



# 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?

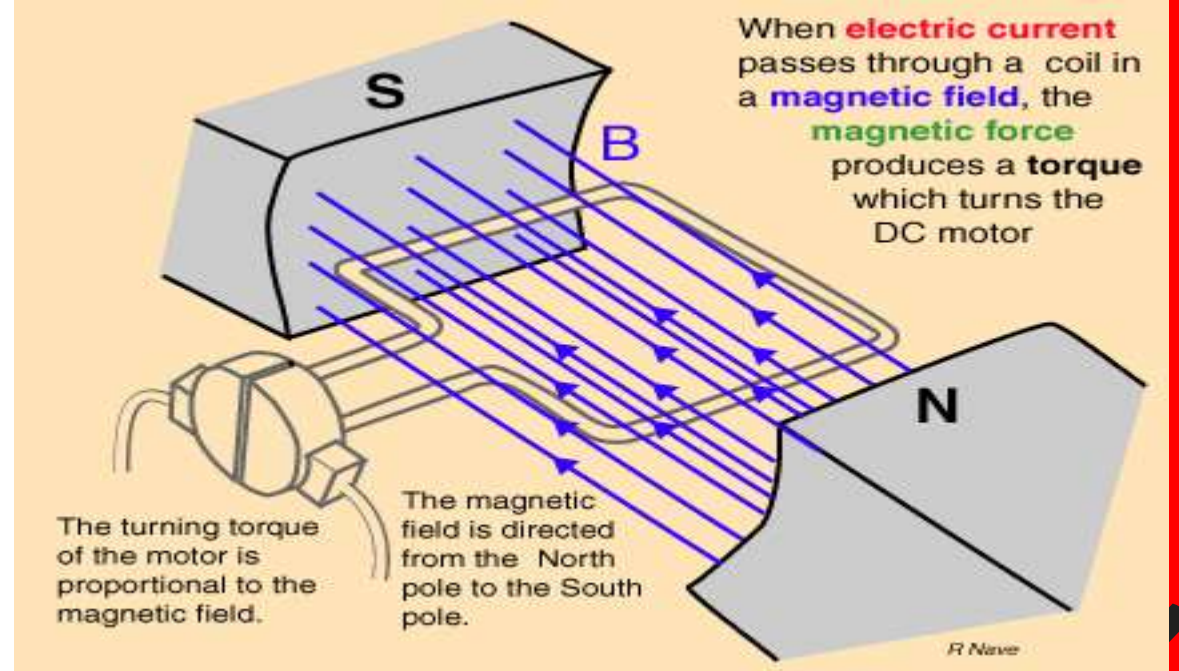
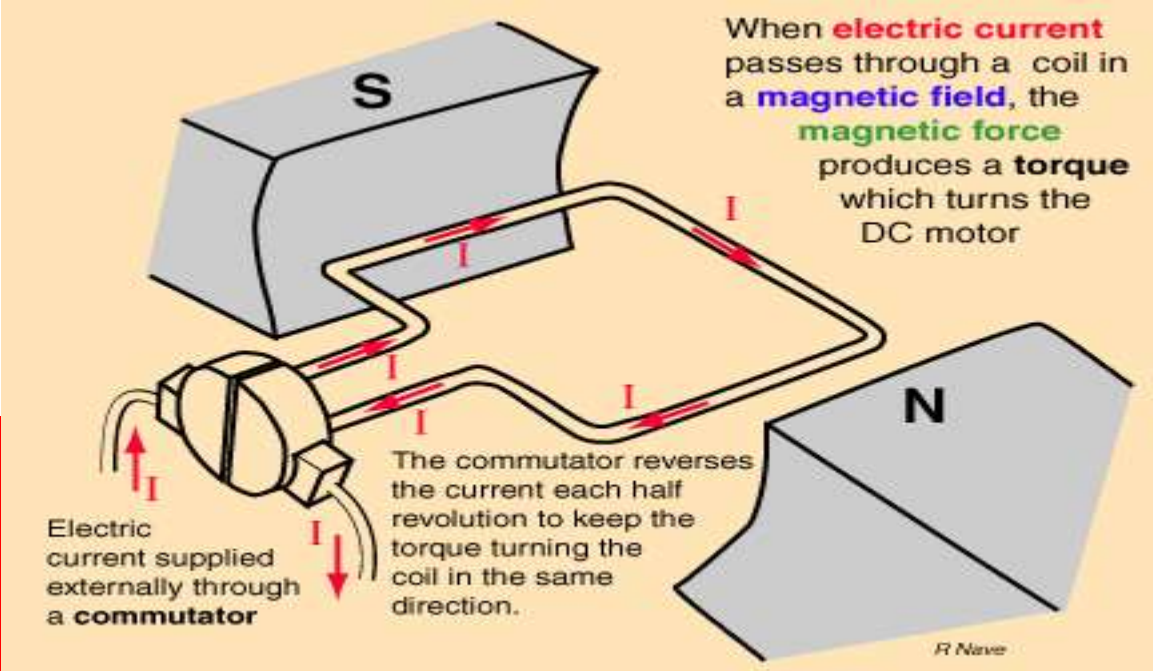
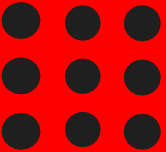
- What is This?
- Where we are using?
- For What we have to use?

