

Total No. of Questions : 5]

[Total No. of Printed Pages : 2

Roll No

EX-801 (GS)**B.E. VIII Semester**

Examination, May 2018

Grading System (GS)**Computer Aided Electrical Machine Design***Time : Three Hours**Maximum Marks : 70*

- Note:* i) Attempt all questions.
 ii) Answer any two parts from each question.
 iii) All questions carry equal marks.

1. a) How computers could be useful in effective design of machines?
 b) Illustrate various programming techniques associated with design of machines with their salient features.
 c) What is optimization? How many types of optimization could be possible? What are the various constraints for optimizing a given problem? Explain with example.
2. a) Describe the design of armature for a D.C machine. How the windings can be designed and placed in the field as well as armature?
 b) How M.M.F distribution in D.C machines can be calculated?
 c) Formulate an objective function for optimized design of D.C machine along with various constraints for it.

EX-801 (GS)

PTO

[2]

3. a) Explain the method of designing a power transformer for minimum losses and maximum efficiency. Also incorporate the method for variation of output and losses.
 b) What is the importance of no-load current and temperature rise in three phase transformer?
 c) Describe the design of tank of transformer with tubes and without tubes. What are the benefits of design with tubes over without tubes? rgpvonline.com
4. a) Elaborate the method of choosing average gap density and choice of ampere conductor per metre from output equation of a synchronous machine.
 b) How the variables can be selected for optimal design of an Alternator?
 c) What are the direct and quadrature axis reactances and how they can be determined?
5. a) Discuss the calculation criterion for shape and number of stator slots. How the insulation is provided for these stator slots?
 b) Write an algorithm for optimal design of three phase induction motor.
 c) What are the losses in an induction machine? How they can be minimized?

EX-801 (GS)