Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – WINTER 2013

Subject Code: 150901 **Date: 27-11-2013**

Subject Name: Electrical Machines - II

Time: 10.30 am - 01.00 pm **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 Parallel operation of 3-phase transformer.	**07**
(b)	Explain Principle of operation, construction and application of Induction Generator.	**07**
Q.2(a)	Explain the working of on load tap-changer.	**07**
(b)	Explain the importance of Circle diagram of Polyphase Induction Motor.	**07**
	OR	
(b)	Explain the new concept of Energy Efficient Motor.	**07**
Q.3(a)	Explain the principle and working of single phase A.C. shaded pole motor.	**07**
(b)	It is desired to transform 2400 V, 5000 kVA three phase power to 2-phase power at 600 V by Scott-connected transformers. Determine the voltage and current ratings of each transformer. Neglect the transformer no-load currents.	**07**
	OR	
Q.3(a)	Why single phase A.C. motor is not self started? Explain the application of single phase A.C.Motor.	**07**
(b)	A 20 hp, 400 V , 50 Hz, three phase star connected induction motor has the following test data: No-load test: 400 V, 9 A , $\cos\Phi = 0.2$ Blocked rotor test: 200 V, 50 A , $\cos\Phi = 0.4$. Determine short circuit current and short circuit input with normal voltage.	**07**
Q.4(a)	Explain the need of starter for AC motor. Draw and Explain the circuit diagram of Direct On-Line Starter for 3-Phase Induction Motor.	**07**
(b)	Explain the effect of unbalance voltage and variation in frequency on the performance of 3-Phase Induction Motor.	**07**
	OR	
Q.4(a)	Explain terminal marking and nomenclature of Polyphase Transformer.	**07**
(b)	Explain the importance and construction of double cage squirrel cage Induction Motor.	**07**
Q.5(a)	Explain the construction and working principle of AC series motor.	**07**
(b)	Explain the double field revolving theory of single phase AC motor.	**07**
	OR	
Q.5(a)	Explain the concept of magnetic levitation. Explain advantages of Linear Induction Motor.	**07**
(b)	Explain the construction and working of welding transformer.	**07**

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