Roll No .....

MEPE - 201

M.E./M.Tech., II Semester

Examination, December 2015

Solid State Controllers of Drives

Time : Three Hours

Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks.

1. Discuss with the help of a flow chart and block diagram, the algorithm for. The control of a phase controlled converter. Also discuss in detail. The hardware requirements for interfacing.

2. a) What do you understand by phase Locked Loop (PLL) control. Give its area of application.
   b) Explain the algorithm for phase control of a three phase VSI, utilising a microprocessor employing sine triangular modulation scheme.

3. a) What do you understand by Field Oriented Control.
   b) Develop an analogy between F.O.C and D.C motor control.
   c) Discuss the challenges for realising F.O.C algorithm on a practical drive utilising a digital controller.

4. a) Discuss in detail the operation of a single phase fully controlled converter Fed D.C. drive in continuous mode operation.

   b) Discuss the operation of a Chopper Fed D.C. drive for motoring and regenerative braking mode operation.

5. a) Explain Stator Voltage Control scheme of Three Phase induction motor.
   b) What do you understand by V/F Control. Give its relative merits.

6. a) Discuss the concept of slip power recovery scheme for the control of induction motor drive.
   b) Explain static kromer drive operation.

7. Discuss in detail the following modes of control for a synchronous motor drive.
   a) True mode operation
   b) Self control mode

8. Write short notes on any two of the following:
   a) Brushless motor drive
   b) Switched reluctance motors
   c) CSI Fed synchronous motor drive
   d) Transient analysis of a Three Phase I.M during starting dynamics.

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