

Lecture-37

Tutorial

Lecture delivered by:



Objectives

At the end of this lecture, student will be able to:

- Solve the problems on the transformer tests



Problem 1:

The following readings were obtained on O.C. and S.C. tests on a 200/400V, 50Hz, single –phase transformer

O.C.test (l.v. side) : 200V, 0.6 A, 60W

S.C.test (h.v. side) : 15V, 9A, 80W

Calculate the secondary voltage when delivering 4 kW at 0.8 power factor lagging, the primary voltage being 200V.



Problem 2:

A 50KVA, 2200/110V transformer when tested gave the following results

OC test measurements on the L.V side : 400W, 10A, 110V

SC Test measurements on the HV side : 808W, 20.5A, 90V

Compute all the parameters of the equivalent circuit referred to the HV and LV side of the transformer.



Problem 3:

A single-phase 3 kVA, 230/115V, 50- Hz transformer has the following constants;

Resistance : Primary 0.3Ω ,secondary 0.09Ω

Reactance : primary 0.4Ω , secondary 0.1Ω

Resistance of equivalent exciting circuit referred to primary, $R_0 = 600 \Omega$

Reactance of equivalent exciting circuit- referred to primary , $X_0 = 200 \Omega$

What should be the readings of the instruments when the transformer is connected for 1)O.C. test

2) S.C. test in both tests supply is given to h.v side

