

4244**BOARD DIPLOMA EXAMINATION,(C-14)****JUNE-2019****DEEE- THIRD SEMESTER EXAMINATION****D.C. MACHINES**

Time: 3 Hours]

[Max. Marks: 80

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

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

- 1) Compare LAP and WAVE windings in any three aspects.
- 2) List the various losses in a D.C Generator.
- 3) Classify D.C Generators based on its Excitation.
- 4) Define Armature reaction.
- 5) List the different methods of improving commutation.
- 6) Calculate the value of torque established by the armature of a 4 pole wave wounded motor having 774 conductors, 24mwb flux per pole, when the total armature current is 50A.
- 7) State Fleming's left hand rule.
- 8) List the various methods of speed control for D.C series motor.
- 9) State necessity of starter for D.C motors.
- 10) List different tests of D.C motors.

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PART-B

5x10=50M

- Instructions:** 1) Answer any **five** questions. Each question carries **ten** marks.
2) Answers should be comprehensive and the criterion for valuation is the content but not the length of answer.
- 11) Explain the Construction of a DC Generator with the help of neat diagram.
 - 12) Derive the condition for maximum efficiency of a D.C Generator.
 - 13) Explain the process of commutation of D.C generator with neat sketch.
 - 14) (a) Derive the equations for demagnetising (AT_d) and cross magnetising (AT_c) ampere turns per pole.
(b) State any four conditions for parallel operation of D.C. Generators.
 - 15) Derive the torque equation of a D.C Motor.
 - 16) Draw and explain the electrical and mechanical characteristics of a D.C series motor.
 - 17) Explain different methods of speed control for DC shunt motor.
 - 18) Explain Swinburne's test on D.C shunt motor with a neat circuit diagram and state its merits and demerits.

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