JHARKHAND Rai University
RANCHI

End Semester /Reappear (Semester II) Examination May 2025

Programme: Diploma (CSE & MiE) **Full Marks: 70**
Course: Basic Electrical & Electronics Engineering **Time: 3 Hrs.**
Course Code: 3DESC102 & 3DESC102
Enrolment no. _____

Section I

1. **Short Answer type questions. Answer any four.** **4 x 5 = 20**
   a. Define Electrical Current and Electrical Voltage.
   b. Illustrate the Hysteresis Loss.
   c. State and explain the laws of Electrostatics & Lenz law.
   d. Compare the Current gains of Transistor.
   e. Differentiate between Fleming's left-hand rule and right-hand rule.
   f. State and explain the Faraday's laws and its historical background.

Section II

Long Answer type questions. Answer any three. **3 x 10 = 30**

2. Explain Fleming's left-hand Rule and force between two parallel current carrying conductors.
3. Describe the properties and application of High Resistive Materials
4. Describe the origin of magnetism and discuss how the hysteresis loop is formed? What do you mean by Soft & Hard - Magnetic materials and describe its applications.
5. Discuss the colour code method in order to study the value of resistors and capacitors with proper example.
6. Explain in Brief about Temperature Transducer as a Thermocouple.

Section III

Application based questions. Answer any one. **1 x 20 = 20**

7. Derive the formula of equivalent Resistance of three resistances R_1, R_2 and R_3 when they are connected in (a) Series and (b) Parallel. (20)
8. Explain the series and parallel connections of Capacitors. The total capacitance is 0.03 µF when joined in series and 0.16 µF when connected in parallel. Find the capacitance of each capacitor.
9. Write comparison between common base, common emitter and common collector type transistor.

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