Lecture 64

1.

Derive the condition for maximum efficiency in a single-phase transformer.

2.

A 5 kVA, 1000/200 V, 50 Hz single-phase transformer has the following OC & SC test data:

No-load test conducted at the low-voltage side:

W_0 = 90 W, I_0 = 1.2 A, V_0 = 200 V

Short-circuit test conducted at the high-voltage side:

W_{sc} = 110 W, I_{sc} = 5 A, V_{sc} = 50 V

Calculate the efficiency of the transformer at full-load 0.8 p.f. lagging.