

Module-3

- 5 a. With relevant equations, explain the operation of a 3 phase induction motor with unbalanced source voltages. (08 Marks)
- b. With a neat schematic diagram of star – delta starter explain its working. (04 Marks)
- c. Explain the braking of 3 ph induction motor by plugging. (04 Marks)
- 6 a. Explain the AC dynamic braking of 3 phase induction motor with two load connection. (08 Marks)
- b. Discuss the variable frequency control of a 3 ph induction motor supplied from voltage source. (08 Marks)

Module-4

- 7 a. With a neat circuit diagram and relevant waveform explain the operation of VSI driven induction motor. (08 Marks)
- b. Draw the block diagram and explain the closed loop speed control of voltage source induction motor drive. (08 Marks)
- 8 a. Explain the starting operation of a synchronous motor with damper winding from a fixed frequency supply. (08 Marks)
- b. Explain the two modes variable frequency control of a synchronous motor. (08 Marks)

Module-5

- 9 a. With a neat circuit diagram, explain the self controlled synchronous motor drive employing load commutated inverter. (08 Marks)
- b. With a neat diagram explain the multi-stack stepper motor. (08 Marks)
- 10 a. What are the advantages of stepper motor? With a neat figure explain permanent magnet stepper motor. (06 Marks)
- b. What are the different types of steel rolling mills? Explain any one type and requirements of motor for that drive. (06 Marks)
- c. What are the required features of the motors used in machine tools? (04 Marks)
