Total No. of Questions : 12]

SEAT No. :

P2329

[Total No. of Pages :3

[4758] - 64
T.E. (Electronics)
DRIVES & CONTROLS
(2008 Course) (304207) (Semester - II)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***Answer 3 questions from Section I and 3 questions from Section II.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn whenever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Electronic pocket calculator is allowed.***
6) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) Draw the circuit diagram and explain the operation of 3-Phase full converter drive. Also sketch the output voltage and output current waveform at firing angle of 90 degree and 120 degree. **[10]**

b) Explain with associated waveforms how factor can be improved with symmetrical angle control scheme. **[8]**

OR

Q2) a) What is braking? Explain Regenerative braking of DC machine. Mention its advantages & disadvantages. **[8]**

b) Draw the circuit & waveforms of single-phase full converter drives for continuous & discontinuous motor current. **[10]**

Q3) a) Explain open loop & closed loop control of dc drives with transfer function. **[10]**

b) Explain the principle of phase locked loop control of dc drives with block diagram. **[6]**

OR

Q4) a) Explain the basic principle of operation of an Induction Motor with references to its equivalent circuit diagram. **[8]**

b) With the help of diagram explain use of CSI for speed control of Induction Motor. **[8]**

P.T.O.

Q5) a) With the help of block diagram explain close loop control of Induction Motor. **[10]**

b) Explain the necessity of soft acceleration & soft deceleration in case of Induction Motor. **[6]**

OR

Q6) Write short notes on following: **[16]**

a) 2-Quadrant dc drive using chopper.

b) Microprocessor/microcontroller based dc drive.

c) Induction motor performances characteristics.

d) Braking of Induction motor.

SECTION - II

Q7) a) Draw & explain torque versus torque angle characteristics of Synchronous motor with cylindrical rotor. **[8]**

b) With neat diagram explain Switched reluctance motor. **[10]**

OR

Q8) a) List the drive requirements for A C drive. **[8]**

b) With neat block diagram explain microprocessor based Synchronous motor drive. **[10]**

Q9) a) Explain operation of a stepper motor driver circuit with diagram. Mention advantages. **[8]**

b) With the help of diagrams & waveforms explain ac motor drive. **[8]**

OR

Q10)a) Explain operation of variable reluctance stepper motor with diagram. **[8]**

b) Compare between ac & dc drive. **[8]**

Q11)a) Explain harmonic reduction techniques in inverters. **[8]**

b) Explain Tuning of a controller for a drive system. **[8]**

OR

Q12)a) Explain Torque-Speed characteristics with volts/hertz control in AC drives. **[8]**

b) With diagram explain static scherbius drive for Induction Motor control. **[8]**