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

Total No. of Questions : 18

B.Tech. (Automation & Robotics)/EE/ECE (Sem.–1,2)
Automobile Engg./BT/CE/CSE/Electrical & Electronics Engg./Electronics & Electrical Engg./FT/IT/ME (2018 & Onwards)

BASIC ELECTRICAL ENGINEERING

Subject Code : BTEE-101-18
M.Code : 75339

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.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

SECTION-A

Answer following questions in brief :

1) State superposition theorem.

2) What do you mean by time domain analysis? Discuss.

3) Differentiate between average value and rms value.

4) What do you mean by resonance? Explain.

5) Discuss the significance of phasor diagram in electrical engineering.

6) Draw and explain the BH curve.

7) Explain the terms regulation and efficiency with respect to transformer.

8) Discuss the significance of torque slip characteristic.

9) What do you mean by MCB? Discuss its importance.

10) What is the need of Earthing? Discuss.

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SECTION-B

11) State Kirchoff's Laws. Also calculate the voltage V_1 and the e.m.f. E_2 for the network shown below. (8)

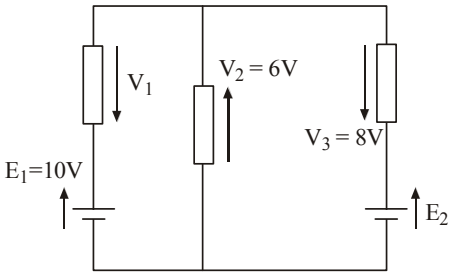

FIG.1

12) Explain the following : (8)

a) Real power

b) Reactive power

c) Apparent power

d) Power factor

13) a) Discuss the effect of a sinusoidal current flowing through a coil having an inductance of L henrys and a negligible resistance. (3)

b) A coil having both resistance and inductance, has a total effective impedance of 50 ohm and the phase angle of the current through it with respect to the voltage across it is 45° lag. The coil is connected in series with a 40 ohm resistor across a sinusoidal supply. The circuit current is 3A; by constructing a phasor diagram, estimate the supply voltage and the circuit phase angle. (5)

14) State Thevenin's theorem. Determine the value and direction of the current in BD using Thevenin's theorem for the Wheatstone bridge shown below : (8)

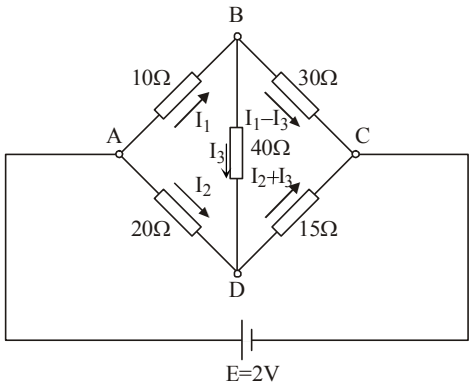

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FIG.2

SECTION-C

15) Explain the principle of operation of a transformer. Also discuss the various losses that occur in a transformer.

16) Discuss the construction and working of three-phase squirrel cage induction motor.

17) Explain the following :

    a) MCCB

    b) ELCB

18) Explain the different types of batteries. Also discuss the important characteristics for batteries.

NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC against the Student.

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