

EIGHTH SEMESTER B.TECH (ENGINEERING) DEGREE EXAMINATION, MAY 2012**EE 04 802 - INDUSTRIAL DRIVES****Time : Three Hours****Maximum : 100 Marks**

- I (a) What are the advantages of electrical drives?
 (b) What are the main factors which decide the choice & electrical drive for a given application?
 (c) What are the advantages and disadvantages of single phase semi converter red dc motor drive.
 (d) What is meant by plugging, dynamic braking of dc motor.
 (e) What are the advantages of V/F control?
 (f) What is meant by super synchronous motoring in wound rotor induction motor?
 (g) What is the torque angle of synchronous motors?
 (h) What is meant by separate control of synchronous motors?

(8 × 5 = 40)

- II (a) Describe the following:
 (i) Load equalitation
 (ii) Current limit control
 (Or)
 (b) (i) Explain with neat sketch for the phase locked loop control of electric drives.
 (ii) Write short notes on fundamental torque equations of electric drive.
- III (a) Explain with neat sketch for the closed loop control of dc motor drive with below and above base speed.

(Or)

- (b) Write short notes on the following:
 (i) Solar powered pump drives.
 (ii) Battery operated vehicles
- IV (a) Explain the operation of induction motor by current source inverter. Also, derive the expression for the torque and, when the induction motor is controlled by current source inverters at a fixed frequency.

(Or)

- (b) Draw and explain the speed torque curves with variable frequency control for two different modes (i) operation at constant flux (ii) Operation at constant (V/F) ratio.
- V (a) Draw and explain the block diagram of a self controlled synchronous motor fed from three phase inverter.
- (Or)*
 (b) Explain with a neat diagram the operation of a three phase half wave brushless dc motor drive. Also, draw and explain the associated waveforms.

(4 × 15 = 60)