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B.Tech 7th Semester (EE) F-Scheme Examination,

May-2017

ELECTRIC DRIVES AND CONTROL

Paper-EE-403-F

Time allowed : 3 hours]

[Maximum marks : 100

Note : Attempt five questions in all. Question No. 1 is compulsory. Attempt one question from each section.

1. (a) List the major parts of an electric drive and explain.
- (b) What is meant by load equalization ?
- (c) Discuss the merits and demerits of individual and group drives.
- (d) Give the applications of AC motors. 5×4=20

Section-A

2. (a) List advantages and disadvantages of electrical drives. Also list the important factors which affect the selection of electrical drives. 10
- (b) Briefly explain the status of D.C. and A.C. drives. 10
3. Discuss a typical system of microprocessor based control of electrical drive. State its benefits over other methods of control. 20

Section-B

4. (a) State the types of load torques and explain. 10
 (b) What is meant by rating of motors ? How the type and size of motors for intermittent loads is determined ? 10
5. What is the function of a flywheel in rolling mill drive ? Deduce an expression for the motor torque driving a rolling mill when equipped with a flywheel. 20

Section-C

6. List out the advantages and disadvantages of electric braking over mechanical braking. Discuss any one method of electrical braking of D.C. machines. 20
7. (a) Explain the need for starters in D.C. motors. 10
 (b) Write notes on : 10
 (i) Permanent Magnet Brushless DC drive and
 (ii) Permanent Magnet Sinefed drives.

Section-D

8. (a) A three-phase induction motor has starting torque of 100% and a maximum torque of 200% of the full load torque. Find slip at the maximum torque. 10

- (b) Explain the pole changing, stator frequency variation methods for controlling the speed of AC motor. 10
9. Write notes on : 10×2=20
 (a) Rotor resistance control of AC motors
 (b) Braking of AC motors.