

Code No: **R32021**

R10

Set No. 1

III B.Tech II Semester Supplementary Examinations, November - 2018 ELECTRICAL MACHINE DESIGN

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 75

Answer any FIVE Questions All Questions carry equal marks

1	a) b)	List and explain the factors that limit the design of a machine? Explain the different cooling techniques incorporated in rotating machines and why are they necessary?	[7M] [8M]
2	a) b)	Distinguish between the single layer windings and Two layer windings. Explain the effect of distribution and chording in rotating machines.	[7M] [8M]
3	a)	What are the main dimensions in machine design? What do you mean by specific	[8M]
	b)	loading? Explain the concept of specific magnetic and electric loadings and their interdependence to each other.	[7M]
4	a)	Compare between three phase star and delta connections for transformer windings.	[7M]
	b)	What the methods by which you could provide protection from surges for a transformer?	[8M]
5	a)	Explain the physical and electrical properties that need attention for insulating oil of transformer.	[8M]
	b)	Why do transformers with a great copper to iron loss ratio is less capable of switching overloads?	[7M]
6	a)	Derive the output equation of ac machine in terms of main dimensions, specific magnetic and electric loadings and speed.	[8M]
	b)	What are the effects of Space harmonics in Induction motor?	[7M]
7	a)	Explain the different methods used for reduction of harmonic torques in induction motors.	[7M]
	b)	Deduce a relation between D and L for best power factor in a three phase induction motor.	[8M]
8	a)	Why the stator winding of all synchronous generators is usually star connected with neutral earthed.	[8M]
	b)	Classify and explain the various losses in synchronous machines.	[7M]
