BITT POLYTECHNIC, RANCHI

DEPARTMENT OF ELECTRICAL ENGG.

Electrical Machine-I

BRANCH: EE **Semester-4Th**

Objective Type question.

1 Direction of rotation of motor is determined by _____

a) Faraday's law
b) Lenz's law
c) Coulomb's law
d) Fleming's left-hand rule

2. The following is (are) the part(s) of a field magnet.

a) Yoke
b) Pole cores
c) Pole shoes
d) All of the above

3 The emf induced in the dc generator armature winding is

a) AC
b) DC
c) AC and DC
d) None of the above

4. The material for Commutator Brushes is generally

a) Mica
b) Cast Iron
c) Copper
d) Carbon

5. Commutator in DC generator is used for

a) Collecting of current
b) Reduce losses
c) Increase efficiency
d) Convert AC armature current in to DC

6. In DC generators brushes are used for

a) Collecting of current without any sparking
b) Collecting of voltage
c) Reduce eddy current loss
d) Convert ac armature current in to dc

7. The effect of ---------- on main field flux is armature reaction?

a) Armature mmf
b) Armature current
c) Armature flux
d) All of the above

8. D.C. shunt motors are commonly used in

a) Cranes
b) Electric traction
c) Elevators
d) Lathe machines

9. When the motor runs on no load, then

a) Back emf is almost equal to applied voltage
b) Back emf will be greater than applied voltage
c) Back emf will be less than applied voltage
d) None of these

10. Electrical power output in a d.c. generator is equal to

a) Electrical power developed in armature – copper losses
b) Mechanical power input – iron and friction losses
c) Electrical power developed in armature – iron and copper losses
d) Mechanical power input – iron and friction losses – copper losses

Short Type Question

1. What is DC Generator?
2. State the function of all part of DC Generator.
3. Define commutation.
4. Write the working principle of dc Generator.
5. A DC 4 pole lap wound generator is running at 1000 rpm having 1200 conductors and flux density is 10 mwb. Find the generated emf?
6. Draw the equivalent Ckt. Diagram of Dc Generator and write kcl and kvl equation.
7. Write the methods to improve commutation.
8. Derive the Emf. equation of generator
9. Write the type of dc machine.
10. Write the effect of armature reaction.

Long Type Question.

11. Explain the method to improve the commutation.
12. Explain the construction of dc generator with neat and clean diagram.
13. Explain the armature reaction.
14. A shunt generator delivers 450 A at 230 V and the resistance of the shunt field and armature are 50 Ω and 0.03 Ω respectively. Calculate the generated emf?
15. A four-pole generator has 500 conductors on the armature. It the generator is running at 1200 rpm, find the average voltage generated between brushes for
    a. A lap winding,
    b. A wave winding.

The total flux per pole is 50mwb.

Answer of Objective type questions.

1. **D. 2. D 3. A 4. C 5. D 6. A 7. C 8. D 9. A 10. D.**