

## **D.C. Machines:**

Justify Pole shoe section of DC machine is made larger than its body.

Draw and explain characteristics of DC series generator. Also enlist applications of DC series generator.

Define armature reaction. Explain armature reaction effect in DC machine. How it can be minimized?

Explain each part of DC machine with neat sketch.

What is armature reaction? Explain the methods to overcome the adverse effect of the armature reaction.

Explain the load characteristics of DC shunt generator.

What is commutation?

Explain the O.C characteristic of DC shunt Generator, also define the critical resistance & speed from the characteristic.

Write D.C. machine nameplate with significance of each name.

Write Function and location of inter poles and commutating winding in D.C generator.

Give the classification of DC generator.

Mention the parts of a DC machine. Explain the use of any one of them.

What is the function of brushes in DC machine?

Describe various losses in a DC machine and derive the equation of efficiency of DC machine as a motor and as a generator.

Derive the emf equation of a DC generator.

Compare lap and wave winding.

Discuss retardation test on D.C machine.

Explain critical field resistance of d.c. shunt generator with its significance.

Discuss conditions to be satisfied for a self-excited generator to build up voltages.

Numerical on above mention topics.

Justify: C.T secondary should never be kept open in any circumstances.

Discuss essential and desirable conditions to be satisfied for parallel operation of two single phase transformers.

Explain direct load test on single phase transformer with circuit diagram.

Derive an expression for saving of copper when auto transformer is used compared to Two winding transformer.

Explain O.C & S.C. test on 1- $\Phi$  transformer.

Explain the constructional details of transformer.

Explain the transformer ON-LOAD with vector diagrams

Can DC supply be applied to a transformer?

Draw phasor diagram for no load condition in transformer.

Why transformer rating in KVA?

What is transformation ratio?

Explain Sumpner's test for testing of a transformer.

Explain the concept of ideal transformer.

Derive the expression for voltage regulation of a transformer on lagging & leading power factor loads.

Briefly describe the principle of operation of a transformer.

Give a comparison of an auto transformer with a two winding transformer.

Define "All day efficiency" and % regulation of transformer.

Derive the equivalent circuit of a single phase transformer and show how it is useful in the analysis of the performance of a transformer

Derive expression which shows comparison of copper required in auto transformer and two-winding transformer.

Explain losses occur in transformer.

Compare core type and Shell type Transformer.

Explain Magnetic leakage.

Derive the equivalent circuit of single phase transformer and also derive equations for primary referred to secondary side.

Numerical on above mention topics