QUESTION BANK

Unit -1
1) With basic block diagram, explain the essential element of electric drive. (June-2013) (Dec-2013)

2) Explain the speed torque conventions and Multi quadrant Operation? (Dec-2013)

3) Derive the expression for the equivalent load torque and equivalent moment of inertia for loads with translational and rotational motion. (June-2014), (Dec-2013)

4) What are the advantages of an electric drive? Mention the factors on which the choice of electrical drive depends (June-2015), (June-14)

5) Explain the components of load torque. (June-14)

6) What are load torque components? Define active and passive load torques. (Dec-2014)

7) What is an electric drive? Mention the factors which decide the choice of electrical drive (June-2015) (Dec-2014)

8) Explain the load equalization for fluctuating loads in electric drives? (June-2013)/(Dec-2014)

Unit -2
1) With usual notations, derive an expression for temperature rise of a machine. Sketch the temperature rise versus time curve. (June-2015),(June-2013)

2) Derive an expression to obtain the power rating for short time duty loads. (Dec-2013) (Jun-2013)

3) Obtain the thermal model of motor for heating and cooling. Also draw the heating and cooling (Dec-2013)

4) Derive the expression of overloading factor ‘k’ while selecting the main rating, for intermittent periodic duty (June-2014)

5) Derive the expression to determine the power rating for continuous duty, fluctuating and intermittent loads by equivalent current, torque and power methods (June-2015)

Unit-3 & 4
1) Explain the working of Single-phase half controlled rectifier for continuous mode of operation.  
   (June-2015),(June-2013)

2) Explain the dynamic braking operation of separately excited dc motor. Draw its speed torque characteristics.  
   (Dec-2013)

3) With dynamic equivalent circuit, explain the transient analysis of separately excited dc motor.  
   (Dec-2013)

4) Explain the reverse voltage braking with diagrams of D.C of separately excited dc motor.  
   (June-2014)

5) Explain the plugging of D.C of separately excited dc motor and draw its speed torque characteristics.  
   (Dec-2014)

6) Explain the motoring control and regenerative braking of chopper control of separately excited dc motor.  
   (June-2013)

   (Dec-2013)

8) Explain the chopper control of separately excited dc motor for regenerative braking.  
   (Dec-2013)

9) With a neat circuit diagram and waveform, explain the chopper control of series motor.  
   (June-2014)

10) Explain the rectifier control of d.c series motor and draw its speed-torque curve  
    (Dec-2014)

11) Explain the dynamic braking of separately excited by chopper circuit.  
    (Dec-2014)

12) With circuit diagram and waveforms explain three phase fully controlled rectifier control of separately excited dc motor.  
    June-2015)

Unit-5& 6

1) Explain the effect of unbalanced source voltage and single phasing on the Induction motor performance  
   (June-2015)(Dec-2013)(June-2013)

2) Explain the effect of unbalanced rotor impedance on the Induction motor performance  
   (Dec-2014)(June-2014)
3) With neat diagrams, explain the a.c. dynamic braking with two-lead connection of a wound rotor induction motor.  
(Dec-2014)(June-2014)

4) With circuit diagram and waveforms explain the operation of VSI fed IM drives. Also sketch various schemes of VSI fed IM  
(June-2015)(June-2013)

5) With a neat drive circuit, explain the static scherbius drive.  
(June-2015)(June-2013)

6) With a neat block dia, explain the closed loop speed control with regenerative braking of an InductionMotor.  
(June-2014)

7) What is slip-power recovery in an IM  
(June-2014)

8) Explain the variable fr control of an IM & draw the speed torque curves.  
(Dec-2014)

9) Explain with dia, the static rotor resistance control of an IM.  
(Dec-2014)

10) What are the relative advantages and disadvantages of CSI & VSI drives?  
(Dec-2014)

Unit-7

1) With circuit diagram, explain the Self-controlled synchronous motor drive employing load commutated thyristor inverter.  
(June-2015)(Dec-2013)(June-2013)

2) With block diagram, explain the operation of variable frequency control of multiple synchronous motor drive.  
(Dec-2014)(Dec-2013)(June-2013)

3) Explain the pull-in process in the operation synchronous motor fed from fixed fr supply.  
(Dec-2014)

4) Explain with block diagram, closed loop speed control of load commutated inverter synchronous motor drive.  
(Dec-2014)

5) Explain the operation of synchronous motor from fixed frequency supply.  
(June-2015)

Unit-8

1) Classify the drives used in cement industry and explain them  

2) Write the comparison between the line shaft drive and sectional drive of paper machine drive  
(June-2015)(Dec-2014)(June-2014) (June-2013)

3) What are the requirements in steel mills? Explain with reasons motor used in steel mills.
4) Write a technical note on:
   i) Rolling mill drives
   ii) Textile mill drives.

5) Explain the reversing and continuous rolling mill drives with selection of motors and their ratings.

6) Explain with neat dia, screw down operation in a rolling mill drive