



C14-AEI-302

4215

BOARD DIPLOMA EXAMINATION, (C-14)
OCT/NOV—2015
DAEI—THIRD SEMESTER EXAMINATION
ELECTRICAL MACHINES

Time : 3 hours]

[Total Marks : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State the operating principle of DC motor.
2. State the EMF equation of DC generator.
3. List any three applications of DC shunt motor.
4. State the working principle of autotransformer.
5. List the various losses occurring in a transformer.
6. Define (a) slip speed and (b) slip.
7. State the torque equation of an induction motor.

- * 8. State the EMF equation of an alternator.
9. Define synchronous impedance of an alternator.
10. List any three applications of stepper motor.

PART—B

10×5=50

Instructions : (1) Answer *any five* questions.
 (2) Each question carries **ten** marks.
 (3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain operation of three-point starter with diagram. 10
12. (a) Explain the torque equation of a DC motor.
 (b) A DC motor takes an armature current of 110 A and 480 V. The armature circuit resistance is 0.2 . The machine has 6-poles and the armature is lap connected with 864 conductors. The flux per pole is 0.05 Wb. Calculate gross torque developed by the armature. 5+5
13. Explain OC and SC tests on a 1- transformer. 5+5
14. Explain the working principle of single-phase transformer with diagram. 10
15. Draw the DOL and star-delta starters used for induction motor. 10
16. Explain the working principle of single-phase induction motor. 10
- * 17. Explain the working principle of an alternator. 10
18. (a) Explain the principle of operation of synchronous motor.
 (b) Explain the working principle of universal motor. 5+5
