



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME : 19EC309 ELECTRICAL MACHINES AND POWER SYSTEMS

II YEAR / 03 SEMESTER MECH & MCT

Unit 1 – DC Machines

Construction and Operation of DC Motor



Can You Guess?

- What is This?
- Where we are using?
- For What we have to use?



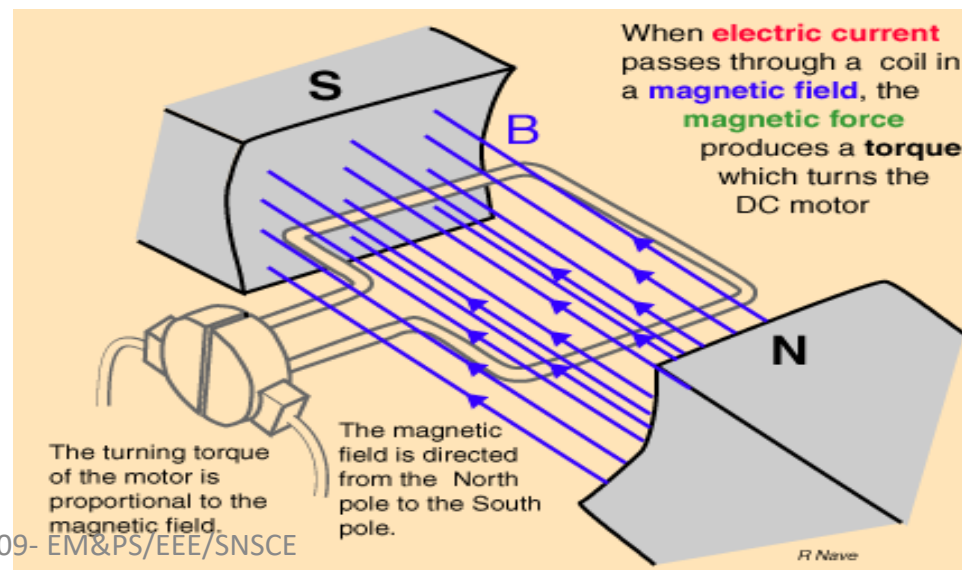
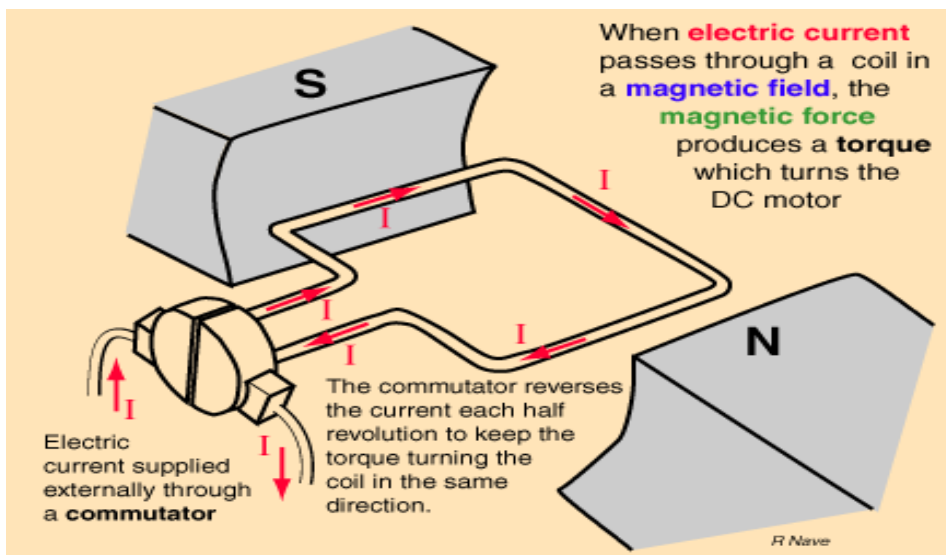


