Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–V • EXAMINATION – SUMMER • 2014

Subject Code: X20903 **Date: 26-06-2014**

Subject Name: Electrical Machines I and II

Time: 10:30 am – 01:00 pm **Total Marks: 70**

Instructions:

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

Q.1(a)	Note down the main parts of d.c. generator with their applications. Compare d.c .generator with d.c. motor.	**07**
Q.1(b)	Give explanation about the working principle of D.C. Generator and derive the equation for induce E.M.F. for Lap and Wave Windings.	**07**
Q.2(a)	Give details construction features and working of a single phase transformer.	**07**
Q.2(b)	Draw and explain the vector diagrams when the single phase transformer is on NO-Load and ON- Load condition.	**07**
Q.3(a)	Explain speed control of dc series and shunt motor by armature control and flux control method	**07**
Q.3(b)	Explain the internal and external characteristics of D.C. Shunt Generator and also state the conditions when it fails to excite.	**07**
Q.4(a)	Explain the open circuit and short circuit tests on single phase transformer	**07**
Q.4(b)	A 230/230 V, three KVA single phase transformer gave following results: O.C.Test:-230v, 2.5 Amp,110Watts S.C.Test:-15V,13 Amp,125 Watts Determine the regulation at full load 0.8 p.f. lagging and also find efficiency at half load and full load at 0.8 p.f.lagging	**07**
Q.5(a)	Explain the synchronous impedance method to predetermine voltage regulation of alternator	**07**
Q.5(b)	Explain different Methods of starting of synchronous motor.	
Q.6(a)	Explain torque-slip characteristic of induction motor.	**07**
Q.6(b)	Explain working principle of Induction motor.	**07**
Q.7(a)	Derive EMF equation in single phase transformer. Also explain turns ratio (K).	**07**
Q.7(b)	Explain voltage build-up process in dc shunt generator .	**07**

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