MEPE - 204

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

Examination, July 2015

Modeling And Simulation Of Drives

Time : Three Hours

Maximum Marks : 70

Note : i) Solve any five questions.

ii) All questions carry equal marks.

1. What are a.c. drives? Give the merits and demerits of a.c. drives with respect to d.c. drives?   14

2. a) Distinguish between two-quadrant and four-quadrant drives.   7

   b) Describe how the speed of d.c. series motor can be controlled by means of a d.c. chopper.   7

3. a) State and explain the disadvantages of using a motor of wrong rating.   7

   b) The temperature rise of a motor when operating for 25min on full load is 25°C and becomes 40°C when the motor operation for another 25min on the same load. Determine heating time constant and the steady state temperature rise?   7

4. Why d.c. drives is popular for variable speed operation? Compare converted fed and chopper fed d.c. drives.   14

5. .... between scalar control and field oriented control of induction motor drives. What is sensor less control?   14

6. a) Describe the Vector Control Scheme of AC drives.

   b) Enlist the advantages of Vector Control over V/f control for A.C. Machines.   7

7. Describe open loop volt/hertz control of three phase synchronous machine. Comment on its transient performance.   14

8. Short notes (any two) of the following   14

   a) Self control mode of synchronous machines

   b) MATLAB simulation of DC machines

   c) Utility of MATLAB simulation in Electrical drives

   d) Mathematical modeling of AC Machines.

******