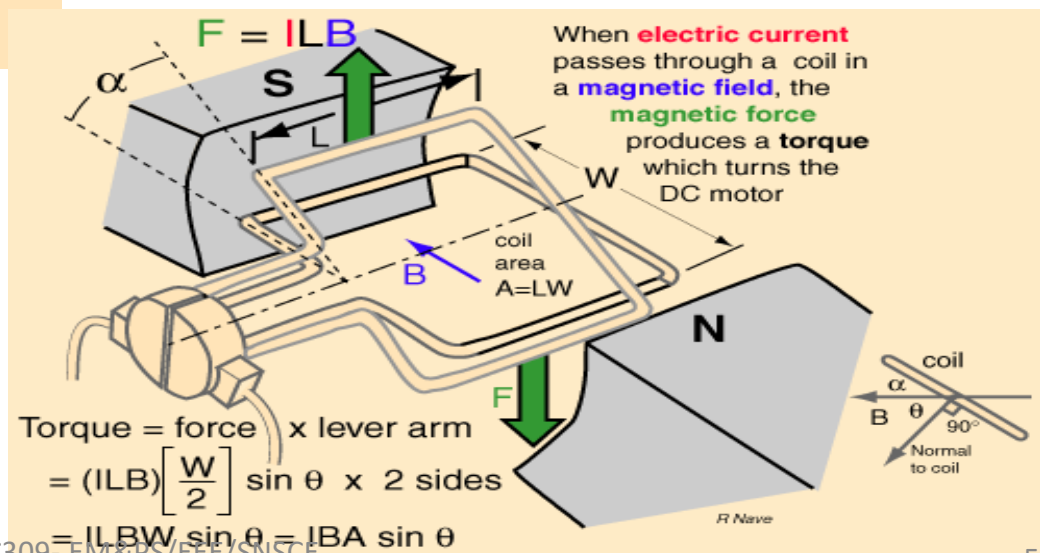
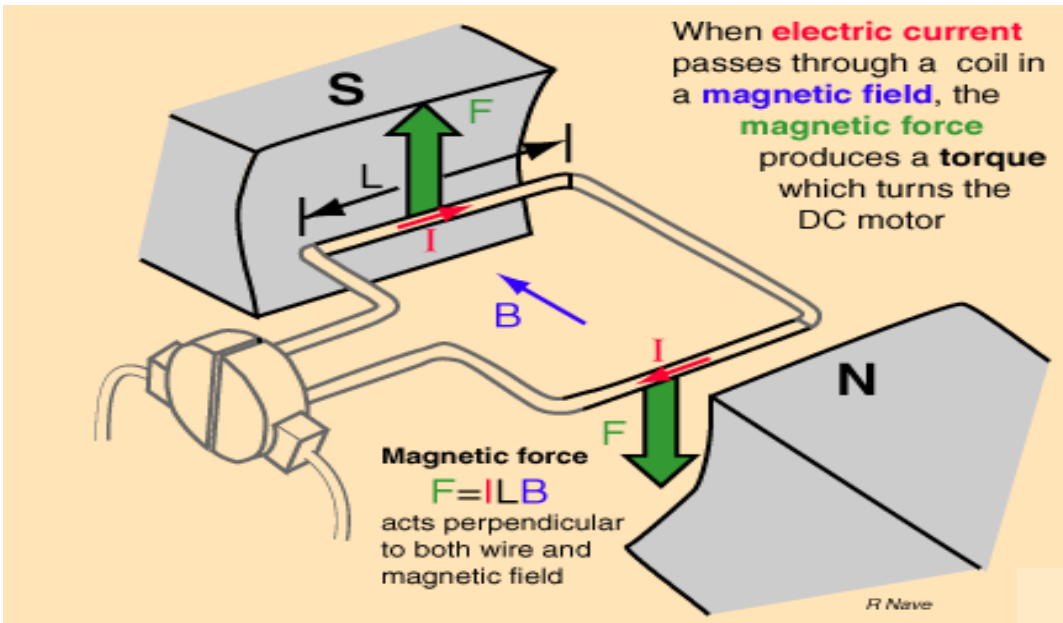
DC motors

