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BIEE-028

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ADVANCED LEVEL CERTIFICATE COURSE IN ELECTRICAL ENGINEERING/DIPLOMA IN ELECTRONICS AND COMMUNICATION ENGINEERING (DELVI/ACELVI)

Term-End Examination

June, 2013

BIEE-028 : ELECTRICAL MACHINE THEORY-II

Time : 2 hours *Maximum Marks : 70*

Note : *Q No. **1** is **compulsory**. All questions carry **equal** marks. Attempt **any four** questions from Q No. 2 to Q No. 8.*

1. Choose the correct alternative out of the given alternatives : **2x7=14**

(a) An alternator is sometimes called _____ generator.

(i) synchronous

(ii) asynchronous

(iii) Rosenberg

(iv) pulse

(b) The full load slip of a synchronous motor is _____ .

(i) 5%

(ii) 1%

(iii) $\sqrt{2}$ %

(iv) zero

(c) When the rotor of a 3-phase induction motor is blocked, the slip is _____ .

(i) zero

(ii) 0.5

(iii) 0.1

(iv) 1

(d) For higher efficiency of 3-phase induction motor, the slip should be _____ .

(i) large

(ii) very large

(iii) as small as possible

(iv) 1

(e) The capacitor-start, capacitor -run induction motor acts as a true 2-phase motor at _____ .

(i) starting

(ii) no load

(iii) all loads

(iv) full load

(f) The single-phase series motor can operate on _____ .

(i) ac only

(ii) dc only

(iii) both ac and dc

(iv) none of these

(g) A stepper motor has 6-phase winding on its stator and has 12 teeth on rotor. Find the stepping angle.

(i) 5°

(ii) 10°

(iii) 2.5°

(iv) 60°

2. (a) Why are 3-phase alternators generally star - connected ? 7

(b) Why do turboalternators use non salient poles ? 7

3. (a) How is the efficiency of an alternator affected by load power factor ? 7

(b) How are iron and frictional losses of an alternator measured ? 7

4. (a) What do you mean by synchronous speed of a 3 - phase induction motor ? 7

(b) Why is the field producing winding of a 3-phase induction motor made stationary ? 7

5. Explain with neat diagrams the construction and principle of operation of a split-phase induction motor. 14

6. Give a brief description of applications of single - phase induction motors. 14

7. Explain the construction and principle of operation of stepper motor. **14**

8. Write short notes on ***any four*** of the following : **3.5x4=14**

(a) servo motor

(b) emf equation for an alternator

(c) Double cage rotor induction motor

(d) Star - delta starter

(e) Testing of 3-phase induction motors

(f) Universal motor