

Subject Code: H4302/R13

M. Tech –II Semester Regular/ Supply Examinations, October, 2015

ELECTRIC DRIVES – II

(Common to PE, P&ID, PE&ED, PE&D, EM&D)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions

All questions carry EQUAL marks

1. a) Draw and discuss the torque slip characteristics of a three-phase induction motor.
b) What is plugging? Explain plugging operation in three-phase induction motors.
2. With a neat block diagram, explain the closed-loop control of the slip power recovery controlled induction motor drive. Also discuss its merits.
3. a) What is space vector? Discuss the principle of vector control.
b) Discuss the direct vector control scheme for an induction motor.
4. a) List all possible signals that can be measured or extracted for use in the parameter adaptation of the indirect vector controller.
b) Discuss the variable frequency control of a synchronous motor drive.
5. a) List different advantages of PMSM motors.
b) Draw and explain the back-emf waveforms of a three phase BLDC motor.
6. a) List and discuss different motors suitable for electric traction.
b) Compare between uni-polar and bipolar stepper motors.
7. With a neat block diagram, discuss the control of induction motor employed in railway traction using ac-dc and dc-ac converters.
8. a) Define reluctance. Discuss the principle of operation of a switched reluctance motor.
b) Draw and explain any two power converter circuits for Switched reluctance motors.
