CE/ME 123 (R-22)

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

I/IV B. Tech. DEGREE EXAMINATIONS, AUGUST - 2024

Second Semester

CE / ME

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

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

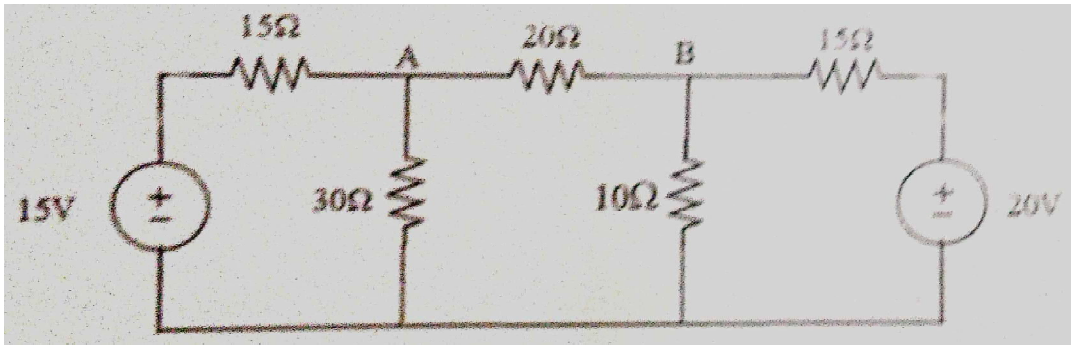
Answer ONE Question from each Unit.

All Questions carry equal marks. 5x14=70 M

UNIT - I

1. a) State and explain Kirchhoff's laws ?

   b) Determine the current in branch A-B by using KVL.



(OR)

2. a) Derive an expression for RMS values of sine wave form.

   b) An alternating current is expressed as I = 14.14 sin 314t. Determine.

   (i) Maximum current (ii) RMS current (iii) Frequency (iv) Instantaneous current when t = 0.02 msec.

UNIT - II

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

(OR)

P.T.O.

4. Describe the principle of operation and working of DC generator in detail.

UNIT - III

5. a) Explain Voltage Regulation & Efficiency in a transformer.

   b) Derive an EMF equation of a single-phase transformer.

(OR)

6. a) Derive torque expression in three phase induction motor.

   b) Draw and explain torque slip characteristics.

UNIT - IV

7. a) Explain briefly about the operation of SCR.

   b) Discuss the applications of SCR in detail.

(OR)

8. a) Explain the characteristics of Zener diode.

   b) Discuss the different operation modes of bridge rectifier.

UNIT - V

9. a) Describe the principle of operation of BJT.

   b) Compare common base and common emitter configurations of BJT.

(OR)

10. a) What is the effect of frequency on gain in Amplifiers ?

    b) Derive the expression for voltage gain in multi-stage amplifiers.