2E3209

Roll No. _____ Total No. of Pages: 3

2E3209

B. Tech. II - Sem. (Main / Back) Exam., - 2023

2FY3 – 08 Basic Electrical Engineering

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 State Kirchhoff's voltage law.

Q.2 State Thevenin's theorem.

Q.3 Define RMS and average value for an AC.

Q.4 Differentiate Active power and Reactive power.

Q.5 What is resonance? Write its condition also.

Q.6 What is ideal transformer?

Q.7 Discuss the efficiency formula of transformer.

Q.8 What is commutator?

Q.9 Differentiate the DC motor and DC generator.

Q.10 Draw VI characteristics of SCR.

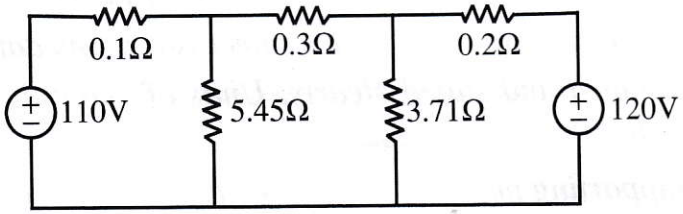
PART – B

[5×4=20]

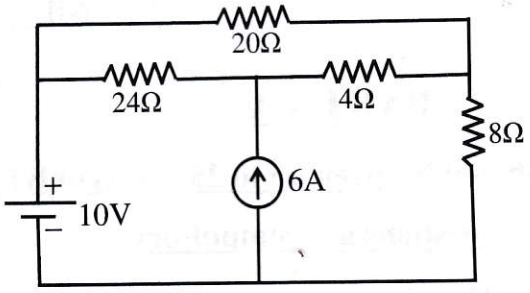
(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Find values of unknown currents in each branch.



Q.2 Find current in 8Ω using Superposition principle.



Q.3 Draw & explain phasor diagram of purely inductive and capacitive circuit.

Q.4 Explain power triangle with suitable phasor diagrams.

Q.5 Derive the EMF equation of transformer.

Q.6 Discuss basic circuit of single phase rectifier with R-load.

Q.7 Describe different types of Earthing.

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 State and derive the Maximum Power Transfer Theorem.

Q.2 In a series RLC circuit R = 4.2Ω, L = 0.03H and C = 450 μF. If I = 10A, Find the drop across each element, supply voltage and power factor angle. Also, draw the vector diagram. Assume, f = 50Hz.

Q.3 By taking suitable data, draw and explain the equivalent circuit of transformer.

Q.4 Briefly discuss the speed control of Induction motor.

Q.5 Describe single phase inverter with suitable diagrams.
