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(Following Paper ID and Roll No. to be filled in your Answer Books)

PAPER ID : ME19

Roll No. | | | | | | | | | | |

M. TECH. (Sem.II)

THEORY EXAMINATION 2015-16

ELECTRIC DRIVES

Time : **3** Hours Total Marks : **100**

SECTION-A

1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)

   (a) Define Electric Drive.

   (b) Mention the functions of Power modulator.

   (c) Define friction and windage torque.

   (d) Draw the speed torque characteristics of fan type load.

   (e) Define heating time constant.

   (f) What are the functions of no volt coil and over load release in starter?

   (g) Give the expression for speed of DC motor.

   (h) What are the advantages and disadvantages of group drive system?

   (i) Compare Mechanical and Electrical braking.

   (j) What is the use of Fly wheel?

SECTION-B

Note: Attempt any 5 questions from this section. (10×5=50)

2. Describe the components of Electric Drive system. Also give the applications of various classifications of electric drive.
3. Explain the various factors that influence the choice of electric drives.
4. Derive the expression for heating and cooling time constant of motor.
5. Describe the choice of motors used in various applications based on various ratingof it.
6. Explain the control strategies used in chopper fed Drives.
7. Explain the Cycloconverter fed AC motor drives in detail with application.
8. Explain the various types of breakings in separately excited motor. Which kind of breaking is efficient? Why?
9. Explain the suitable motor drive system employed insteel mill.

SECTION-C

Note: Attempt any 2 questions from this section. (15×2=30)

10. A 200 V, 875 rpm, 150 A separately excited dc motor has an armature resistance of 0.06 ohms. It is fed from a single phase fully controlled rectifier with an ac source voltage of 220V, 50HZ assuming continuous conduction. Calculate :
    (i) Firing angle for rated motor torque and 750 rpm.
    (ii) Firing angle for rated motor torque and (-500 rpm)

11. Describe the four quadrant operation of chopper fed drive with neat sketch.

12. With Suitable Case study, explain how the electric traction utilizes the variable speed AC drive system.

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