

SECTION-B

- Q2. What are the different methods used for the measurement of temperature rise in machines?
- Q3. A 500 MW direct water cooled turbo alternator has a stator copper loss of 800 KW. The water inlet temp. is 38°C and the outlet temp. is 68°C. Calculate amount of water required sec. Also calculate the area of water duct in each sub conductor if there are 48 slots with 2 conductors slot and each conductor is subdivided into 32 sub conductors. The velocity is not to exceed 1m/sec. If the pumping pressure is 300 KN /m², calculate the power of water pump if its efficiency is 0.6.
- Q4. Explain the different types of cores used in transformers.
- Q5. The losses in a 11KW three phase 4000V, 50 Hz, 1000 rpm induction motor are : Copper losses = 950W, Iron losses = 500W and Friction & windage losses = 110W Find the output losses & efficiency of a similar motor designed with each linear dimension of the given motor.
- Q6. Explain the method used for reduction of harmonic torques in induction motors.

SECTION-C

- Q7. A 400 KVA transformer has its max. efficiency at 80% of full load during a short full load heat run the temp. rise after 1 hour and 2 hours is observed to be 24°C and 34°C respectively. Find the thermal time constant and final steady state temp. rise of the transformer. If by use of a fan the rate of heat dissipation is increased by 50%, find the new KVA rating possible (a) for the same final temp. rise as before and (b) if the allowable temp. rise taken as 50°C.
- Q8. What is specific permeance? Find an expression for effective specific permeance of induction motor.
- Q9. What are the mechanical forces produced in transformer? Find an expression for axial force and radial force.

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