

**NETTUR TECHNICAL TRAINING FOUNDATION**  
**DIPLOMA IN ELECTRICAL & ELECTRONICS – CP23**  
**II SEMESTER REGULAR & SUPPLEMENTARY EXAMINATION-JULY 2023**

**Subject: Electrical Material Science**  
**Subject Code: CP23205T**

**Total Time: 2 Hr.**  
**Total Marks: 50**

**PART B**

**1.0 ANSWER ANY EIGHT OF THE FOLLOWING** **2\*8=16**

- 1.1 Name the special types of steel used for the cores of power transformer
- 1.2 Define the term Resistivity.
- 1.3 What do you mean by Eddy current?
- 1.4 Mention the properties of an insulating material?
- 1.5 Explain the term - Coercive force and Hysteresis loss.
- 1.6 What is dielectric polarization?
- 1.7 List the applications of carbon nanotubes
- 1.8 Where do we use megger?
- 1.9 What is superconductivity?
- 1.10 Name some alloys which may be used as conducting materials.

**2.0 ANSWER ANY SIX OF THE FOLLOWING** **3\*6=18**

- 2.1 State at least three criteria's to select a material for a transformer core and electrical rotating machines.
- 2.2 What is "Curie Point? What information does it give?
- 2.3 Define: Residual magnetism and Magnetic saturation.
- 2.4 Differentiate between "Ferri" and "Ferro" magnetic materials.
- 2.5 What is R-Value?
- 2.6 What is dielectric constant? What is its effect on dielectric materials?
- 2.7 Explain the term: Volume resistance and Surface resistance
- 2.8 Explain the Hall Effect

**3.0 ANSWER ANY FOUR OF THE FOLLOWING** **4\*4=16**

- 3.1 What do you understand by term "magnetic material". Name the categories in which materials are divided.
- 3.2 What are the different types of insulating material? List out the possible solid insulating materials.
- 3.3 How does a photodiode work in reverse bias?
- 3.4 What is the role of Nano Technology in agriculture and its sustainability?
- 3.5 What is Piezo-electric effect? Explain.
- 3.6 Explain the terms: Photo emissive cells, photo conductive cells and photo voltaic cells.

