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OCT-NOV 2025 WINTER EXAMINATION

11731 Bachelor of Technology (NEP-2.0)

Sub. Name: Basic Electrical Engineering

Sub. Code: 108720

Day and Date: Friday ,23-01-2026 **Total Marks: 60**

Time: 10:30 AM To 01:00 PM

Instructions:
1. **All questions are compulsory**
2. **Draw neat labelled diagrams wherever necessary**
3. **Figures to the right indicate full marks**
4. **Use of Scientific calculator is allowed**

Q1) Attempt any THREE of the following **[15]**

a. Two batteries A & B are connected in parallel across a load resistance of 4 ohm. The emf & internal resistance of battery A & B are 20 volts, 2 ohm and 24 volts,4 ohm respectively, using mesh or node analysis, **[5]**

Find (i) current in battery A,

ii. current in battery B

iii. current in load resistance.

b. Explain the concept of magnetic leakage& fringing in magnetic circuits. **[5]**

c. Derive the expression for RMS value of sinusoidal AC by analytical method. **[5]**

d. State and explain KCL & KVL. **[5]**

Q2) Attempt any THREE of the following. **[15]**

a. State the advantages of three phase supply system over single phase supply system. **[5]**

b. Prove that line voltage is √3 times phase voltage in a three phase balanced star connected system. **[5]**

c. Draw the 3 phase star connection and show all the line & phase quantities. **[5]**

d. Define line voltage, line current, phase voltage & phase current in a three phase system. **[5]**

Q3) Attempt the following **[15]**

a. A 30 KVA 3300/230Volt single phase 50 Hz transformer has full load copper l oss 500 watts & iron loss 300 watts. Calculate transformer efficiency at full load & also at half load, when power factor is 0.866 lagging. **[8]**

b. Draw &explain Capacitor split phase induction motor. State applications. **[7]**

OR

Explain construction & working principle of single-phase transformer.

Q4) Attempt any THREE of the following. **[15]**

a. State Necessity of Earthing & Explain any one in detail with neat sketch. **[5]**

b. Compare Fuse and MCB on various aspects. **[5]**

c. Describe operating principle of LED Lamp. State different types of LED's. **[5]**

d. Comment on different types of batteries with its characteristics. **[5]**

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
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