

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– III (NEW) EXAMINATION – SUMMER 2015

Subject Code: 2131005

Date: 04/06/2015

Subject Name: ELECTRICAL MACHINES

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 working of single phase transformer under no load condition with the help of vector diagram. **07**
- (b) What is the constructional difference between core type and shell type transformer? What are the merits and demerits of each? **07**
- Q.2** (a) How can you perform open circuit test on transformer? Which parameter you can obtain from this test? **07**
- (b) Why are we connecting two transformers in parallel? What are the different conditions for parallel operation of transformer? **07**
- OR**
- (b) What is autotransformer? Derive its equation for saving in copper. **07**
- Q.3** (a) Explain Sumpner's test performed on transformer. **07**
- (b) How can we convert three phase to two phase in transformer? **07**
- OR**
- Q.3** (a) Explain torque-slip curve of induction motor. **07**
- (b) What is difference between squirrel cage and slip ring induction motor? **07**
- Q.4** (a) What do you mean by distribution factor and pitch factor in synchronous machine? **07**
- (b) Explain ZPF method to find out regulation of alternator. **07**
- OR**
- Q.4** (a) What is the basic principle and construction of synchronous motor? **07**
- (b) Derive the e.m.f equation of D.C. Generator. **07**
- Q.5** (a) Explain different type of D.C. Generator with diagram. **07**
- (b) Explain different method of speed control of D.C Motor. **07**
- OR**
- Q.5** (a) What do you mean by power factor? How can we improve power factor? **07**
- (b) What is Ferranti effect? How is it effect voltage of transmission line? **07**