Subject Code: 24EE11RC01 **R-24** **Reg No:** | | | | | | | | | | | | |

GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)
(Affiliated to Andhra University, Visakhapatnam)

I B.Tech. - I Semester Regular Examinations, December / January – 2025

FUNDAMENTALS OF ELECTRICAL ENGINEERING

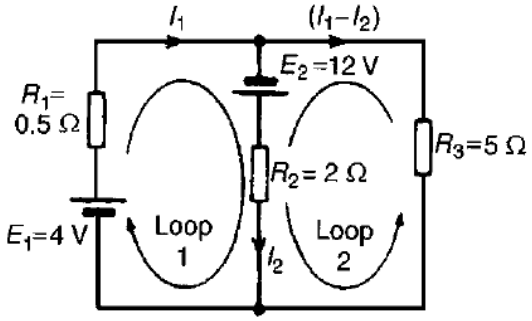
(Electrical and Electronics Engineering)

1. All questions carry equal marks
2. Must answer all parts of the question at one place

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

UNIT-I

1. a. Classify the Electrical circuit elements and also explain in detail? [7 M]
   b. Determine, using Kirchhoff's laws, each branch current for the network shown in Fig [7 M]



OR

2. a. Derive the relations of star to delta conversion with 'R' only? [7 M]
   b. State and explain ohms law with limitations and necessary graphs? [7 M]

UNIT-II

3. a. Explain the concept of self and Mutual Induction? [7 M]
   b. State and explain Maxwell's corkscrew rule? [7 M]

OR

4. a. State and explain coulombs law of Electrostatics? [7 M]
   b. state following laws: [7 M]
      i) Lenz's Law
      ii) Biot-savart's Law
      iii) Amperes Law

UNIT-III

5. a. What is the main difference between moving coil and moving iron instruments? [7 M]
   b. Explain the construction and principle of single phase dynamo meter type wattmeter? [7 M]

OR

6. a. Explain the construction and working of single phase induction type energy meter? [7 M]
   b. Explain various forces acting on indicating instruments? [7 M]

UNIT-IV

7. a. Write a short note on: [7 M]
   i) Dielectric loss ii) piezoelectric materials iii) Pyroelectric materials
   b. Write properties of ferroelectric materials? [7 M]

OR

8. a. Write a short note on: [7 M]
   i) Spontaneous magnetization ii) Ageing of magnets iii) spontaneous polarization
   b. Explain the characteristics of soft and hard magnetic materials?

UNIT-V

9. a. Write short note on: [7 M]
   i) Conductor sizes ii) current ratings iii) service mains
   b. Explain the principle miniature circuit breaker? [7 M]

OR

10. a. Write short note on: [7 M]
    i) Electrical Symbols ii) Distribution Board iii) meter boards
    b. Explain LT panel wiring diagram [7 M]