Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

EE/EX-5002 (CBGS)

B.E. V Semester

Examination, November 2018

Choice Based Grading System (CBGS)

Electrical Machine - II

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Draw a neat sketch of a D.C. generator? State the function of each part. 8

   b) Derive the emf equation of dc generator. A 4-pole wave wound armature has 720 conductors and is rotated at 1000 rev/min. If the useful flux is 20m wb. Calculate the generated voltage. 6

2. a) What is armature reaction? Describe the effects of armature reaction on operation of DC machines. 6

   b) Explain the process of commutation in D.C. machine and describe the method to improve it. 8

3. a) What are the losses that occures in D.C. machines? Derive the condition for maximum efficiency of a D.C. generator. 7

   b) Name the various method of speed control of D.C. motors and describe any one of them. 7

4. What is the voltage regulation? State various method to determine the voltage regulation of an alternator? Explain one of them in detail. 14

5. A 6-pole, 3-phase, 50Hz alternator has 12-slots and 4-conductor per slot. The winding five-sixth pitch and the flux per pole is 1.5 wb. The armature coil are all connected in series with connection. Calculate induced emf. 14

6. a) Write short note on necessity of connecting alternators in parallel and various condition for parallel operations.7

   b) Write short note on V-curves for synchronous motor. 7

7. Draw and explain the phasor diagrams of a salient pole synchronous generator ($Xd \neq Xq$). Hence deduce the expression for power developed and the load angle at which maximum power transfer take place. 14

8. Write short notes on any two of the following: 14
   a) Stepper motor
   b) Switched Reluctance motor
   c) Hysteresis motor
   d) Repulsion motor

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