

Electrical M/C

Total marks: 60

Duration: 3 hrs.

N.B

1. Question 1 is compulsory
2. Solve any **THREE** out of the remaining 5 questions
3. Figures on the right indicate full marks
4. Assume suitable data if necessary

**Q1. Answer any THREE :** (15)

- a) Explain the necessity of starter in a dc motor.
- b) Explain v/f method of speed control of 3- phase induction motor.
- c) State the important applications of brushless DC motor.
- d) Which are the methods employed to make 1-phase induction motor self starting?

**Q2. a) Develop equivalent circuit of a 3-phase Induction motor.** (8)

b) Explain double field revolving theory in a 1-phase induction motor. (7)

**Q3. a) Draw and explain torque-slip characteristics of a 3-phase induction motor in four modes.** (8)

b) With neat diagram, discuss the working of a 3 point starter in a dc motor. (7)

**Q4. a) Explain the construction and working of Permanent magnet synchronous motor.** (8)

b) Describe the working of any one type of stepper motor. (7)

**Q5. a) Explain the working principle of unipolar brushless dc motor.** (7)

b) Describe the construction and working of switched reluctance motor . (8)

**Q6. Write short notes on:** (15)

- a) Speed control methods of dc shunt motor.
- b) Starting methods of 3-phase Induction motor.
- c) Split phase Induction motor.

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