



1- During open circuit test (OC) of a transformer _____

- a. primary is supplied rated kVA.
- b. primary is supplied full-load current.
- c. primary is supplied current at reduced voltage.
- d. primary is supplied rated voltage.

2- Open circuit test on transformers is conducted so as to get _____

- a. Hysteresis losses.
- b. Copper losses.
- c. Core losses.
- d. Eddy current losses.

3- Why OC test is performed on LV side?

- a. Simple construction.
- b. Less voltage is required and parameters can be transformed to HV side.
- c. It'll not give losses conducted on HV side.
- d. HV side does not have connections for voltage.

4- While conducting short-circuit test on a transformer which side is preferred to be short circuited?

- a. High voltage side.
- b. Low voltage side.



- c. Primary side.
- d. Secondary side.

5- During short circuit test why iron losses are negligible?

- a. The current on secondary side is negligible.
- b. The voltage on secondary side does not vary.
- c. The voltage applied on primary side is low.
- d. Full-load current is not supplied to the transformer.

6- Short circuit test on transformers is conducted to determine _____

- a. Core losses.
- b. Copper losses.
- c. Hysteresis losses.
- d. Eddy current losses.

7- Why SC test is not conducted on LV side?

- a. Difficult to arrange low voltage supply.
- b. Difficult to arrange high current supply.
- c. Difficult to arrange low voltage and high current supply to the LV.
- d. SC test on LV does not give correct results.

8- For a transformer given of 100 kVA, 220/6000-V transformer, short circuit test is performed. What current rating is needed ?

- a. 30A.
- b. 445A.



- c. 60A.
- d. Can't be calculated.

9- Which of the below estimations require results of both open circuit test and short circuit test?

- a. Efficiency.
- b. Equivalent impedance of one side of the winding.
- c. Voltage regulation for exact circuit.
- d. All of the mentioned.

10- If the transformer is step-up transformer then for performing short circuit test , the measuring devices are connected to the:

- a. H.V. side.
- b. L.V. side.
- c. Any side.
- d. Test cannot be performed on step up t / f.

11- _____ is performed using only voltmeter.

- a. Open circuit test.
- b. Short circuit test.
- c. Back-to-back test.
- d. Polarity test.

12- If the reading of the meter in polarity test is $E_1 + E_2$ then:

- a. Polarity marking of one of the windings must be reversed.



- b. The transformer is short circuited.
- c. The measuring device is damaged.
- d. All of the above.

13- The reading of the wattmeter in O.C. test represents:

- a. The rating of transformer.
- b. The hysteresis loss.
- c. The core and iron losses
- d. The power dissipated by the windings.

14- If O.C. test is conducted at the primary side, then the Ammeter is used to calculate:

- a. I_{μ} .
- b. I_0 .
- c. I'_w .
- d. I_{1sc} .

15- The auto-transformer is used in S.C test to:

- a. Calculate the leakage current.
- b. to generate a high voltage at the input of the transformer.
- c. To apply a low voltage at the input side with rated current at the short circuit side.
- d. All of the above.

16- We can use O.C test and S.C. test to obtain:



- a. R_0, X_0, Z_{01} .
- b. Only R_1, X_1 .
- c. Only Z_{01} .
- d. None of the above.

17- The efficiency of two identical transformers under load conditions can be determined by ?

- a. Short-circuit test.
- b. Back-to-back test.
- c. Open circuit test.
- d. Polarity test

18- While performing a short-circuit test on a transformer, usually low-voltage side is short-circuited because it has ?

- a. low insulation.
- b. easy access.
- c. lower terminal voltage and higher current rating.
- d. more number of turns.

Ans 1-d, 2-c, 3-b, 4-b, 5-c, 6-b, 7-c, 8-b, 9-a, 10-a, 11-d, 12-a, 13-c, 14-b, 15-c, 16-a, 17-b, 18-c



Problems

The following data were obtained on a 20 kVA, 50 Hz, 2000/200 volt distribution transformer

	V (Volt)	I (Amp)	Power (Watt)	Side
O.C. Test	200	4	120	L.V.
S.C. Test	60	10	300	H.V

Draw approximate equivalent circuit referred to H.V. side and L.V. side.

Ans:- ($R_0 = 33333 \Omega$, $X_0 = 5057 \Omega$, $R_{01} = 3 \Omega$, $X_{01} = 5.2 \Omega$, ($R'_0 = 333.33 \Omega$, $X'_0 = 50.57 \Omega$, $R_{02} = 0.03 \Omega$, $X_{02} = 0.052 \Omega$))

19- A 10 kVA, 2500/250 V, single phase transformer gave the following results:

Find the equivalent circuit parameters referred to LV side?

Ans:- ($R'_0 = 1250 \Omega$, $X'_0 = 323 \Omega$, $R_{02} = 0.05 \Omega$, $X_{02} = 0.1936 \Omega$)

	V (Volt)	I (Amp)	Power (Watt)	Side
O.C. Test	250	0.8	50	L.V.
S.C. Test	60	3	45	H.V.

20- A 5 kVA 200/1000 V, 50 Hz, single-phase transformer gave the following test results:

O.C. Test (L.V. Side) : 200 V, 1.2 A, 90 W

S.C. Test (H.V. Side) : 50 V, 5A, 110 W



Calculate the parameters of the equivalent circuit referred to the L.V. side.

Ans:- ($R_0 = 444 \, \Omega$, $X_0 = 180.2 \, \Omega$, $R_{01} = 0.176 \, \Omega$, $X_{01} = 0.36 \, \Omega$)

21- Obtain the equivalent circuit of a 200/400-V, 50-Hz, 1-phase transformer from the following test data :

O.C test : 200 V, 0.7 A, 70 W – on L.V. side

S.C. test : 15 V, 10 A, 85 W – on H.V. side

Ans:- ($R_0 = 571.4 \, \Omega$, $X_0 = 330 \, \Omega$, $R_{01} = 0.21 \, \Omega$, $X_{01} = 0.31 \, \Omega$)