Code No.: EE104ES   R20   H.T.No.   8   R

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I–B.TECH–I–Semester End Examinations (Supply) -February- 2024
BASIC ELECTRICAL ENGINEERING
(Common for CSE, IT, CSC, CSD)

[Time: 3 Hours]   [Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A   (20 Marks)

1. a) State Norton's Theorem.   [2M]
   b) Illustrate short notes on voltage source and current source. [2M]
   c) What is meant by apparent power?   [2M]
   d) Define power factor. What is the ideal value of power factor? [2M]
   e) What is meant by ideal transformer?   [2M]
   f) Classify different types of losses in transformers.   [2M]
   g) Categorize the different types of DC generators.   [2M]
   h) Estimate the type of material used in brushes of a dc machine. [2M]
   i) List the applications of three-phase induction motor.   [2M]
   j) Define slip and slip speed.   [2M]

PART-B   (50 Marks)

2. Explain the different types of active elements and passive elements in the circuit analysis.   [10M]

OR

3. Explain Thevenin's theorem with an example.   [10M]

4. Derive the following terms of AC circuits (i) rms value (ii) average value (iii) peak value (iv) form factor (v) phase difference.   [10M]

OR

5. Give the relationship between phase voltage and line Voltage, phase current and line current for balanced three phase delta connected system.   [10M]

6. Discuss the working principle of a single phase transformer.   [10M]

OR

7. Distinguish the various connections of three phase transformer.   [10M]

8. Explain the constructional details of a D.C machine. Explain the working of a D.C generator.   [10M]

OR

9. Determine the E.M.F equation of a D.C. Generator.   [10M]

10. Design the torque slip characteristics of 3-ϕ Induction motor.   [10M]

OR

11. Discuss the construction and working of synchronous generator.   [10M]

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