

BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-I COMPUTER SCIENCE & ENGINEERING AI&ML : WINTER : 2023
SUBJECT : ELECTRICAL TECHNOLOGY

Day : Wednesday

Time : 10:00 AM-01:00 PM

Date : 6/12/2023

W-27616-2023

Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of **non-programmable CALCULATOR** is allowed.
- 4) Draw neat labelled diagrams **WHEREVER** necessary.

- Q.1 Define and explain Magnetic Hysteresis in detail. (10)
- OR**
- Q.1 Define the following terms: (10)
- | | |
|------------------------------|---------------------------|
| i) magnetic flux | ii) magnetic field |
| iii) magnetic field strength | iv) absolute permeability |
| v) relative permeability | |
- Q.2 Define Active power, Reactive power and Apparent Power. Draw the power triangle. What is Peak factor and form factor. (10)
- OR**
- Q.2 A capacitor of $50\mu\text{F}$ is connected in parallel with a coil that has a resistance of 20Ω and inductance of 0.05H . If this parallel combination is connected across 200V , 50Hz supply, calculate: (10)
- | | | |
|---------------------|----------------------|---------------------|
| i) the line current | ii) power factor and | iii) power consumed |
|---------------------|----------------------|---------------------|
- Q.3 List different types of losses in transformer and explain each one in brief. (10)
- OR**
- Q.3 Explain the working principle of 3 phase transformer. What are the disadvantages of 3 phase transformer? (10)
- Q.4 What are the advantages of three phase system over single phase system? Distinguish between primary transmission and secondary transmission. (10)
- OR**
- Q.4 Explain 3 phase transformer connection types with neat diagram. (10)
- Q.5 What is back e.m.f. concerned with DC motors. Derive e.m.f. equation of DC motor. (10)
- OR**
- Q.5 Explain in details the characteristics of DC series motor and DC shunt motor. (10)
- Q.6 Describe the charging methods used for storage batteries. What are the indications that confirm the Lead Acid battery is fully charged? (10)
- OR**
- Q.6 Explain in details Nickel Cadmium battery. (10)

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