AMIRAJ
COLLEGE OF ENGINEERING & TECHNOLOGY

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

ASSIGNMENT: 2 TRANSFORMER DESIGN

1. What is design optimization? Derive necessary condition for designing a transformer with minimum cost.

2. A 250KVA, 6600/400 V, 3-Phase core type transformer has a total loss of 4800 W at full load. The transformer tank is 1.25 m in height and 1m x 0.5m in plan. Designs a suitable scheme for tubes if the average temperature rise is to be limited to 35 ^{o}C.The diameter of tubes is 50 mm and is spaced 75 mm from each other. The average height of the tube is 1.05 m.specific heat dissipation due to radiation and convection is respectively 6 and 6.5 W/m^{2}-^{0}C.Assume that convection is improved by 35% due to provision of tubes.

3. Give the comparison between power transformer and distribution transformer.

4. What are the major losses in transformer? Derive the condition for getting maximum efficiency of a transformer.

5. How will the output, losses and efficiency in transformer vary with linear dimensions?