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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**.

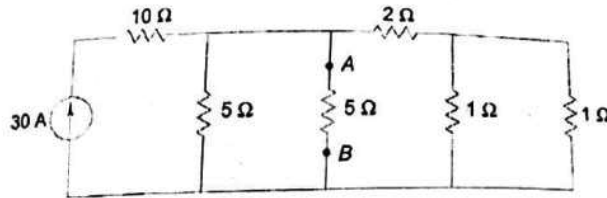
SECTION-A

1. Write briefly:

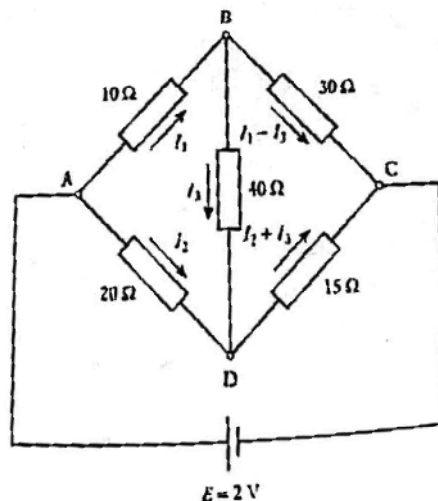
- a) State Thevenin's theorem.
- b) What do you mean by the term time domain analysis? Explain.
- c) What do you mean by real power? Explain.
- d) What do you mean by power factor? Explain its importance.
- e) Define peak and rms value.
- f) What is the need of a battery? List its different types.
- 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 using Norton's theorem.



3. Explain the following:
- Series resonance
 - 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 100V, 50Hz supply. Calculate
- Impedance
 - Current
 - The voltage across R, L and C
 - 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. How is 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.