

**BACHELOR OF TECHNOLOGY (CBCS - 2023)**  
**B. Tech. Sem-I Computer Science & Engineering AI & ML : WINTER: 2025**  
**SUBJECT: ELECTRICAL TECHNOLOGY**

Day : Friday  
Date : 12/12/2025

**W-27616-2025**

Time : 10:00 AM-01:00 PM  
Max. Marks : 60

**N.B.**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Assume suitable data **WHEREVER** necessary.
- 4) Draw neat diagrams **WHEREVER** necessary.

**Q.1** Write a short note on magnetic leakage in magnetic circuits. How magnetic leakage can be reduced? What is fringing? **(10)**

**OR**

**Q.1** Define Hysteresis loop. Explain Hysteresis loss and Eddy current loss. **(10)**

**Q.2** Define the following terms in detail: **(10)**

- i) Peak value
- ii) Average value or mean value
- iii) R.M.S. value or effective value
- iv) Peak-to-peak value
- v) Alternating voltage

**OR**

**Q.2** A 230 V, 50Hz a.c. supply is applied to a coil of 0.06 H inductance and 2.5  $\Omega$  resistance connected in series with a 6.8  $\mu$ F capacitor. Calculate: **(10)**

- i) impedance
- ii) current
- iii) phase angle between current and voltage
- iv) power factor and
- v) power consumed

**Q.3** Derive an EMF equation of transformer with suitable notation. **(10)**

**OR**

**Q.3** List different types of losses in transformers and explain each one in brief. **(10)**

**Q.4** Draw layout of distribution system. State and explain the voltage levels at each stage. **(10)**

**OR**

**Q.4** What is balanced supply and balanced load in a three-phase system? Define the following terms with neat diagram: **(10)**

- i) Line voltage
- ii) Line current
- iii) Phase voltage
- iv) Phase current

**Q.5** Explain the working of DC generator with the help of construction. **(10)**

**OR**

**Q.5** Give the characteristics of DC series motor and Dc shunt motor. **(10)**

**Q.6** Describe solar panels and write their application. **(10)**

**OR**

**Q.6** Explain in detail Nickel Cadmium battery. **(10)**

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