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LDRP INSTITUTE OF TECHNOLOGY & RESEARCH, GANDHINAGAR.

B.E. Semester III (EC) Mid Semester Exam. August -2014

Electrical Machines

Time: 12:00 noon to 1:30 pm **Date: 28/08/2014**
Day: Thursday **Max. Marks: 30**

Instructions:
1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Use of scientific calculator is permitted.
4) Indicate clearly, the options you attempt along with its respective Que. No.
5) Use the last page of main supplementary for rough work.

Q:1	(a)	Draw a neat sketch of a D.C.machine with label, Describe its different parts their material and functions.	[05]
	(b)	Explain internal and external characteristic of DC shunt generator.	[05]
		OR	
	(b)	Explain characteristics of DC compound generator.	[05]
Q:2	(a)	Define transformer and derive EMF equation for single phase transformer.	[05]
Q:2	(b)	Explain On-load operation of transformer with phasor diagrams. Neglect winding resistance and leakage reactance.	[05]
		OR	
	(b)	Explain the constructional details of a single phase transformer.	[05]
Q:3	(a)	Calculate the voltage induced in the armature winding of a 4-pole, wave wound dc machine having 728 conductors and running at 1800 rpm. The flux per pole is 35mWb.	[05]
Q:3	(b)	Explain briefly how speed control is achieved for DC shunt motors ?	[05]
		OR	
Q:3	(a)	What is necessity of starter for dc motor? Explain three point and four starter.	[05]
	(b)	A 230 V d.c. series motor has an armature resistance of 0.2 Ω and Series field resistance of 0.10 Ω . Determine:(i) The current required to develop a torque of 70Nm at 1200 rpm(iii) percentage reduction in flux when the machine runs at 2000 rpm at half the current.	[05]

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