

**CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS**

I-B.TECH-I-Semester End Examinations (Supply) -January- 2025

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) Define KVL. [2M]
- b) What are Ideal and Practical sources? [2M]
- c) Define power factor. What is the ideal value of power factor? [2M]
- d) Define RMS value. [2M]
- e) List the applications of an auto transformer. [2M]
- f) What is meant by ideal transformer? What are the properties of ideal transformer? [2M]
- g) Classify the various losses in a D.C. Motor. [2M]
- h) What are different types of DC generators? [2M]
- i) A 3 phase 4 poles, 50 Hz induction motor is running at 1455 rpm. Find the slip speed and slip. [2M]
- j) Analyze the necessity of starter in starting of a 3- Induction motor. [2M]

PART-B

(50 Marks)

2. Explain the Kirchhoff's current and voltage laws. [10M]
- OR**
3. Explain Superposition Theorem with an example. [10M]
4. Analyze the series RL circuit with a neat sketch and also draw the phasor diagram. [10M]
- OR**
5. Give the relationship between phase voltage and line Voltage, phase current and line current for balanced three phase star connected system. [10M]
6. Develop the equivalent circuit of a single phase transformer. [10M]
- OR**
7. Classify types of losses that take place in a transformer. [10M]
8. Construct details of a D.C. Generator with neat sketches. [10M]
- OR**
9. Derive the torque equation of dc motor. [10M]
10. Explain the constructional details of three phase induction motor. [10M]
- OR**
11. Determine the rotating magnetic field in a three-phase induction motor. [10M]
