Duration:- Three Hours **Total Marks : 80**

NOTE
1. Question No 1 is Compulsory.
2. Solve any three out of the remaining.
3. Figure to the right side indicates marks.
4. Assume the suitable data and mention the same if required

Q No 1Answer the following questions

a. Why the operating flux density is different in transformer and induction motor [5]

b. Why different types of mechanical forces are developed in the transformer. [5]

c.Why rotor voltage level is restricted in design of wound rotor for induction motor. [5]

d. Which factors decide the selection of insulation for a machine [5]

Q No 2a Derive the output equation for a three phase and single phase transformer. [10]

Q No 2b Draw a figure showing the main dimensions of a three phase core type transformer and hence the equations [10]

Q No 3a Derive the output equation for a three phase induction motor. [10]

Q No 3b Discuss the various factors affecting the choice of specific electric loading in induction motor. [10]

Q No 4a Derive the equation for leakage reactance of parallel sided slot. [10]

Q No 4b Discuss the designing of Squirrel cage rotor of an induction motor. [10]

Q No 5a Derive the equation for per unit leakage reactance of a two winding core type transformer. [10]

Q No 5b Discuss the design criteria for energy efficient induction motor. [10]

Q No 6a Discuss the designing of LV winding in transformer [10]

Q No 6b Discuss the impact of B60 concept on computation of performance parameters of induction motor. [10]
