No. of Printed Pages : 2

BIEE-011

B.Tech. ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

June, 2013

BIEE-011 : ELECTRICAL MACHINES - II

Time : 3 hours *Maximum Marks : 70*

Note : *Answer **any seven** questions.*

1. Explain the terms coil-span factor and distribution factor in connection with alternator armature windings and deduce the emf equation of an alternator incorporating the effects of these factors. **10**

2. Explain the MMF method of determining the voltage regulation of alternator. **10**

3. Why is synchronous motor not self starting ? What methods are generally used to start the synchronous motors ? **10**

4. Develop the equivalent circuit of a 3- phase induction motor. Draw its typical torque slip characteristic and deduce the condition for maximum torque. **10**

5. (a) Discuss the pole- changing method of speed control of 3 phase induction motor. 4

(b) The ratio of maximum torque to full load torque in a 3 phase squirrel cage induction motor is 2.2:1. Determine the ratio of actual torque to full load torque for the following cases 6

(i) Direct starting

(ii) Star-delta starting

(iii) Auto transformer with 70% tapping.

6. Explain why single phase induction motor is not self starting using double revolving field theory. 10

7. Discuss the modifications necessary to operate a d.c series motor satisfactorily on a single phase a.c supply. What are the main differences in construction between a.c and d.c series motors ? 10

8. Explain briefly the different methods of speed control of 3-phase induction motors. 10

9. Explain in detail the construction and working principle of a Repulsion motor. 10

10. Write short notes on *any two* 10

(a) V-curves of synchronous machines

(b) Stepper motor

(c) Parallel operation of alternators.