BE Semester-VII (Electrical Engineering) Question Bank

(Electrical Machine Design - I)

All questions carry equal marks(10 marks)

Q.1	Classify Insulating Materials and explain each with example.
Q.2	Explain various methods of Cooling of Transformer and rotating machines.
Q.3	What is Electrical and Magnetic Loading? Describe factors affecting size of machines.
Q.4	What are the effects of selection of B_{av} & ac with respect to transformer and rotating machine.
Q.5	Explain the position of HV and LV windings of a transformer.
Q.6	Describe importance of mitered joints. Explain in detail types of transformers windings.
Q.7	Derive the output equation for 3 phase transformers.
Q.8	Explain the relation between emf per turn and transformer ratings.
Q.9	Explain the effects of selection of flux density and current density. Describe various window dimensions.
Q.10	Draw the equivalent circuit of a single phase transformer and estimate primary and secondary winding resistance, Leakage reactance calculation of only cylindrical coil with equal height, leakage reactance of unequal windings and heights.
Q.11	Explain No load current calculations for 3 phase transformers.
Q.12	Derive the necessary equation for calculation of dimension of tank. How can one achieve optimum design?
Q.13	Explain various points for design for minimum cost & design for minimum loss.
Q.14	Describe various design steps for Dry transformer .
Q.15	Derive the output equation of a dc machine based on main deminsions.
Q.16	Describe the various points to be considered for selection of Number of poles & core length.
Q.17	Write a detail note on Carter's fringing curves.
Q.18	How can one estimate the length of air gap of a dc machine?
Q.19	Classify the armature winding and describe the points for choice of it.
Q.20	Derive the necessary equation for number of armature slots & its dimensions.
Q.21	Explain complete design of armature core.
Q.22	Example on the main dimension for the DC machine.
Q.23	Example on the number of slot selection.
Q.24	Describe various design steps for high frequency transformer
Q.25	Explain the complete design of the interpoles.
Q.26	How can one reduce the armature reaction at design stage?
Q.27	Explain detail design of the brushes and commutator for dc machine.
Q.28	What are the points a designer must take care while designing an HV dc Machine?

Q.29	Explain the behavior of current transformer - under normal and abnormal condition.
Q.30	Explain the design of turn compensation in case of Potential transformer
Q.31	Relate the design points of CT & PT with respect to performance and costing.
Q.32	Explain the construction & design principles for Current Transformer.
Q.33	Describe the primary current rating and winding design of a current transformer.
Q.34	Example on the CT design.