Code No.D-2343/N/AICTE

FACULTY OF ENGINEEERING

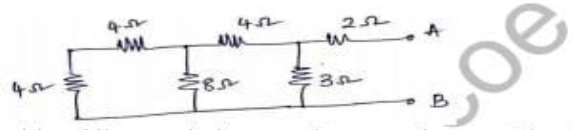
B.E. (Civil) III - Semester (AICTE) (Main) Examination, March / April 2022

Subject: Basic Electrical Engineering

Time: 3 Hours **Max. Marks: 70**

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Questions carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed

1 (a) State ohms law and Kirchhoff's voltage law.
(b) Calculate the equivalent resistance between the terminals A & B for the circuit?



(c) Write the relationship of line and phase voltage and current in star and delta connected system.
(d) What is BH curve and Draw BH curve.
(e) A 6-pole three phase induction motor is connected to 50Hz supply. If it is running at 970rpm. Find slip.
(f) Mention various applications of DC series motor.
(g) What is Earthing?

2 (a) State and explain Norton's theorem with suitable example.
(b) Consider the given circuit and find the current through 2Ω resistor using superposition theorem.

3 (a) Derive equation to find the average and RMS value of a sinusoidal wave. Also find form factor.
(b) A series circuit has R = 100 ohms, L = 25 mH, C = 100 μF and is supplied with 230V,50Hz. Find impedance, current, power factor and voltage drop across each element.

4 (a) Derive the EMF equation of transformer. Find the cross-sectional area of the core of a 10 turn's transformer for a voltage of 50V at 50 Hz. The flux density is 0.9wb/m^2.
(b) Explain how rotating magnetic field is produced in three phase induction motor.

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5 (a) Explain about capacitor start and capacitor run single phase induction motors.
(b) Explain in constructional details and principal operation of DC generators.

6 (a) Explain the working of ELCB with neat sketch.
(b) Discuss about various types of batteries and earthing.

7 (a) Write short notes on Ideal transformer.
(b) Explain the different types of voltage and current sources.