No. of Printed Pages : 2

BIEE-011

B. Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

00415 **December, 2014**

BIEE-011 : ELECTRICAL MACHINES – II

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any* ***seven*** *questions. All questions carry equal marks.*

1. A 3-phase, 50 Hz, 8-pole alternator has a star connected winding with 120 slots and 8 conductors per slot. The flux per pole is 0·05 Wb, sinusoidally distributed. Determine the phase and line voltages. *10*

2. Explain the synchronous impedance method for the determination of voltage regulation of alternator. *10*

3. Explain the principle of operation of a 3-phase synchronous motor. What are the various types of excitations used in synchronous motor ? *10*

4. Compare squirrel cage and slip ring induction motors with reference to construction, performance and applications. *10*

5. What are the various methods of speed control of induction motors ? Explain the V/f method of speed control of a 3-phase induction motor along with its application. *10*

6. Develop the equivalent circuit of a single-phase induction motor based on two 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 constructional differences between a.c. and d.c. series motors ? *10*

8. What are the differences in the behaviour of variable reluctance type stepper motor and permanent magnet type stepper motor ? *10*

9. Explain the construction and working of a brushless DC motor. *10*

10. Write short notes on any ***two*** of the following : *2×5=10*

    (a) Synchronous condenser

    (b) High starting torque induction motor

    (c) Repulsion motor
