R20 Regulation *Subject code:3E1AD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech I Semester Regular/Supplementary Examinations, April 2022

BASIC ELECTRICAL ENGINEERING

(Common to CE &EEE)

Maximum Marks: 70 Date: 07.05.2022 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

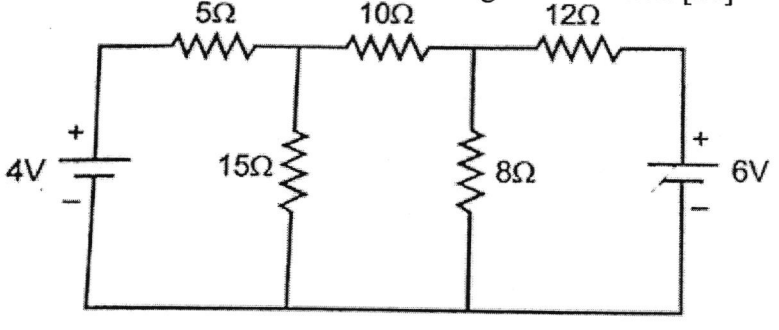
All the following questions carry equal marks (10x2M=20 Marks)

1 State Kirchhoff's laws.
2 State maximum power transfer theorem.
3 Define Form-factor.
4 Draw the Phasor diagram for a series RL circuit.
5 How to reduce the eddy current losses in transformer.
6 Define efficiency in transformer.
7 Write EMF equation of DC generator.
8 What is back EMF?
9 What is the need of earthing?
10 What are methods available to improve power factor?

Part-B

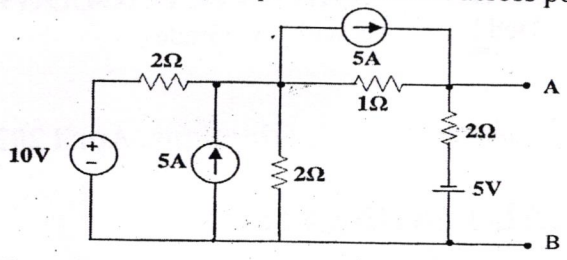
Answer All the following questions. (5X10M=50Marks)

11 Use nodal methods find the current through 8 Ω resistor. [10]



OR

12 Obtain the Norton equivalent circuit across points A and B for the circuit shown in fig. [10]



13 Three impedance Z1 = (17.32+j10), Z2 = (20+j34.64) and Z3= (0-j10) ohms are delta connected to a 400 V, 3Φ system. Determine the phase currents, line currents, and total power consumed by the load. [10]

OR

14 Derive expression for Average and RMS value of Sine wave form. [10]

15 Explain the principle, construction and operation of single-phase transformer in detail with a neat diagram. [10]

OR

16 Explain the principle, construction and operation of single-phase Auto transformer in detail with a neat diagram. [10]

17 With a neat diagram explain construction, principle and working of three phase squirrel cage Induction motor. [10]

OR

18 Explain construction, principle and working of DC generator in detail with a neat diagram. [10]

19 Describe in detail about various types of electrical wires and cables with neat diagrams. [10]

OR

20 Describe in detail about MCB and MCCB with neat diagrams. [10]