M 25885

VIII Semester B.Tech. Degree (Supplementary – Including Part Time) Examination, October 2014
(2007 Admn. Onwards)
PT 2K6/2K6 EE 802 : INDUSTRIAL ELECTRIC DRIVES

Time: 3 Hours

Max. Marks : 100

*Instruction : Answer **all** questions.*

1. a) Draw the block diagram of an electric drive.

   b) What are the advantages of electric drives ?

   c) A fully controlled converter is feeding a separately excited d. c. motor. In which quadrant of torque-speed plane can the motor be operated ? What are the requirements of such an operation ?

   d) Explain current limit control.

   e) What are the features of a PWM inverter fed induction motor drive ?

   f) How induction motor speed control is achieved by using VSI ?

   g) Draw and explain the block diagram of a CSI fed synchronous motor drive.

   h) Explain the principle of variable frequency control of synchronous motor drive.

   (8×5=40)

II. a) With the help of torque-speed coordinate explain the multiquadrant operation. 8

   b) Brief the factors on which the choice of an electric drive depends. 7

   OR

   c) Explain the different classifications of load torque with examples.. 8

   d) Describe the phase locked loop control. 7

III. a) Draw and explain chopper control of a separately excited DC motor. Also derive the equation for armature current. 15

   OR

   b) Explain the closed loop armature control with field weakening for a DC motor. 15

P.T.O.

IV. a) Explain with neat sketch the working of CSI controlled induction motor drive. What are its features ? **15**

OR

b) Explain the slip power recovery scheme of speed control scheme for a 3 phase induction motor. Draw the block schematics of the scheme and bring out the characteristics of the converter used. **15**

V. a) Draw and explain the block diagram of a self controlled synchronous motor fed from a three phase inverter. **15**

OR

b) With block diagram and flow chart explain the microprocessor based speed control of a synchronous motor. **15**

———————————————