

Unit-3

Single Phase Transformers:

S.No	Questions	BT	CO	PO
Part -A (Short Answer Questions)				
1	Mention the difference between core and shell type transformers. What is the function of transformer oil in a transformer	BT1	CO3	PO1
2	What are the applications of step-up & step-down transformer	BT1	CO3	PO1
3	Define all day efficiency of a transformer.	BT1	CO3	PO1
4	Why transformers are rated in kVA	BT1	CO3	PO1
5	What is the purpose of laminating the core in a transformer	BT1	CO3	PO1
6	What are different losses occurring in a transformer	BT1	CO3	PO1
7	State some advantages of shell type transformer What is meant by turns ratio in transformer?	BT1	CO3	PO1
8	What is the function of a transformer?	BT1	CO3	PO1
9	Mention the difference between core and shell type transformers. What is the function of transformer oil in a transformer	BT1	CO3	PO1
10	What is the effect of variation of supply voltage on iron losses?	BT1	CO3	PO1
11	How to minimize hysteresis loss?	BT1	CO3	PO1

S.No	Questions	BT	CO	PO
Part -B (Long Answer Questions)				
1.	A) Explain the construction and principle of operation of single phase transformer B) A transformer rated at a primary voltage 4,800 volts and a secondary voltage of 240 volts what is the turn's ratio	BT2	CO3	PO2

2.	A)Derive the emf equation of the Transformer B)A 25-kVA transformer has 500 turns on the primary and 50 turns on the the secondary windings. the primary is connected is connected to 3000-V 50hz supply. Find the full load primary and secondary currents. The secondary emf and the maximum flux in the core. Neglect leakage drops and no-load primary current.	BT3	CO3	PO2
3.	Explain in detail how eddy current and hysteresis losses of a transformer can be minimized	BT2	CO3	PO2
4.	At 400 V and 50 Hz the core loss of a transformer was found to be 2400 W. When the transformer is supplied a 200 V and 25 Hz, the core loss is 800 W. Calculate the hysteresis and eddy current loss at 400 V and 50 Hz.	BT2	CO3	PO2
5.	From the fundamentals, obtain the equivalent circuit of a single-phase transformer	BT2	CO3	PO2
6.	A 400 kVA transformer has a primary winding resistance of 0.5 ohm and a secondary winding resistance of 0.001 ohm. The iron loss is 2.5 kW and the primary and secondary voltages are 5kV and 320 V respectively. If the power factor of the load is 0.85, determine the efficiency of the transformer (i) on full load and (ii) on half load.	BT3	CO3	PO2
7.	Draw and explain the phasor diagram of a single-phase transformer with lagging p.f. load and leading p.f. load.	BT2	CO3	PO2
8.	A 25 kVA, 440/110 V, 50 Hz single-phase step-down transformer is designed to work with 1.5 V per turn with a flux density not exceeding 1.35 T. Determine: (i) the required number of turns on the primary and secondary windings	BT3	CO3	PO3

	respectively, (ii) the cross- sectional area of the iron core, and (iii) the secondary current.			
--	---	--	--	--