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Roll No

EE/EX-5002-CBGS

B.E. V Semester

Examination, December 2020

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) Explain the construction operating principle and hence working of brushless dc motor. Also explain torque angle characteristics and write its applications.
b) Discuss briefly the concept of metadyne and amplidyne.
2. a) Why is the starting current very high in a DC motor? How does the starter reduce the starting current to a safe value?
b) What are the drawbacks of three-point starter? Describe a four-point starter with a neat sketch.
3. a) What are the losses that occurs in D.C. machines? Derive the condition for maximum efficiency of a D.C. generator.
b) Name the various method of speed control of D.C. motors and describe any one of them.
4. a) Derive emf equation for an alternator. Explain clearly the meaning of distribution factor.
b) What is armature reaction? Discuss the armature reaction in alternator or synchronous motor.

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5.
 - a) Explain the lab circuit diagram to determine the X_d and X_q by slip test.
 - b) Describe the bright lamp method with circuit diagram to perform parallel operation of two alternators.

6. 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.

7. Describe two reaction theory of salient pole synchronous machine, draw its equivalent circuit model and phasor diagram for lagging power factor load.

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