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BIEE-028

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

00612

Term-End Examination

December, 2017

BIEE-028 : ELECTRICAL MACHINES THEORY – II

Time : 2 hours *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

1. (a) Explain the principle of operation of a 3-phase induction motor. 7

(b) Explain the hunting of a synchronous machine. What is the purpose of damper winding in a synchronous machine ? 7

2. (a) Define Slip. Why can an induction motor not run at synchronous speed ? 7

(b) Why are starters required for starting of an induction motor ? Explain direct-on-line starter (D.O.L) in detail. 7

3. (a) Explain the effect of varying excitation on armature current and p.f. in a synchronous motor. 7

(b) Compare Cage and Wound three-phase induction motors with reference to construction and application. 7

4. (a) A 3-phase, 6-pole, 50 Hz induction motor has a slip of 1% at no-load and 3% at full-load. Determine : 10

(i) Synchronous speed

(ii) No-load speed

(iii) Full-load speed

(iv) Frequency of rotor current at standstill

(v) Frequency of rotor current at full-load

(b) What are the causes of low power factor of an induction motor ? 4

5. (a) Describe the construction and working of a Hysteresis Motor. 7

(b) Explain the principle of operation of a linear induction motor and draw its characteristics. 7

6. (a) What are the advantages, disadvantages and applications of a stepper motor ? 7

(b) Compare a reluctance motor with an equivalent induction motor. 7

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

(a) V-Curves of a Synchronous Machine

(b) Testing of a 3-phase Induction Motor

(c) Speed – Torque Characteristics of a 3-phase Induction Motor