AMIRAJ
COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT : ELECTRICAL
SEMESTER: 4TH
SUBJECT NAME: ELECTRICAL MACHINE-I
SUBJECT CODE : 3140913
FACULTY NAME: SUNIL PATEL

ASSIGNMENT: 3 TRANSFORMER EXAMPLE

1. Explain the factors affecting the choice of flux density and current density in the design of transformer.

2. Determine the main dimensions of the core for a 5 kVA , 11000/400 V, 50 Hz, single phase core type distribution transformer. The net conductor area in the window is 0.6 times the net cross section of iron in the core. Assume a square cross-section for the core, a flux density 1 Wb/m2 , a current density 1.4 A/mm2,and a window space factor 0.2. The height of window is 3 times its width.

3. Differentiate between Radial Forces and Axial Forces in transformer windings.
   From the design data discuss how no load current can be estimated in 3-phase core type transformer.

4. Explain: (a) Significance of mitered joints in transformer.
   Derive the equation of leakage reactance of 3 phase core type distribution Transformer.

5. The current densities in the primary and secondary windings of a transformer Are 2.2 and 2.1 A/ mm^2 respectively. The ratio of transformation is 10 : 1 and the length of the mean turn of the primary is 10 percent greater than that of the Secondary. Calculate the resistance of the secondary winding given that the primary winding resistance is 8 Ω.

6. Explain different cooling methods used in oil immersed transformer.

7. Explain criteria for selection of specific loading.