

22625

12425

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 answer 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) List out the factors affecting the severity of shock.
 - b) List the internal causes of failure of electrical machine.
(Any four)
 - c) State any four objectives of predictive maintenance.
 - d) State the meaning of special test and supplementary test.
 - e) List the contaminating agents of transformer oil.
 - f) State any two advantages of direct and indirect method of testing.
 - g) List the different methods of revarnishing.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Give safety precautions to be taken against electric fire and list out any four fire extinguisher suitable against electric fire.
 - b) Explain open delta (Δ - Δ) method of testing transformer with neat diagram.
 - c) List out routine and type test to be carried out on 3 ϕ induction motor as per IS.
 - d) With the help of neat diagram, explain polarity test to be carried out on transformer.
- 3. Attempt any THREE of the following:** **12**
- a) List out do's and don'ts regarding safety while working on electrical installation.
 - b) Compare between routine and breakdown maintenance.
 - c) Describe procedure and objective of reduced voltage running up test on 3 ϕ IM.
 - d) Explain any four factors that govern the foundation of transformer.
- 4. Attempt any THREE of the following:** **12**
- a) Define the terminologies used in safety –
 - i) Safety
 - ii) Hazard
 - iii) Accident
 - iv) Responsibility.
 - b) Explain moisture proofness test on 1 ϕ induction motor.
 - c) List out routine and type test to be carried out on transformer as per IS.
 - d) Explain Hot-dip method of revarnishing.
 - e) List out electrical and magnetic faults in transformer with probable reasons. (Any two of each.)

5. Attempt any TWO of the following: 12

- a) Describe the procedure for no-load and blocked rotor test to be carried out 3 ϕ IM with neat circuit diagram.
- b) Give any two advantages of preventive maintenance and explain any four factors affecting preventive maintenance schedule.
- c) Describe O.C. and S.C. test to be carried out on 1KVA, 230/110V transformer with diagram. Give the formulae to determine equivalent circuit parameters.

6. Attempt any TWO of the following: 12

- a) State the use of following –
 - i) Filler gauge
 - ii) Spirit level
 - iii) Bearing puller
 - iv) Dial indicator
 - v) Growler
 - vi) Megger.
 - b) Explain properties of insulation oil. (Any six)
 - c) Prepare troubleshooting chart for three phase transformer for the following symptoms.
 - i) Overheating in transformer
 - ii) Low output voltage
 - iii) Noise in transformer.
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