Reg. No. : ☐☐☐☐☐☐☐☐☐☐

Question Paper Code: 52523

M.E. DEGREE EXAMINATION, MAY 2017

Second Semester

Power Electronics and Drives

15PPE203 – AC DRIVES AND CONTROL

(Regulation 2015)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART C - (5 x 20 = 100 Marks)

1. (a) (i) Develop the equivalent circuit of squirrel cage induction motor.   (10)

   (ii) Explain any one of the braking methods of induction machine.   (10)

Or

   (b) (i) Explain about stator voltage control of induction motor drive system.   (10)

   (ii) Explain about torque production in Induction motor.   (10)

2. (a) (i) Explain in detail about CSI fed variable frequency drive.   (15)

   (ii) Mention the various schemes of VSI fed Induction motor drive.   (5)

Or

   (b) (i) Explain in detail about four quadrant control and closed loop operation of AC voltage controllers.   (15)

   (ii) Explain about scalar control.   (5)

3. (a) (i) Describe the operation of static rotor resistance control.   (10)

   (ii) Write short notes on injection of voltage in the rotor circuit.   (10)

(b) (i) Explain about power factor consideration in static Scherbius drive system.

(10)

(ii) Analyze equivalent circuit of static static Scherbius drive system. (10)

4. (a) (i) Explain about DC drive analogy. (10)

(ii) Analyze the principle of vector control. (10)

Or

(b) (i) Explain the control strategy of DTC. (10)

(ii) Explain direct torque and flux control. (10)

5. (a) (i) Explain about control of load commutated synchronous motor drive. (10)

(ii) Explain about Power factor control and V curves of synchronous motor drive.

(10)

Or

(b) (i) Draw and explain the equivalent circuits of synchronous motor drive. (10)

(ii) Explain about braking methods of synchronous motor drive. (10)

————————

52523