

Transformers and Generators Laboratory

Cycle of Experiments

Sl. No	Experiment Name	POs	COs
Cycle 1			
1a	Open Circuit and Short circuit tests on single phase step up or step down transformer and predetermination of (i) Efficiency and regulation (ii) Calculation of parameters of equivalent circuit.	1,2,3,4,9,12	CO1
1b	Model transformer in Simscape for Automatic Voltage Regulation.	1,2,3,4,5,9,12	CO2
2	Sumpner's test on similar transformers and determination of combined and individual transformer efficiency.	1,2,3,4,5,9,12	CO2
3	Parallel operation of two dissimilar single-phase transformers of different kVA and determination of load sharing and analytical verification given the Short circuit test data	1,2,3,4,9,12	CO3
4	connection of 3 single-phase transformers in Star – delta and determination of efficiency and regulation under balanced resistive load.	1,2,3,4,9,12	CO5
5	Separation of hysteresis and eddy current losses in single phase transformer	1,2,3,4,9,12	CO1
6	Polarity test and Investigate the voltage and current ratios of a multi-tapped transformer and verify the ideal transformer ratio	1,2,3,4,9,12	CO4
Cycle 2			
7	Comparison of performance of 3 single-phase transformers in delta – delta and V – V (open delta) connection under load.	1,2,3,4,9,12	CO5
8a	Power angle curve of synchronous generator or Direct load test on three phase synchronous generator to determine efficiency and regulation	1,2,3,4,5,9,12	CO2
8b	Simulate power angle curve of generator in MATLAB.	1,2,3,4,5,9,12	CO2
9	Voltage regulation of an alternator by EMF and MMF methods.	1,2,3,4,9,12	CO6
10	Performance of synchronous generator connected to infinite bus, under constant power and variable excitation & vice - versa.	1,2,3,4,9,12	CO7