

Electrical Engineering Department

EE 360-01

Term 071

Sequence #

Quiz #2

Student Id #

Student name

A 50 kVA 2400/240 single phase transformer was tested through open and short circuit tests. The test results are as follows:

Test Power(W)	Voltage(V)	Current(A)	
With high voltage side open circuited	240	4.85	173
With low voltage side short circuited	52	20.8	650

Find the equivalent circuit parameters referred to the high voltage side.

Solution

$$a = 10 ; a^2 = 100$$

$$Y_{oc} = 4.85/240 = 0.0202 \text{ S.}$$

$$g_{oc} = 173/240^2 = 0.003 \text{ S}; R_c = 333 = R_c = \underline{333 \Omega}$$

$$B = \sqrt{Y_{oc}^2 - g_{oc}^2} = 0.02 \text{ S}; X_m = 50; \underline{50 \text{ k}\Omega}$$

$$Z_{sc} = 52/20.8 = 2.5 \Omega, R_{sc} = \frac{650}{20.8^2} = 1.5; \underline{X_{sc} = 2}$$