Roll No. | | | | | | | | | | | | **Total No. of Pages: 03**

Total No. of Questions: 09

B.Tech (Sem. – 1.2)

BASIC ELECTRICAL ENGINEERING

Subject Code: BTEE-101-18

M Code: 75339

Date of Examination : 13-01-2023

Time: 3 Hrs. **Max. Marks: 60**

INSTRUCTIONS TO CANDIDATES:

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C have FOUR questions each, carrying EIGHT marks each.**
3. **Attempt any FIVE questions from SECTION B & C, selecting atleast TWO questions from each of these SECTIONS B & C.**

SECTION-A

1. Write briefly:

a) State Thevenin's theorem.

b) What do you mean by the term time domain analysis? Explain.

c) What do you mean by real power? Explain.

d) What do you mean by power factor? Explain its importance.

e) Define peak and rms value.

f) What is the need of a battery? List its different types.

g) What do you mean by energy consumption? Explain.

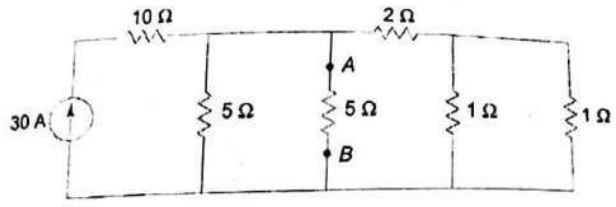
h) Discuss the principle of a dc motor.

i) Define the term efficiency.

j) Explain the principle of a transformer.

SECTION-B

2. Determine the current flowing through the 5 ohm resistor in the circuit given below usingNorton's theorem.



3. Explain the following:

   a) Series resonance

   b) Three phase balanced circuits

4. A circuit having a resistance of 12 ohm, an inductance of 0.15H and a capacitance of $100\mu\text{F}$ in series, is connected across a $100\text{V}, 50\text{Hz}$ supply. Calculate

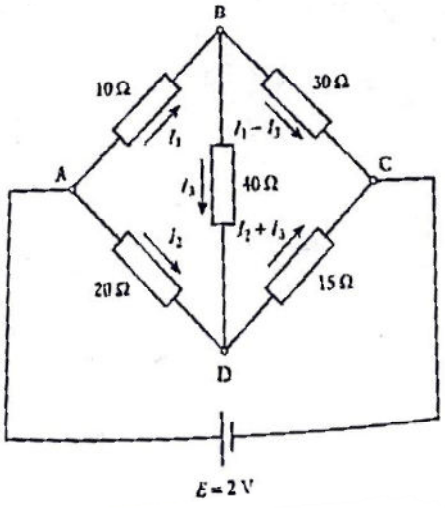
   a) Impedance

   b) Current

   c) The voltage across R, L and C

   d) The phase angle between the current and the supply voltage

5. Determine the value and direction of the current in BD using Kirchoff's Laws for the Wheatstone bridge shown below:



SECTION-C

6. Explain the principle, construction, and working of an autotransformer in detail. Howis it different from an ordinary transformer?

7. Discuss the construction and working of synchronous generators.

8. Explain:

   a) MCB

   b) ELCB

9. Discuss:

   a) Types of wires and cables

   b) Power factor improvement and battery backup

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.