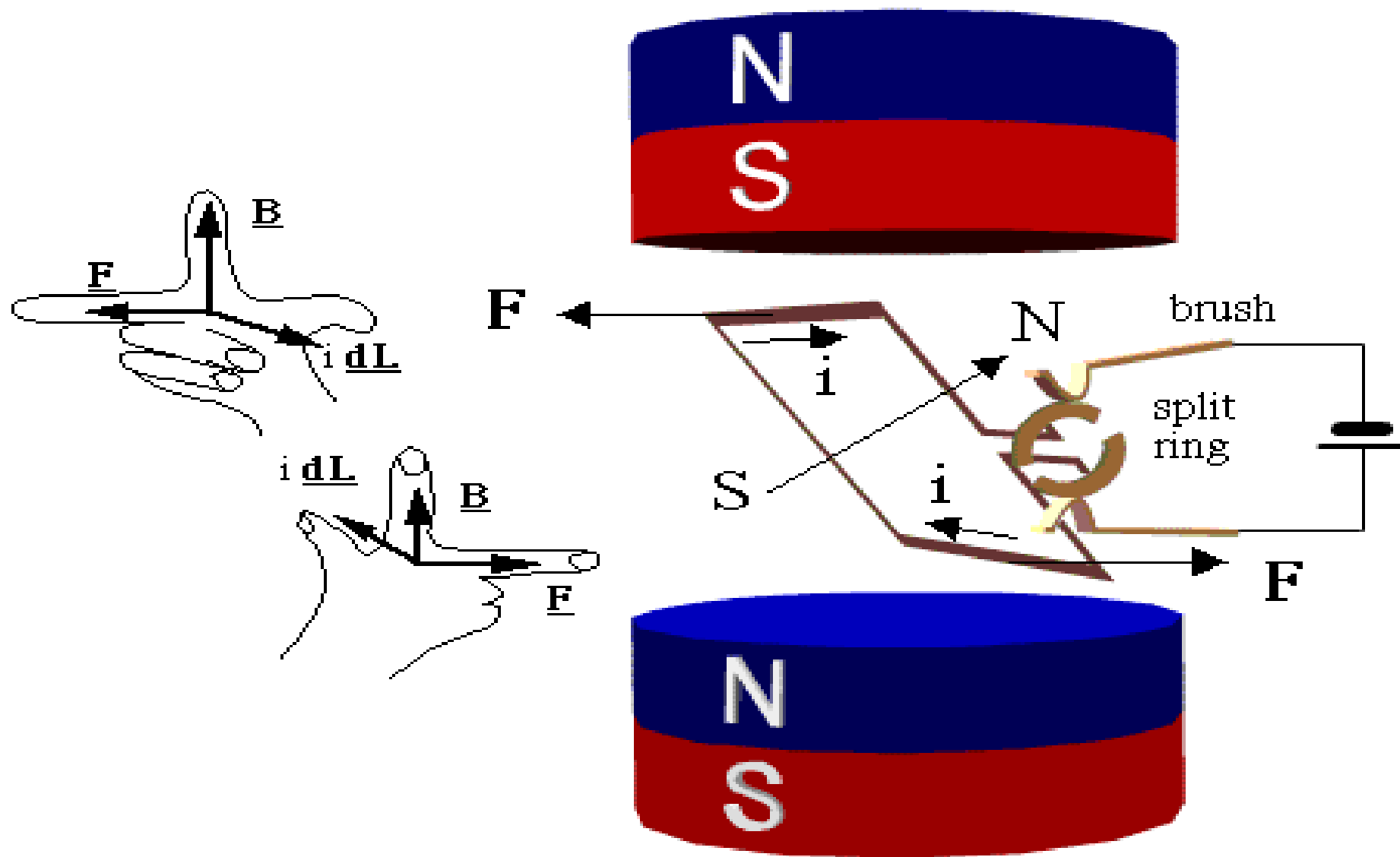
- **The direct current (dc) machine can be used as a motor or as a generator.**
- **DC Machine is most often used for a motor.**
- Converts electrical energy into mechanical energy
- When a current carrying conductor is placed in a magnetic field, the conductor experiences a force

