

22625

24225

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following :** **10**
- a) Explain the following terms
 - i) Electrical Safety
 - ii) Electrical Accident
 - b) Explain the productive maintenance.
 - c) State the importance of Electric maintenance.
 - d) List out methods of testing with examples.
 - e) Explain the following terms related to insulation.
 - i) Polarization Index
 - ii) Dielectric absorption ratio

P.T.O.

- f) State the use of
 - i) Filler gauge
 - ii) Growler
- g) Explain the following terms related to transformer insulating oil.
 - i) Dielectric strength
 - ii) Flash point

2. Attempt any THREE of the following : 12

- a) State the factors influencing severity of Electric shock.
- b) List out Routine tests and special tests conducted on power transformer after manufacturing as per IS 2026 - 1981.
- c) Explain the foundation requirements for rotating machine.
- d) Explain moisture proofness test of single phase transformer.

3. Attempt any THREE of the following : 12

- a) State the precautions taken against causes of Electric fire.
- b) Explain the factors affecting preventive maintenance schedule in detail.
- c) Define tolerance and state tolerance limits in case of Rotating machines as per IS 2026.
- d) Following test results were obtained on a single phase, 2.5 KVA, 250/125 V transformer short circuit test on high voltage side $V_{sc} = 36 \text{ V}$, $I_{sc} = 8 \text{ A}$, $W_{sc} = 128 \text{ Watt}$. Calculate resistance and impedance of transformer at 75°C referred to high voltage side. The test is conducted at ambient temperature of 30°C .

4. Attempt any THREE of the following : 12

- a) State the objectives of Earthing of electrical equipments and classify electrical equipments with regards to protection against Electric shock as per IS 3043 — 1987.
- b) A brake test for a DC motor, the effective load on the brake pulley is 265N. The effective diameter of the pulley is 650mm. The speed is 750rpm. The motor takes 37A at 215 volts. Calculate the output power and the efficiency at this load.
- c) Explain the procedure for measuring DC resistance of star and Delta connected windings of 3ph transformers with diagram.
- d) Give the classification of insulating material with maximum permissible temperature as per IS 8054 — 1994.
- e) Explain different types of faults in Electrical equipments in detail with examples.

5. Attempt any TWO of the following : 12

- a) Draw the modified equivalent circuit and phasor diagram of three phase Induction motor referred to stator. Explain each components.
- b) Explain the following points related to back to back test on single phase transformer
 - i) Necessary conditions.
 - ii) Procedure with circuit diagram.
 - iii) Observations and Calculations
- c) Prepare the maintenance schedule for transformer over one year as per IS 10028 — 1981.

6. Attempt any TWO of the following :**12**

- a) Prepare a trouble shooting chart for three phase Induction motor as per IS 900 – 1992.
 - b) Prepare a trouble shooting chart for transformer as per IS 10028 – 1981.
 - c) Describe procedure of Vacuum Impregnation method with diagram.
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