

Question Bank (K-Scheme)

Name of course: DC Machines and Transformers

Unit Test: II

Subject code: 314322 (DMT)

Semester: IV

Program: EE

Chapter 3: Single Phase Transformers

2 Marks

1. Define all day efficiency of transformer.
2. Draw circuit diagram to conduct OC and SC test on a 1 kVA, 230/115V, 50 Hz single phase transformer. Justify the meter ranges also.

4 Marks

3. A 600kVA, distribution transformer have copper and iron losses of 5.4 kW and 3.4 kW respectively on full load. The transformer is loaded as shown below

Calculate the all day efficiency.

Loading (kW)	Power factor(lag)	No. of hours
500	0.9	08
300	0.8	10
100	0.75	03
No load	--	03

4. A 500kVA transformer has iron losses of 2600W and copper losses of 7400W at full load. Calculate its efficiency at $\frac{3}{4}$ full load at unity pf and 0.9 pf lagging.

5. A 1 phase 50kVA, 2400/120V, 50Hz transformer gave following test results:-

OC Test(Instruments on LV side): 120V, 9.85A, 396W

SC Test(Instruments on HV side): 92V, 20.8A, 810W

Calculate: i) The equivalent circuit constants ii) Efficiency at rated kVA and 0.8pf lagging.

6. Explain with circuit diagram, the direct loading tests on single phase transformer. How the efficiency and regulation at given load condition is determined ?

Chapter 4: Three Phase Transformers

2Marks

7. Draw circuit diagram for polarity test on single-phase transformer.
8. Give the specification of three phase transformer as per IS 1180 (Part-1) 1989 (any four).
9. State any two advantages of three phase transformer over bank of single phase transformers.
10. State different types of cooling system used for three phase transformer.

4Marks

11. Give any four selection criteria for : i) Distribution transformer ii) Power transformer as per IS:10028(part-I).
12. With the help of neat diagram, describe the procedure to carry out phasing out test on a 3-phase transformer.
13. Explain with neat circuit diagram only the Scott connection scheme for conversion of three phase supply to two phase supply.
14. Compare the distribution and power transformers on any four points.
15. Justify the need for parallel operation of transformers. State the conditions for successful parallel operation of three phase transformers.

Chapter 5: Special Purpose Phase Transformers

2Marks

16. List applications of current transformer.
17. List two special feature of welding transformer.

4Marks

18. Explain with circuit diagram use of potential transformer to measure 33kV.
19. Describe with diagram the working of the single phase welding transformer.
20. Compare Single phase auto transformer with two winding transformers.