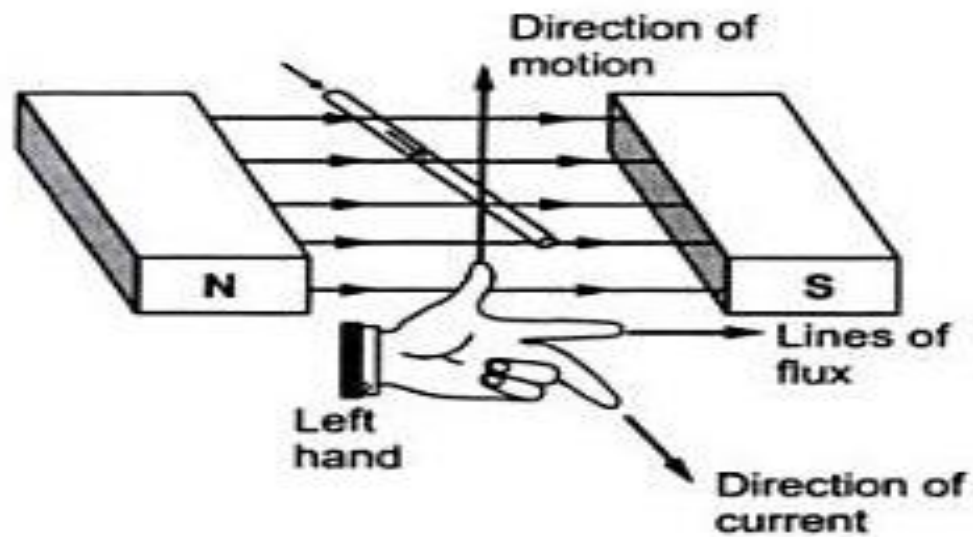
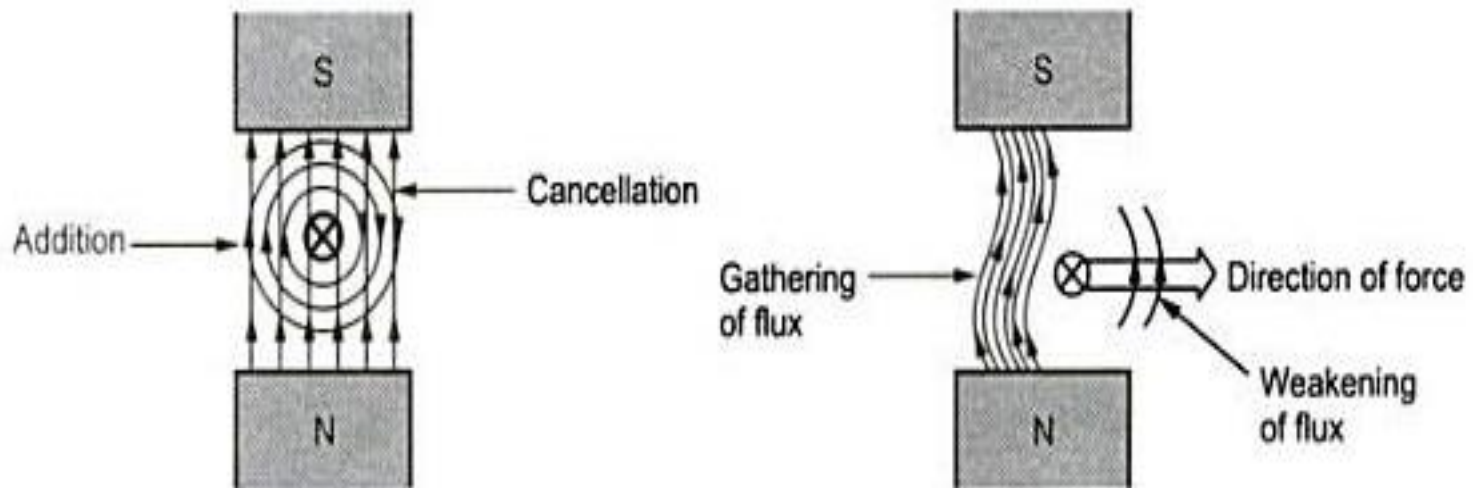


