Seat No.:	Enrolment No.

Subject Code:2142407

GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-IV (New) EXAMINATION – WINTER 2015

Date:30/12/2015

Subject Name: ELECTRICAL MACHINES AND MEASUREMENT Time: 2:30pm to 5:00pm **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. Explain working of single phase transformer under load condition with the **Q.1** 07 (a) help of vector diagram. Explain construction and working of D.C.Machine. 07 **(b) Q.2** Explain how open circuit and short circuit test performed on single phase 07 (a) transformer. Explain equivalent circuit of single phase transformer. 07 **(b)** Why are we connecting two transformers in parallel? What are the conditions **(b)** 07 to operate two transformers in parallel? What do you mean by full pitch winding and short pitch winding? What are **Q.3** 07 (a) the merits of each? What do you mean by distributed winding? What do you mean by Electrical 07 **(b)** degree and mechanical degree in electrical machine? OR Derive e.m.f equation for D.C. Generator. Which factors affect its magnitude? 0.3 07 (a) **(b)** Explain different type of D.C. Generator. **07 Q.4** Which are the different types of errors occurs in measurement? Explain it. 07 (a) 07 Explain working of Electro-dynamo meter type watt-meter. **(b)** What is the basic principal of power factor measurement? Explain Moving **Q.4** (a) 07 Iron type power factor meter. Explain Ferro-dynamic type Electrical Resonance frequency meter. 07 **(b)** List out different techniques used for medium resistance measurement. **Q.5** (a) **07** Explain Wheatstone Bridge method. How can you measure inductance with the help of Hay's bridge? Give merits **07 (b)** and demerits of it. OR Explain working of Heterodyne Wave analyzer with the help of block Q.5 (a) 07 **(b)** Explain different type of distortions occur in measurement system? What do **07** you mean by Total Harmonic distortion?