[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**.

Q 1

(a)	Explain the necessity of starter in D.C. Motor	**05**
(b)	State the important applications of brushless DC motor	**05**
(c)	A 4 pole, 50 Hz induction motor has full load speed of 1440 rpm. Calculate slip.	**05**

Q2

(a)	Explain construction and working principle of 3 phase squirrel cage induction motor.	**08**
(b)	What are the advantages, disadvantages and applications of switched reluctance motor?	**07**

Q3

(a)	Explain the principle of operation of capacitor start and capacitor run single phase induction motor.	**08**
(b)	Describe the construction and working principal of variable reluctance motor.	**07**

Q4

(a)	State the different types of brushless dc motor and explain any one.	**07**
(b)	Explain different speed control methods of DC shunt motor	**08**

Q5

(a)	Compare the different starting methods of three phase induction motor	**07**
(b)	Explain with neat sketches the armature reaction in DC machine	**08**

Q6 Write short notes on any three

(a)	The double field revolving theory in single phase induction motor	**05**
(b)	Permanent magnet synchronous motor.	**05**
(c)	Drive circuit of stepper motor	**05**
(d)	Control requirement for switched reluctance motor	**05**