

316328

25226

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) Use of Non-programmable Electronic Pocket Calculator is permissible.
(7) 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) Define the following terms in connection with safety
 - i) Hazard
 - ii) Accident
 - b) State the importance of electrical maintenance.
 - c) State the meaning of special test. Give one example of special test.
 - d) Define the routine test carried out for the measurement of DC resistance of winding in an induction motor.
 - e) List out the routine tests to be carried out on transformer as per IS (2026).
 - f) Draw circuit diagram for phasing out tests on 3 phase transformer.
 - g) List the contaminating agents of transformer oil.

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- 2. Attempt any THREE of the following :** **12**
- a) Compare direct, indirect and regenerative type of testing.
(Any four points)
 - b) Describe the factors affecting the preventive maintenance schedule.
 - c) List out Do's and Don'ts to achieve safety for electrical supervisor while working in substation. (any four points)
 - d) Explain any four factors that govern the foundation of transformer.
- 3. Attempt any THREE of the following :** **12**
- a) Explain the meaning and importance of Ingress Protection (IP) in electrical equipment.
 - b) State the factors influencing severity of Electric shock.
 - c) State the maintenance schedule of a distribution transformer as per IS 10028-1981.
 - d) List out routine tests and special tests conducted on power transformer after manufacturing as per IS 2026-1981.
- 4. Attempt any THREE of the following :** **12**
- a) Explain preventive and breakdown maintenance.
 - b) Give safety precautions to be taken against electric fire and explain PASS and RACE used in fire safety.
 - c) Describe the procedure for conducting polarity test of a single phase transformer with the necessary circuit diagram.
 - d) Prepare trouble shooting chart for three phase transformer.
 - e) Draw and explain the circuit diagram for the reduced voltage running up test of a three phase induction motor.

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

- a) State the use of following
 - i) Bearing puller
 - ii) Spirit level
 - iii) Filler gauge
 - iv) Dial indicator
 - v) Growler
 - vi) Megger
- b) Draw a neat diagram of vacuum impregnation plant and write stepwise procedure of revarnishing the insulation.
- c) With the help of a circuit diagram explain back to back test on transformer to determine efficiency and regulation.

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

- a) Draw and explain the circuit diagram to perform no load and blocked rotor test on three phase induction motor.
 - b) State the classification of insulating materials as per operating temperature with two examples of each type.
 - c) Explain the requirement of a foundation for rotating machine with help of a neat labeled diagram.
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