Code No: R22024 **R10** SET - 1

II B. Tech II Semester Supplementary Examinations, April/May-2017
ELECTRICAL MACHINES - II
(Electronics and Electronics Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1.	a)	Explain the construction of a single phase transformer.	(8M)
	b)	Derive the E.M.F equation of a single phase transformer.	(7M)
2.	a)	List out and explain various losses in the transformer.	(8M)
	b)	Derive the condition for the maximum efficiency of a transformer.	(7M)
3.	a)	Explain about the parallel operation of the transformers with unequal voltages.	(8M)
	b)	Explain about the open circuit test on a single phase transformer with the help of circuit diagram.	(7M)
4.	a)	Derive the equivalent circuit of a three winding transformer.	(8M)
	b)	Compare V-V and T-T connections of a three winding transformer.	(7M)
5.	a)	Derive the relation between rotor copper loss and the mechanical power developed in an induction motor.	(8M)
	b)	A 3-phase 6 pole induction motor is connected to a 60Hz supply. The voltage in the rotor bars is 4.1V when the rotor is at rest position. Calculate the frequency and voltage induced in the rotor at 300rpm?	(7M)
6.	a)	Derive the necessary condition for getting the maximum running torque of an induction motor.	(8M)
	b)	Draw and explain the torque slip characteristics of an induction motor.	(7M)
7.		Explain how the circle diagram is drawn and discuss what are the various parameters are found from the circle diagram.	(15M)
8.	a)	Discuss about the effects of injection of EMF in to the rotor circuit of an induction motor?	(8M)
	b)	What is the need for controlling the speed of an induction motor?	(7M)
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