## **GUJARAT TECHNOLOGICAL UNIVERSITY**

PDDC- SEMESTER-II - EXAMINATION – SUMMER 2017 Subject Code: X21101 Date

Date:30/05/2017

**Total Marks: 70** 

Subject Name: ELECTRICAL ENGINEERING

Time: 10:30 AM to 01:00 PM

## Instructions:

- 1. Attempt any five questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.
- Q.1 (a) Explain construction and working of D.C. generator. 07 A d.c shunt generator has shunt field winding resistance of 100 ohm. It is 07 **(b)** supplying a load of 5kw at a voltage of 250 volt. if its armature resistance is 0.220hm, calculate the induced e.m.f of generator. (a) Draw and explain the vector diagrams when single phase transformer is on **Q.2** 07 ON-Load condition. **(b)** Discuss open circuit and short circuit test of a single phase transformer. 07 **Q.3** (a) Explain necessity of starter for D.C. motor. Discuss four point starter with 07 appropriate diagram. **(b)** A 440 V d.c shunt motor takes a no load current of 2.5 A. the resistance of 07 shunt field and armature are 550 ohm and 1.2 ohm respectively the full load line current is 32 Amp. find full load output and efficiency of the motor. Explain different methods for speed control of D.C. shunt motor. 07 0.4 (a) Explain construction and working of Schrage motor. 07 **(b)** (a) Explain working principle of 3 phase induction motor. Also give comparison **Q.5** 07 between squirrel cage and slip ring induction motor. **(b)** Explain construction and working of permanent magnet stepper motor. 07 State different methods for finding voltage regulation of alternator. Explain in **Q.6** 07 **(a)** brief any one of them. Explain the operating principle of synchronous motor. Draw the vector 07 **(b)** diagrams when the synchronous motor runs at under excitation and over excitation. Why single phase induction motor is not self starting? Explain any one method **Q.7** 07 **(a)** to make it self starting. Explain in brief construction and working principle of universal motor. 07 **(b)**

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