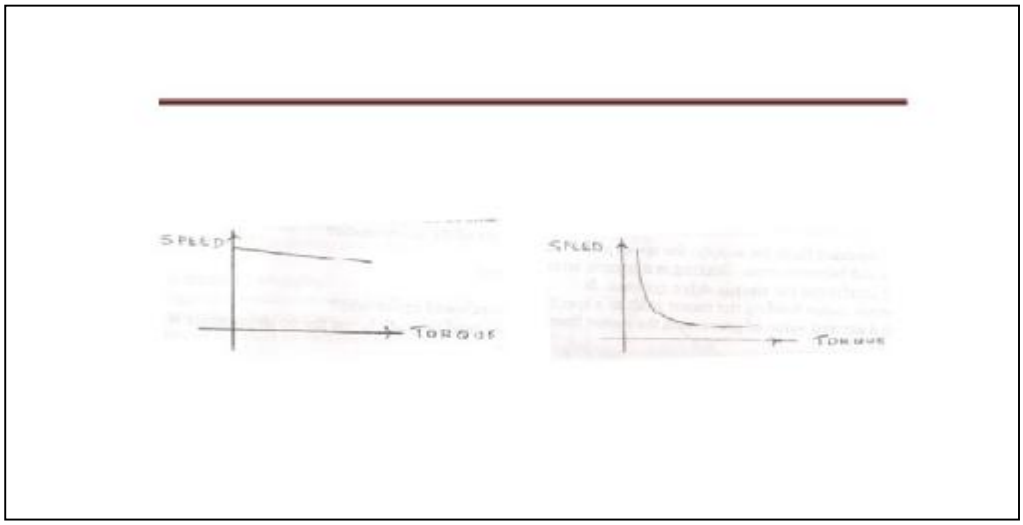
Q1. What is meant by mechanical characteristics?

A curve is drawn between speed-torque. This characteristic is called mechanical characteristics.

Q2. Draw the speed-torque characteristics of dc shunt motor.

Q3. Draw the speed-torque characteristics of dc series motor.



Q4. A series motor should never be started without some mechanical load why?

When the load current Ia falls to a small value, speed becomes dangerously high. Hence a series motor should never be started without some mechanical load.

Q5. What are the different types of dc motor?

I. DC series motor 2. Shunt motor

3. Compound motor 4. Separately excited de motor

Q6. What is meant by electrical characteristics?

A curve is drawn torque and armature current. It is known as electrical characteristics.

Q7. What is the relation between speed and flux of a dc motor?

The speed of a dc motor is inversely proportional to field flux.

Q8. What is the application of dc motor?

DC shunt motor:-

1. For driving constant speed operations
2. Lathes
3. Centrifugal pumps
4. Machine tools
5. Blowers and fans
6. Reciprocating pumps

DC series motor:-

1. Electric locomotives
2. Rapid transit systems
3. Trolley cars
4. Cranes and hoists
5. Conveyors

DC compound motor:-

1. Elevators.
2. Air compressors
3. Rolling mills
4. Heavy planers

Q9. A dc shunt motor is called as constant speed motor-why?

The drop in speed from no-load fuel-load is small; hence the dc shunt motor is also called as constant speed motor.

Q10. What is mean by braking?

Whenever an electric drive is disconnected from the supply, the speed of the driving motor gradually decreases and becomes zero. Braking is a generic term used to describe a set of operating conditions for electric drive systems. It includes rapid stopping of the electric motor holding the motor shaft to a specific position, maintaining the speed to a desired value of preventing the motor from over speeding.

Q11. What are the two types of braking?

1. Mechanical braking
2. Electrical braking

Q12. What is meant by mechanical braking?

In mechanical braking, the frictional force between the rotating parts and brake drums provide thee required brake.

Q13. What is meant by electric braking?

In electric braking, the motor is made to work as generator. So it produces a negative slip and negative torque (braking torque). This is achieved by suitably changing the electrical connections of the motor.

Q14. What are the different types of electric braking?

1. Regenerative braking
2. Dynamic braking
3. Plugging

Q15. What are the advantages of electric braking?

1. High efficient method
2. Low maintenance.
3. Braking is very smooth.

Q16. What is meant by regenerative braking?

In the regenerative braking operation, the motor operators as a generator, while it is still connected to the supply. Here, the motor speed is greater than the synchronous speed. Mechanical energy is converted into electrical energy, part of which is returned to the supply and rest of the energy is last as heat in the winding and bearings.

Q17. What is meant by dynamic braking?

When an electric motor rotates, a kinetic energy of the motor is converted into electric energy. This energy is dissipated in resistive elements.