Working Principle





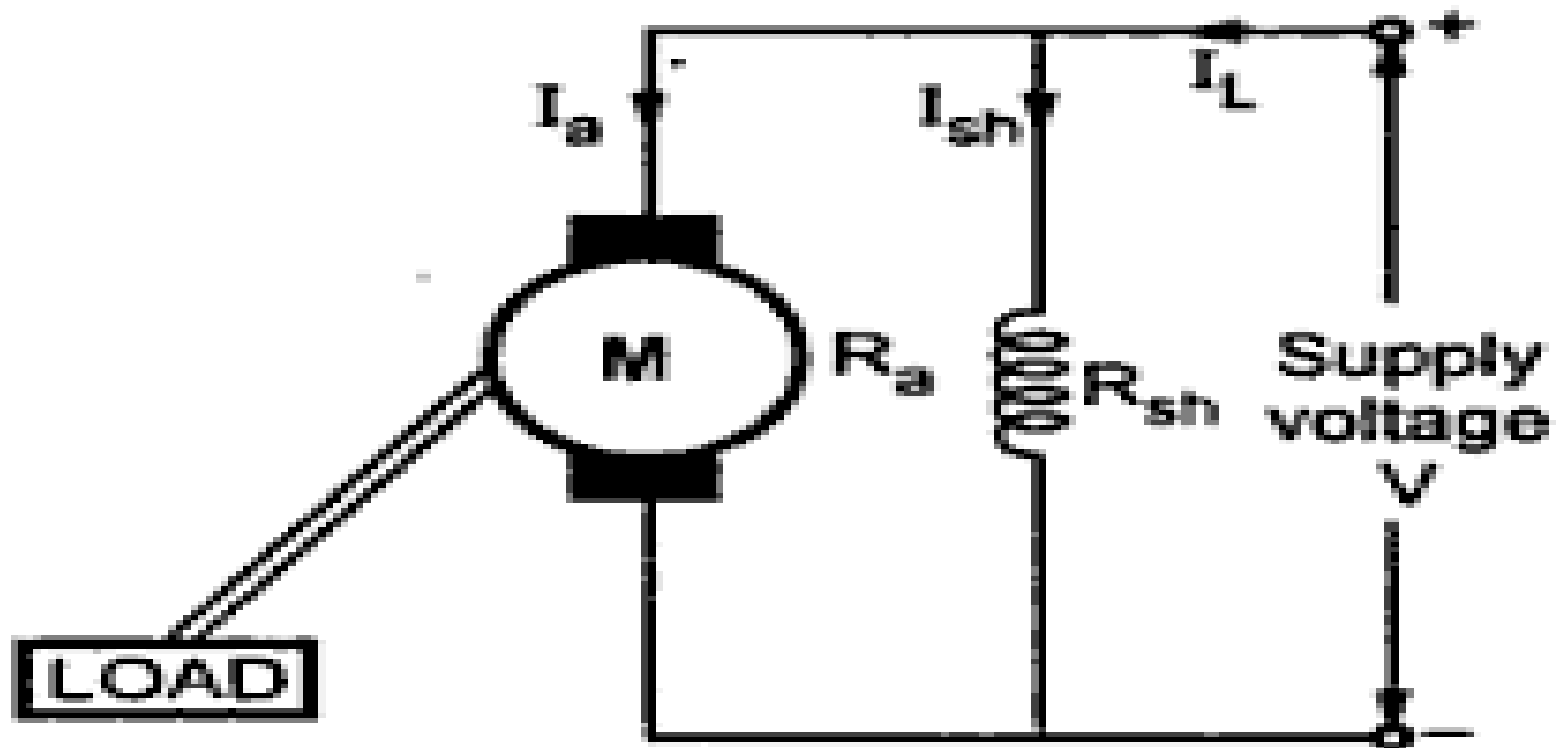






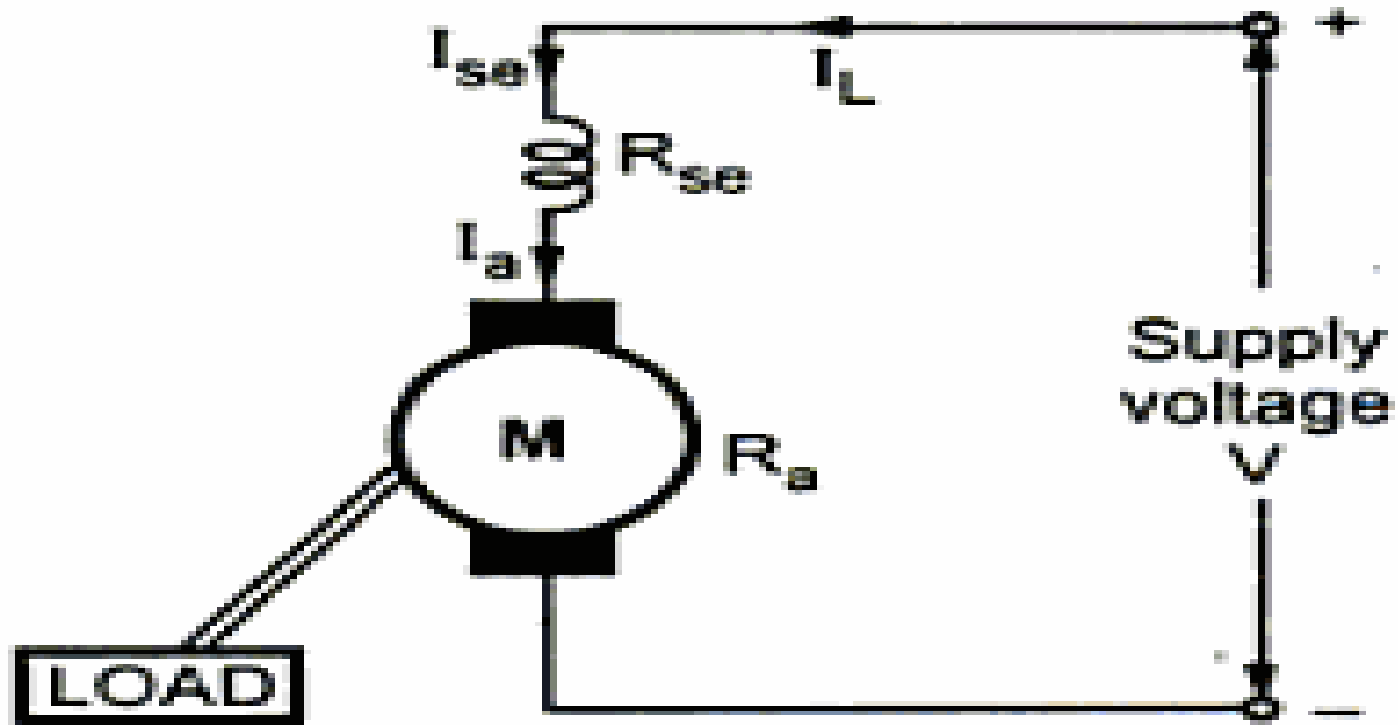
Types of DC motors

DC shunt motor



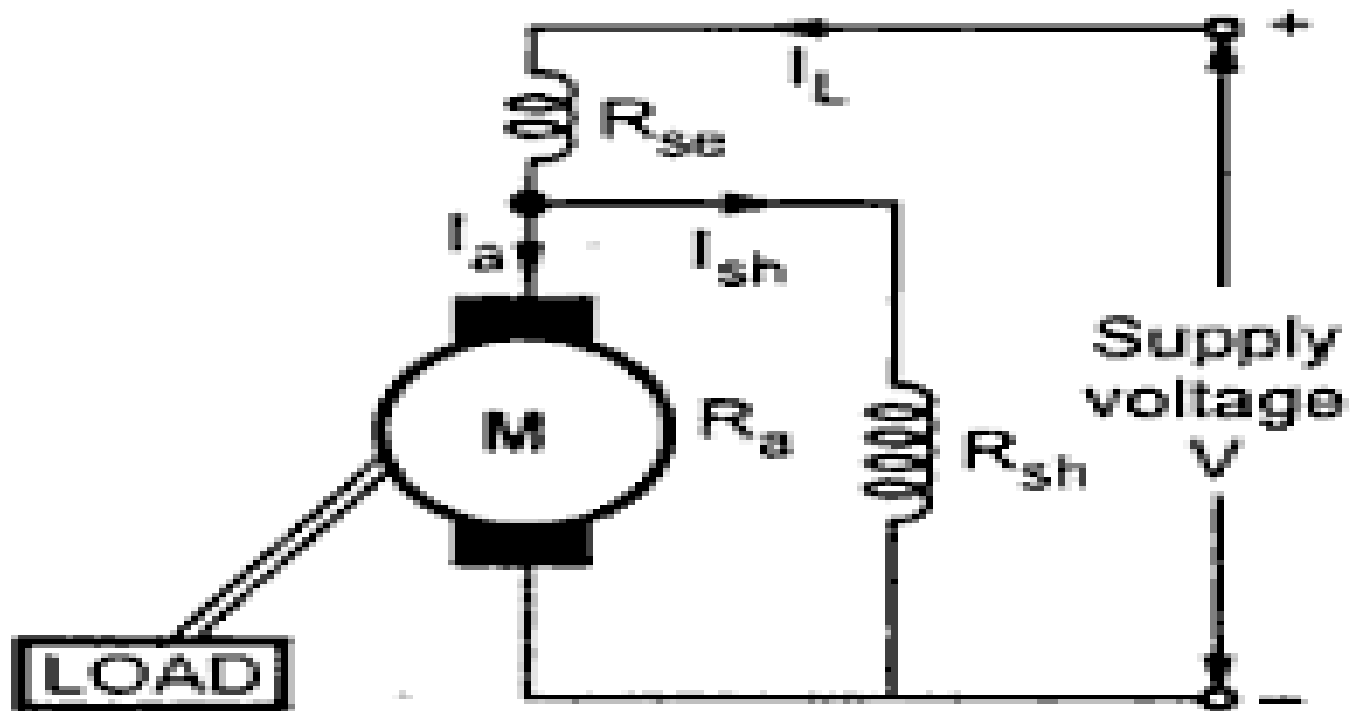


DC series motor





Short shunt compound motor





Types of Electric Motors

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AC Motors



Induction Motor



Synchronous Motor



Commutator Motor



Wound Rotor Motor



Squirrel Cage Motor



DC Motor



Shunt Motor



Series Motor



PMDC Motor



Compound Motor



Separately Excited Motor



Special Motors



Stepper Motor



Brushless Motor



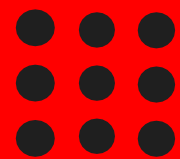
Servo Motor



Universal Motor



Reluctance Motor





ASSESSMENT

1. The motor which has no-load speed highest?

- (a) Shunt motor
- (b) Series motor
- (c) Cumulative compound motor
- (d) Differentiate compound motor

2. For the conveyor, which dc motor is best suitable?

- (a) Series motor
- (b) Shunt motor
- (c) Differentially compound motor
- (d) Cumulative compound motor



APPLICATIONS

Application of DC series motor

- Its used where high starting torque required.
- These motors are only used where the variation of speed is possible.
- series motors are not suitable for constant speed applications.
- DC series motor is used in a vacuum cleaner, traction systems, sewing machines, cranes, air compressors etc.

Application of DC shunt motor

- DC shunt motors are used where constant speed is needed.
- Used in Lathe Machines, Centrifugal Pumps, Fans, Blowers, Conveyors, Lifts, Weaving Machine, Spinning machines, etc.

Application of DC Compound motor

- We get high starting torque and nearly constant speed.
- Used in Presses, Shears, Conveyors, Elevators, Rolling Mills, Heavy Planners, etc.



REFERENCES

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THANK YOU