Unit - II

2. a) Draw the "Exact equivalent Circuit" of an Induction Motor. What are the various parameter present. **(5)**

   b) Describe constructional features of both squirrel cage induction motor and slip ring induction motor. Discuss the merits of one over other. **(5)**

   c) A 6 pole, 50 Hz, 3 phase induction Motor runs at 950 rpm at full load. Calculate following parameters.

      i) What is the percentage slip at full load.

      ii) What is the frequency of Rotor voltage.

      iii) Rotor frequency at the slip of 10% **(2x3=6)**

OR

2. a) Draw and explain the TORQUE-SLIP characteristics of an Induction motor. Mark the starting and maximum torque on the diagram. Explain the effect of Rotor Resistance on the starting and maximum torques. **(5)**

   b) Derive the condition for maximum torque of a 3 phase induction motor under running condition. **(4)**

   c) A 10kw, 400v, 4 pole delta connected squirrel cage induction motor gave the following test results.
   No load test : 400V, 8.1A, 250Walts.
   Blocked rotor test : 90v, 34A, 1350 walts.
   Calculate equivalent circuit parameters. **(7)**

Unit - III

3. i) Describe various methods of starting of a 3 phase induction motor. Draw the neat sketch of star-delta starter and explain the working of it. **(8)**

   ii) Draw the equivalent circuit of a single phase induction motor. Explain the constructional features and principle of operation of the motor. **(8)**

OR

3. i) Explain "Cascade Arrangement" for controlling speed of three phase Induction motor. **(8)**

   ii) Explain "Regenerative braking" as applied to 3 phase induction motor. What are the conditions for regenerative braking of an induction motor to be possible. **(8)**

Unit - IV

4. a) Derive an expression for power developed in a cylindrical rotor alternator in terms of power angle and synchronous impedance. **(6)**

   b) i) Define voltage regulation of an alternator.

      ii) Explain how the "Potier Triangle" can be drawn with the help of open circuit characteristics and any two points on zero power factor characteristics.

      iii) Explain new A.S.A. method for finding voltage regulation. **(2+3+5)**