

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.

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)

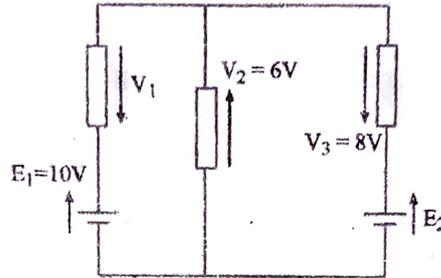


FIG.1

- 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)

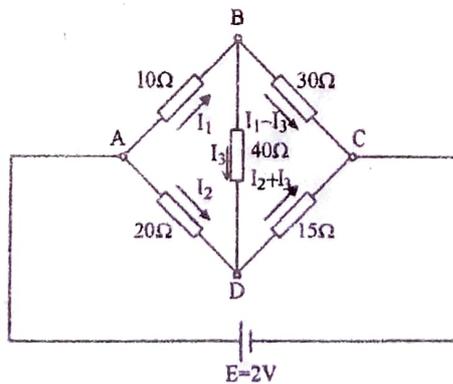


FIG.2

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.