

Question Bank (G scheme)

Name of subject: Industrial Drives

Subject code: 17667

Semester: IE6G

Unit Test: II

Course: INDUSTRIAL ELECTRONICS

CHAPTER 4: AC DRIVES

(20 Marks)

3 marks

- 1) List different methods of speed control of Induction motor.
- 2) List advantages of induction motor drive over DC motor drive.
- 3) Draw a circuit diagram of rotor resistance control method for induction motor.

4 marks

- 4) A four pole 1440 rpm three phase induction motor is operated from per phase voltage of 240 V 50 Hz and driving a constant torque load. Calculate the following at frequency 25 Hz. $\Phi_{ag} = 4.8$.
Calculate- i) supply voltage / phase ii) slip iii) slip frequency and iv) slip at 25 Hz.
- 5) Which procedure is adopted to achieve soft start of induction motor using thyristor circuit? Justify your answer.
- 6) Draw & Explain the block diagram of constant V/F control using a square wave inverter.
- 7) Draw labeled block diagram of PWM control method of induction motor. Write any two advantages of it.
- 8) What is cyclo converter drive? Write principle of operation of low speed AC motor with cyclo converter. Draw its output wave forms for single phase.
- 9) Comparison between stator voltage control, constant V/f Control & rotor resistance control.

CHAPTER 5: ADVANCED TECHNIQUES OF MOTOR CONTROL

(20 Marks)

3 marks

- 10) List the advantages of microcontroller based system over conventional electronic speed Control systems.

- 11) State the functions of microcontroller/microprocessor in speed control of drives.
- 12) Draw the block diagram of microcomputer based speed control of AC drive.

4 marks

- 13) With the help of block schematic, explain the use of phase lock loop (PLL) for speed control of DC motors.
- 14) List the selection criteria of microprocessor/microcontroller for electric drives.
- 15) Draw block diagram of synchronous motor drive and state function of each block.
- 16) Describe role of microprocessor for speed control of DC motor with neat diagram
- 17) Draw labeled block diagram field oriented control CSI fed induction motor and state the function of microcontroller in it.

CHAPTER 6: DRIVES FOR SPECIFIC APPLICATIONS

(16 Marks)

3 marks

- 18) Write different stages and drives required for sugar mills.
- 19) Which are the requirements for reversing cold rolled mills motor drives?
- 20) List no of stages involved in Elevators.

4 marks

- 21) List no of stages involved in paper mill. Which type of motor/drives used at each stage?
- 22) Which type of drive/motor used in sugar mill at each stage? State operation at each stage.
- 23) List different requirements of motors used for machine tools.
- 24) Which type of drive motor is suitable for Robotic Arm? Explain its working with diagram.
- 25) Write different eight stages involved in textile mill and its speed ratings at each stage.