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4215**BOARD DIPLOMA EXAMINATION, (C-14)****JUNE-2019****DAEI - THIRD SEMESTER EXAMINATION****ELECTRICAL MACHINES**

Time: 3 Hours

Max.Marks: 80

PART - A**10x3=30M**

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

- 1) Distinguish between lap winding and wave winding in any three aspects.
- 2) List the losses occur in the d.c machines.
- 3) Write the torque equation of a d.c motor.
- 4) Define efficiency of a transformer.
- 5) List the different losses in a transformer.
- 6) Draw the slip-torque characteristics of an induction motor.
- 7) List any three applications of 3-phase induction motor.
- 8) Classify the synchronous machines based on rotor construction.
- 9) Write the EMF equation of an alternator.
- 10) List any three applications of stepper motor.

PART - B

10x5=50M

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

- 11) Derive the EMF equation of a D.C. generator.
- 12) With a diagram explain the operation of 3-point starter with a protective devices.
- 13) Explain a) Open circuit test b) Short circuit test on a single-phase transformer. 5+5
- 14) A single phase 600/230 V, 50 Hz transformer has a core area of 400 cm² and a maximum flux density of 1.18 web/m² calculate the number of turns in primary winding and secondary winding turns.
- 15) Explain the production of 3-phase rotating magnetic field.
- 16) Explain the working principle of single phase induction motor.
- 17) Describe the constructional features of following alternators.
a) salient-pole type b) non salient-pole type 5+5
- 18) a) Explain following terms of the armature winding : 2+3
i) pitch factor ii) distribution factor
b) Explain the working principle of universal motor. 5

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