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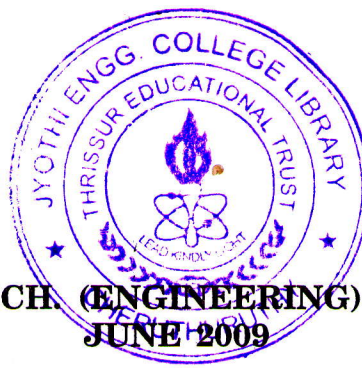Name...

Reg. No.....................................

EIGHTH SEMESTER B.TECH (ENGINEERING) DEGREE EXAMINATION JUNE 2009

EE 04 802—INDUSTRIAL DRIVES

(2004 admissions)

Time : Three Hours   Maximum : 100 Marks

Answer **all** *questions.*

1. (a) Give the classification of load torques.

   (b) What is the principle of phase locked loop control of electric drives ?

   (c) What are the advantages and disadvantages of a dual converter ?

   (d) Where step up chopper is used ?

   (e) Discuss the important relative merits and demerits of VSI drives.

   (f) What is slip Power Recovery Scheme ?

   (g) List the various types of synchronous motor.

   (h) Draw and explain briefly the torque speed characteristics of the synchronous reluctance motor at constant voltage and frequency.

                                                          (8 × 5 = 40 marks)

2. (a) Explain the speed torque conventions and multigradiant operation.   (15 marks)

                                                Or

   (b) Draw the block diagram and explain the operation of a phase locked loop control system.

                                                        (15 marks)

3. (a) Explain the performance of single-phase fully controlled rectifier fed D.C. motor for continuous and discontinuous modes of operations. Assume separately excited field winding.

                                                        (15 marks)

                                                Or

   (b) Explain in detail multiquadrant control of chopper fed D.C. motors.   (15 marks)

4. (a) Discuss the variable frequency control method of an induction motor. List its advantages.

                                                        (15 marks)

                                                Or

   (b) Explain the operation of induction motor by current source inverters.   (15 marks)

5. (a) With necessary derivations, obtain steady state torque-load angles characteristics of salient pole synchronous machine.

                                                        (15 marks)

                                                Or

   (b) Explain in detail the role of micro controller for the speed control of D.C. drives.   (15 marks)

                                                     [4 × 15 = 60 marks]