

[Time: 3 Hours]

[Marks:60]

Please check whether you have got the right question paper.

- N.B:**
1. **Question.No.1** is compulsory.
 2. Attempt any **three** questions from remaining **five** questions.
 3. **Figures to right** indicate **full marks**.
 4. Assume suitable **data**, if **any**.

Q1 Attempt any three :

- (a) A 6 pole, 50Hz Induction motor has a full load speed of 950 rpm. Calculate slip. **05**
- (b) Derive emf equation of a dc motor **05**
- (c) State the important applications of brushless DC motor **05**
- (d) Explain v/f method of speed control of 3 phase induction motor **05**

Q2

- (a) Develop equivalent circuit of a 3-phase Induction motor. **08**
- (b) Explain the working of capacitor start Induction motor. **07**

Q3

- (a) Describe the construction and working principle of a variable reluctance motor **08**
- (b) With neat diagram, discuss the working of a 3 point starter in a dc motor. **07**

Q4

- (a) Name different types of unipolar brushless DC motor & describe any one type in detail **08**
- (b) What are the advantages, disadvantages & applications of Switched reluctance motors? **07**

Q5

- (a) Compare 3 phase induction motor with 3 phase synchronous motor. **07**
- (b) Describe torque-slip characteristics of a three phase induction motor in 4 modes **08**

Q6 Write short notes on :

- (a) 3 point starter of a DC motor **05**
- (b) Permanent magnet synchronous motor. **05**
- (c) Double field revolving theory **05**