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12526

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answer with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
- (7) Use of Steam tables, logarithmic, Mollier's chart is permitted.

Marks

- 1. Attempt any FIVE of the following: **10****
- a) State Ohm's law
- b) Write advantage of three phase over single phase supply system.
- c) State Reluctance in magnetic circuit.
- d) List the types of the transformer.
- e) Discuss the current ratio and voltage ratio of two winding transformer.
- f) List the any four applications of stepper motor.
- g) List the types of Earthing.

P.T.O.

2. Attempt any THREE of the following: 12

- a) Explain the working principle of servomotors.
- b) A single phase transformer has 100 and 300 turns on primary and secondary winding respectively. The voltage applied at primary is 230 V at 50 Hz.

Calculate :-

- i) Maximum flux density in core.
- ii) Induced emf in secondary winding.

The cross sectional area of the core is 200 cm².

- c) Describe the need of starter in the induction motor.
- d) Explain Kirchhoff's current law and Kirchhoff's voltage law.

3. Attempt any THREE of the following: 12

- a) List any four parts of three phase induction motor also write it's functions.
- b) List any four applications of :-
 - i) DC shunt motor
 - ii) DC series motor.
- c) State Faraday's first and Faraday's second law of Electromagnetic induction.

d) Define :-

- i) Frequency
- ii) Maximum value
- iii) Average value
- iv) RMS value.

4. Attempt any THREE of the following: 12

- a) Elaborate the operation of HRC fuse.
- b) Explain the Dynamic and static induced emf with neat diagram.
- c) Explain the losses that occurs in the transformer.
- d) Describe the operation and application of MCB.
- e) State the application of Megger, tachometer, energy meter and digital multimeter.

- 5. Attempt any TWO of the following: 12**
- a) State the types of single phase induction motor, also explain any two of them.
 - b) Describe the construction and working principle of two winding transformer.
 - c) Compare series resistive circuit and parallel resistive circuit.
- 6. Attempt any TWO of the following: 12**
- a) Classify the drives. Explain the factors for selection of drives for different motors.
 - b) Differentiate, AC and DC supply.
 - c) Differentiate electrical circuit and magnetic circuit.
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