

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

**Term-End Examination
December, 2011**

BIEE-028 : ELECTRICAL MACHINE THEORY-II

Time : 2 hours

Maximum Marks : 70

Note : Attempt *any five* of the following questions.

1. Answer True or False of the following statements.

7x2=14

- (a) The emf generated in an alternator depends upon flux per pole. (True/False)
- (b) In an alternator reactance emf leads the current by 90° . (True/False)
- (c) Single phase windings needs two minimum number of coils. (True/False)
- (d) In construction, synchronous motor is similar to an alternator. (True/False)
- (e) An induction motor with larger number of slots has low over load capacity. (True/False)
- (f) High slip helps in prevent cogging in induction motors. (True/False)
- (g) A double cage induction motor is commutator type. (True/False)

2. Explain the phenomenon of a armature reaction when an alternator is delivering a load current at : 14
 (a) purely lagging (b) unity PF

3. (a) Explain the principle of operation of a three phase induction motor. 7
 (b) Draw the torque-slip characteristics of a 3- ϕ induction motor at different rotor resistances. 7

4. What are the differences between squirrel cage and slip ring 3 phase induction motors ? 14

5. Derive the equation of torque for 3 - ϕ induction motor and also find the condition at which maximum torque is developed. 14

6. (a) Discuss why single phase induction motors do not have a starting torque ? 7
 (b) Describe the construction and working of shaded pole motor. 7

7. (a) Discuss different methods of starting of a single phase induction motor. 7
 (b) Draw clearly torque-pulse rate characteristics of stepper motor. 7

8. Write short notes, *any of four* given below : $3\frac{1}{2} \times 4 = 14$

- (a) Hunting
 - (b) Reluctance motor
 - (c) Universal motor
 - (d) AC series motor
 - (e) Capacitor start and run Induction Motor.
 - (f) Locking of rotor and stator fields of Induction motor.
-