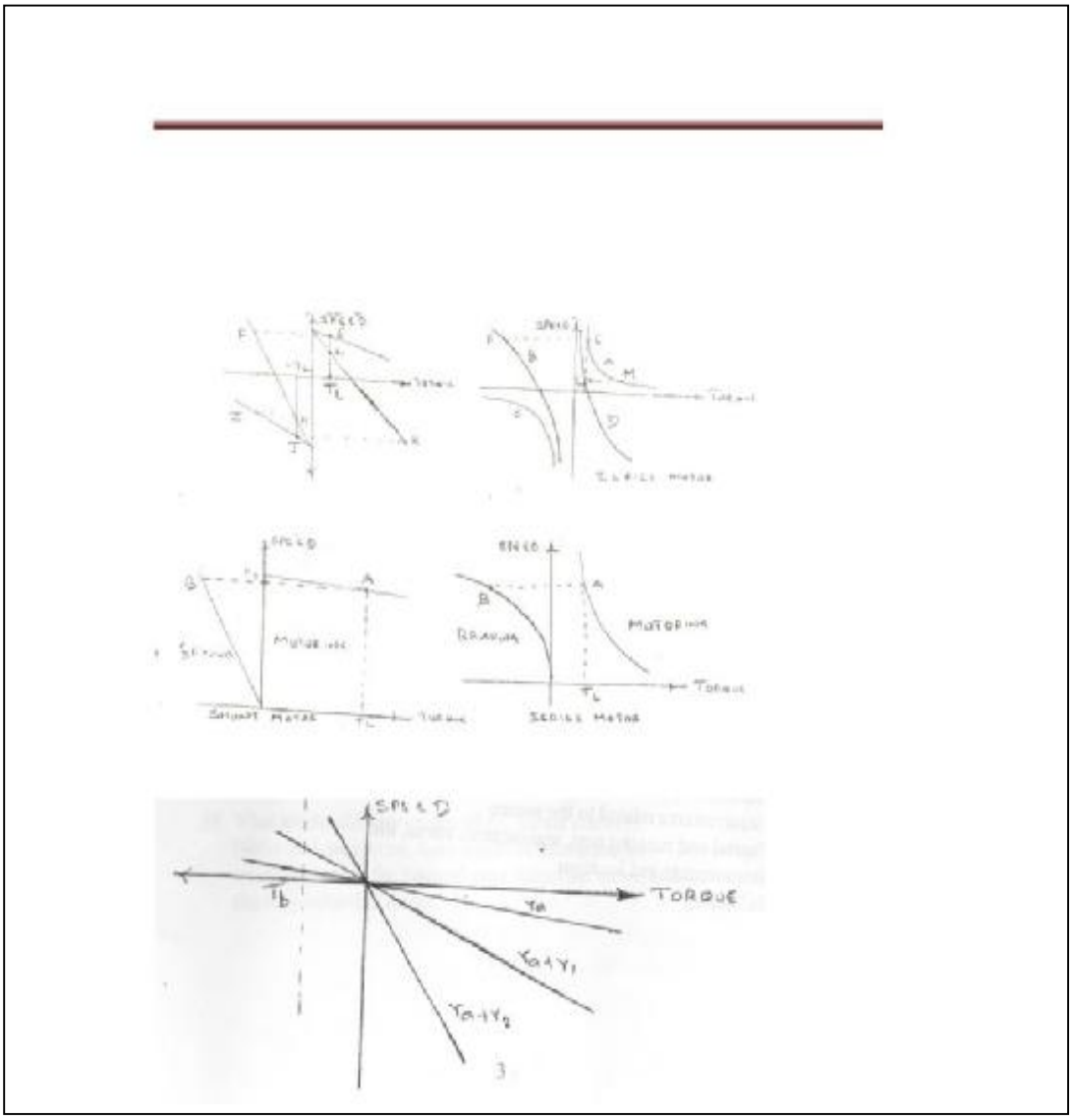
Q18. What is meant by plugging?

The plugging operation can be obtained by changing the polarity of the motor. For a machine, the phase sequence of the starter windings and dc machines the polarities of the field or armature terminals.

Q19. Draw the plugging characteristics of dc series and separately excited motor.

Q20. Draw the dynamic braking characteristics of separately excited and series motor.

Q21. Draw the regenerative 6raking characteristics of separately excited motor.



Q22. What are the disadvantages of dc machine?

1. Higher cost
2. Higher rotor inertia
3. Maintains problems with commutator and brushes
4. EMI problems
5. Do not permit a machine to operate in dirty and explosive environments.

Q23. What are the advantages of squirrel cage induction motor?

1. Rugged
2. Cheaper
3. Lighter
4. More efficient
5. Less maintenance
6. Can operate in explosive and dirty environment.