

**EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, MAY 2011**

EE 04 802—INDUSTRIAL DRIVES

Time : Three Hours

Maximum : 100 Marks

- I. (a) Write short notes on motors employed for variable speed drives.
(b) What is the current status of DC and AC drives ?
(c) What are the advantages and disadvantages of single phase full converter fed d.c. motor drives ?
(d) Write short note on electrical time constant and mechanical time constant of the d.c. motor.
(e) What are the various means for Speed Control of induction motors ?
(f) What is meant by Sub-Synchronous regeneration in wound rotor induction motor ?
(g) What is meant by Self Control of Synchronous motors ?
(h) What is a Pull-out torque of Synchronous motor ?
- (8 × 5 = 40 marks)
- II. (a) Write a brief note on the following : —
(i) Current limit control.
(ii) Closed loop torque control.
- Or*
- (b) (i) Explain with neat sketch the load equalisation of electric drives. (10 marks)
(ii) Discuss the PLL control of electric drives. (5 marks)
- III. (a) Explain the working of dual converter fed separately excited d.c. motor drive. also, derive the speed torque relationship. (15 marks)
- Or*
- (b) Describe briefly the closed loop control scheme for d.c. motor drive with below and above base speed. (15 marks)

Turn over

- IV. (a) Describe the variable frequency control method of an induction motor also, explain operation for two different modes. (i) Operation below the rated frequency. (ii) Operation above the rated frequency.

(15 marks)

Or

- (b) Explain with neat sketch the working of CSI controlled induction motor drive.

(15 marks)

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

(15 marks)

Or

- (b) Write short notes on the following : —

(i) CSI fed Synchronous motor drives.

(15 marks)

(ii) Energy Conservation in electric drives.

(15 marks)