CE/ME 123 (R-22)

Total No. of Questions : 10] [Total No.of Pages : 02

I/IV B. Tech. DEGREE EXAMINATIONS, AUGUST - 2023

Second Semester

CE / ME

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

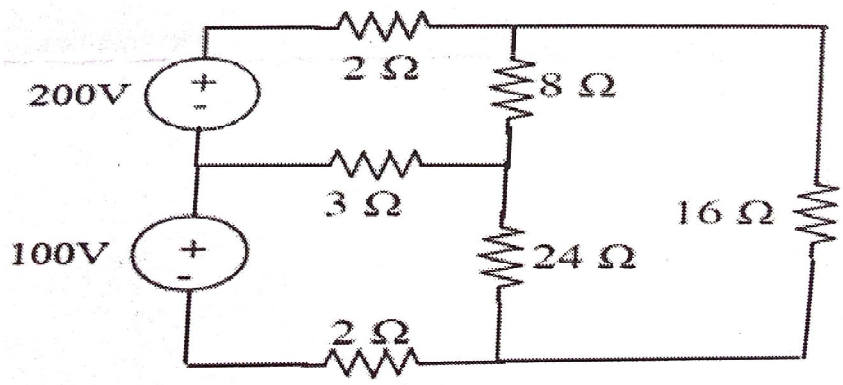
Time : **Three Hours** Maximum : **70** Marks

Answer All Questions

Answer ONE question from each Unit. 5x14=70 M

UNIT - I

1. a) Determine the mesh currents for the circuit shown below.



b) State & explain Super position theorem.

(OR)

2. a) Define power factor, apparent power, active power and reactive power.

b) Z_1 and Z_2 are in parallel where currents corresponding impedances are $I_1 = 50\angle 10^o$ and $I_2 = 20\angle 30^o$. If the applied voltage is $100\angle 15^o$ V, find true power, reactive power and apparent power in each branch.

UNIT - II

3. Derive the voltage, current and power relations in three phase balanced circuits for delta connection.

(OR)

4. a) Derive the EMF equation of a D.C. generator.

b) Explain OCC Characteristics of D.C. generator.

P.T.O.

UNIT - III

5. Explain how OC and SC tests are conducted on transformer.

(OR)

6. a) Describe the construction details of three phase induction motor.

   b) Explain working principle of induction motors.

UNIT - IV

7. Describe the principle of operation of full wave rectifiers with and without filters.

(OR)

8. a) Explain the characteristics of semiconductor diode.

   b) Discuss the applications of diodes.

UNIT - V

9. a) Explain the common emitter configuration of BJT.

   b) Discuss transistor operation of BJT in detail.

(OR)

10. Describe the operation of multi stage amplifiers with the help of neat diagrams.