Reg. No. : ....

Name : ....

Eighth Semester B.Tech. Degree Examination, April 2014
(2008 Scheme)
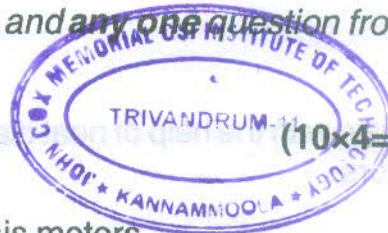### 08.806 (Elective – V) (i)   SPECIAL ELECTRICAL MACHINES (E)

Time : 3 Hours   Max. Marks : 100

Instruction : Answer **all** questions from Part **A** and **any one** question from **each**
Module of Part **B**.

PART – A   (10x4=40 Marks)

1. Mention the characteristic features of Hysteresis motors.

2. Explain how a switched reluctance motor differs from ordinary reluctance motor.

3. Briefly describe how servomotors are classified and what are they ?

4. What is the role of position sensors in special machines ?

5. Distinguish between trapezoidal and sinusoidal types of permanent magnet motors.

6. Draw the T-S characteristic of a Hysteresis motor.

7. What are hybrid motors ?

8. Briefly explain the different excitation modes of stepper motors.

9. Describe the fields of application of Linear induction motors.

10. Why is damping so essential in AC servomotors ? Specify the different damping methods of AC servomotors.

PART – B   (3×20=60 Marks)

Module – I

11. a) Explain the working of a series split field DC servomotor.

    b) Explain the theory of operation of stepper motor and draw the static and dynamic characteristics.

                    OR

12. a) Explain the different control methods of DC servomotors.

    b) Compare the working of variable reluctance and permanent magnet stepper motors.

Module – II

13. a) Explain with the help of neat diagrams the pulling into step process of reluctance motors.

    b) Describe how the rotor material is selected in Hysteresis motors.

                    OR

14. a) Explain the working of a Hysteresis motor and develop the torque-slip characteristic.

    b) Mention the applications of reluctance motors.

Module – III

15. a) Develop the equivalent circuit of a LIM.

    b) What are the advantages of Brushless motors and explain their applications.

                    OR

16. a) What are the difficulties that may arise when any electrical machine is linearised.

    b) Describe the working of a Brushless DC motor.