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BIEEE-003

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

Term-End Examination

December, 2015

BIEEE-003 : SPECIAL ELECTRICAL MACHINES

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any **five** questions. Each question carries equal marks. Use of scientific calculator is allowed.*

1. (a) Explain the method of speed control by emf injection in rotor circuit of a slip ring induction motor. *10*

(b) What do you mean by constant torque drive ? *4*

2. (a) Explain the operation of a permanent magnet stepper motor. Write its advantages. *7*

(b) Discuss the unipolar drive circuit for a variable reluctance stepper motor. Give its applications. *7*

3. (a) Explain the construction and working of a three-phase 6/4 switched reluctance motor. *7*

(b) Explain the phenomenon of torque production in a switched reluctance motor. Derive the torque equation. *7*

4. (a) Explain the magnetization and demagnetization effect of permanent magnets. 7

(b) Why is a single-phase induction motor not inherently self-starting ? Explain. 7

5. (a) Why can a universal motor be operated on AC as well as DC supply ? Give the advantages and applications of a universal motor. 7

(b) Discuss the constructional features of a linear induction motor. How is a linear force developed ? 7

6. (a) Why is speed reversal not possible in shaded pole induction motors ? Explain. 7

(b) Explain the operating principle of a permanent magnet AC motor, with the help of a neat sketch. 7

7. Write short notes on any ***two*** of the following : *2×7=14*

(a) PCB Motors

(b) Permanent Magnet Generators

(c) Hysteresis Motor
