armature resistance and armature current when the motor is stationary. CO3 L5 5M

OR

- 6 a Explain constructional details of transformer. CO3 L2 6M
 b A 20 kVA, 2000/20 V, 50 Hz transformer has 66 secondary turns. Calculate the number of primary turns and primary and secondary currents. Neglect losses. CO3 L4 4M

PART-B

UNIT-IV

- 7 Describe the permanent mold casting with neat sketch and list the advantages, limitations and applications. CO4 L2 10M

OR

- 8 Describe the principle of soldering? Explain the soldering process with neat sketch and list the advantages, limitations and applications. CO4 L2 10M

UNIT-V

- 9 What is a shaper? Draw the block diagram of a shaper machine with principal parts, specifications, advantages and applications. CO5 L3 10M

OR

- 10 Describe the working principle of boring machine with a neat sketch. CO5 L2 10M

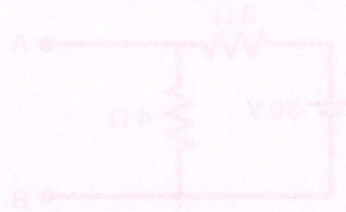
UNIT-VI

- 11 a Describe Front wheel, Rear wheel drive with neat sketches. CO6 L2 5M
b What is refrigeration system? Draw a neat diagram of refrigeration system. CO6 L3 5M

OR

- 12 With a neat sketch describe the working principle of vapour absorption system. CO6 L2 10M

*** END ***



OR