

### 3<sup>RD</sup> SEM./ELE&MECH /ELECTRICAL./ 2023(W) NEW

#### Th- 4 Electrical Engineering Material

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2  
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10
- Define reluctance and coercivity.
  - What is dielectric strength and dielectric loss in insulators?
  - Define eddy current.
  - Write down two applications of copper.
  - What is superconductor?
  - What is the effect of porosity?
  - What are the advantages of using bundled conductors?
  - What do you mean by covalent bond?
  - What is ageing?
  - Why conducting materials like copper and aluminium are not used for making the element for electrical heaters?
2. Answer **Any Six** Questions 6 x 5
- What is the difference between N type semiconductor and P type semiconductor?
  - Write down properties of gold and silver.
  - What is fuse? Write down the properties of fuse material.
  - Define Plastics and give its classifications with applications.
  - Name the conducting materials used in making
    - Thermo-couple
    - Starter element used in starting d.c. motor
    - Electrodes for electric arc furnace
    - Plug and socket
    - Element of a fan regulator
  - Write in brief about photovoltaic cell.
  - Write short notes on Bimetals and their applications.
- Answer Any **Three** Questions
- 3 Explain the hysteresis loop for ferromagnetic material with suitable diagram. 10
- 4 Explain the process of polarisation of a dielectric material. 10
- 5
  - Distinguish between low resistivity and high resistivity materials. 10
  - Explain the effect of temperature on resistivity.
- 6 Explain physical, thermal and electrical properties of insulating materials. 10
- 7 Write short notes on 10
- Hall effect generators
  - Magnetostriction