

Roll No.

24421

B. Tech. 7th Semester (Electrical Engg.)

Examination – December, 2016

ELECTRIC DRIVES AND CONTROL

Paper : EE-403-F

Time : Three Hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all. Question No. 1 is *compulsory*. Attempt *one* question from each of *four* Sections. All questions carry equal marks.

1. Answer the following questions briefly : $5 \times 4 = 20$
- Explain status of ac and dc drives.
 - Explain the main assumptions for steady state stability in electric drives.
 - Describe the acceleration control of dc motor drives.
 - List the factors to be considered for the selection of electric drives.
 - Briefly explain vector control with respect to induction motor drives.

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SECTION – A

2. (a) What do you understand by electric drives ?
Explain fully the applications of electric drives. 10
(b) Classify the electric drives in detail. 10
3. Explain closed loop control of electrical drives. Also
explain sensing of current and speed. 20

SECTION – B

4. (a) Explain various types of Loads. 10
(b) Derive fundamental torque equations for electric
drives. 10
5. (a) Explain heating and cooling time constants. How
the thermal rating of the motor is defined ? 10
(b) Explain short time and intermittent duty rating. 10

SECTION – C

6. Explain fully converter fed dc drive and chopper fed
dc drive. 20
7. (a) Describe switched reluctance machine drives. 10
(b) Explain fully permanent magnet brushless dc
drives. 10

SECTION – D

8. (a) Describe static Kramer System. 10
(b) Explain voltage/frequency control of 3 phase
induction motor. 10

9. State and explain the various schemes adopted for
speed control of induction motor using voltage source
inverter. 20