Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – SUMMER • 2015

Subject Code: 152404 **Date: 07/05/2015**

Subject Name: Electro Mechanical Energy Conversion - II

Time: 02.30pm – 05.00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain the revolving field theory of Induction motor in detail with neat figure.	**07**
	(b)	Explain Scott Connection with necessary circuit diagram and vector diagram.	**07**
Q.2	**(a)**	Explain in detail the construction of 3-Φ transformer. Also mention its applications.	**07**
	(b)	Give applications of synchronous motor. Also give its merits and demerits.	**07**
		OR	
	(b)	State different types of magnetic materials and mention their properties.	**07**
Q.3	**(a)**	Give the principle of synchronous motor and draw equivalent circuit of synchronous motor.	**07**
	(b)	A 50 KW, 400V, 3-phase synchronous motor is operating at full load with an efficiency of 92%. If the field current is adjusted to make its power factor 0.8 leading, estimate the armature current.	**07**
		OR	
Q.3	**(a)**	Give types of induction motors. And explain split phase motors in detail.	**07**
	(b)	Find the turn-ratio (primary to secondary) of an 11000/415 volt, delta/star connected transformer. What would be turns ratio if it was a delta/delta connected transformer?	**07**
Q.4	**(a)**	Explain different types of transformer connections.	**07**
	(b)	Explain single phasing of poly-phase induction motor.	**07**
		OR	
Q.4	**(a)**	What is parallel operation of transformers? Why it is necessary? Also mention conditions for satisfactory operation of transformer in parallel.	**07**
Q.4	**(b)**	Explain blocked rotor test of induction motor with help of necessary diagram.	**07**
Q.5	**(a)**	Write a brief technical note on Advanced Electrical Machines and their applications.	**07**
	(b)	Explain in brief construction and applications of Switched Reluctance Motor.	**07**
		OR	
Q.5	**(a)**	Explain the importance of power electronics for advanced electrical machines.	**07**
	(b)	Explain in brief construction and applications of Linear Induction Motor.	**07**

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