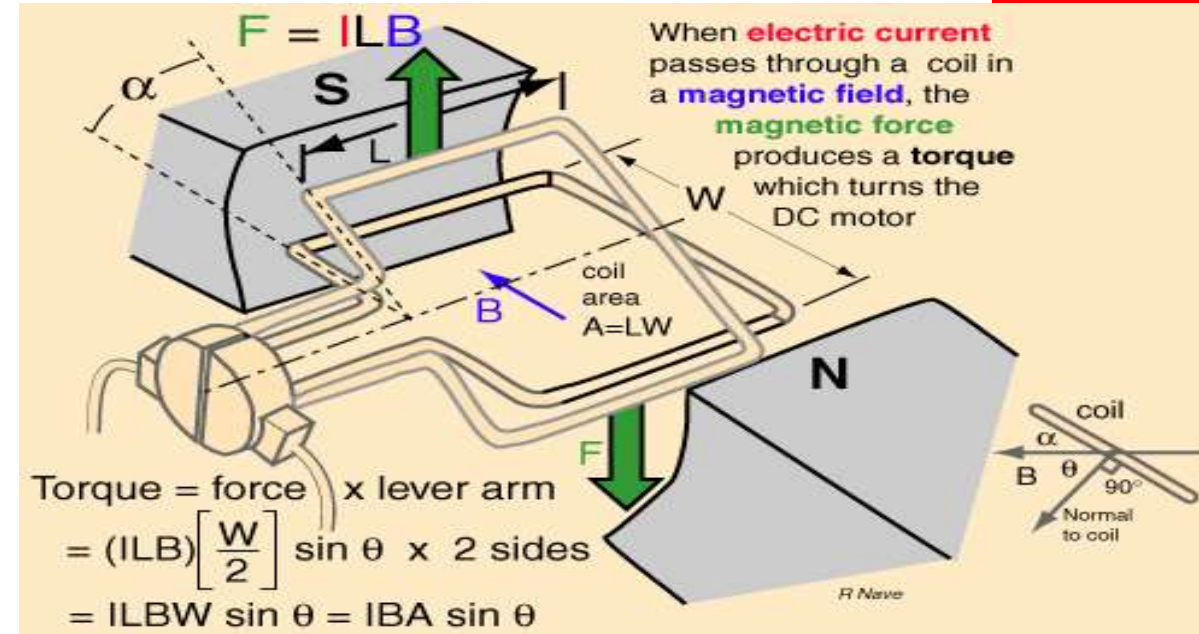
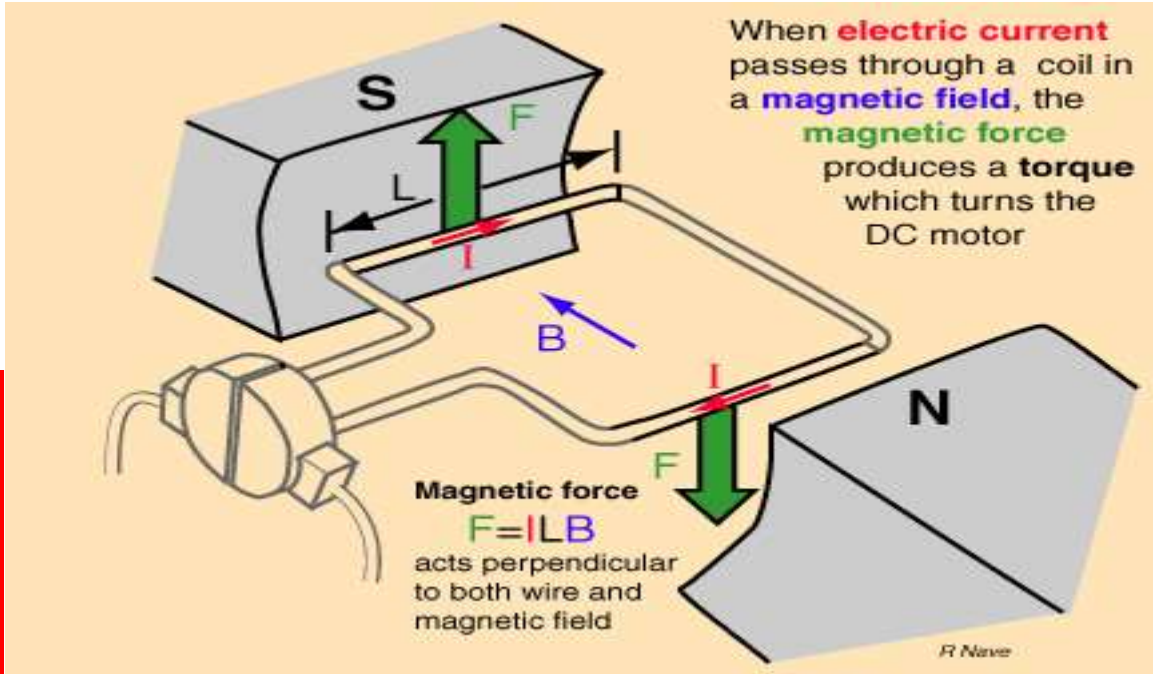
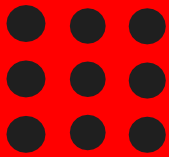


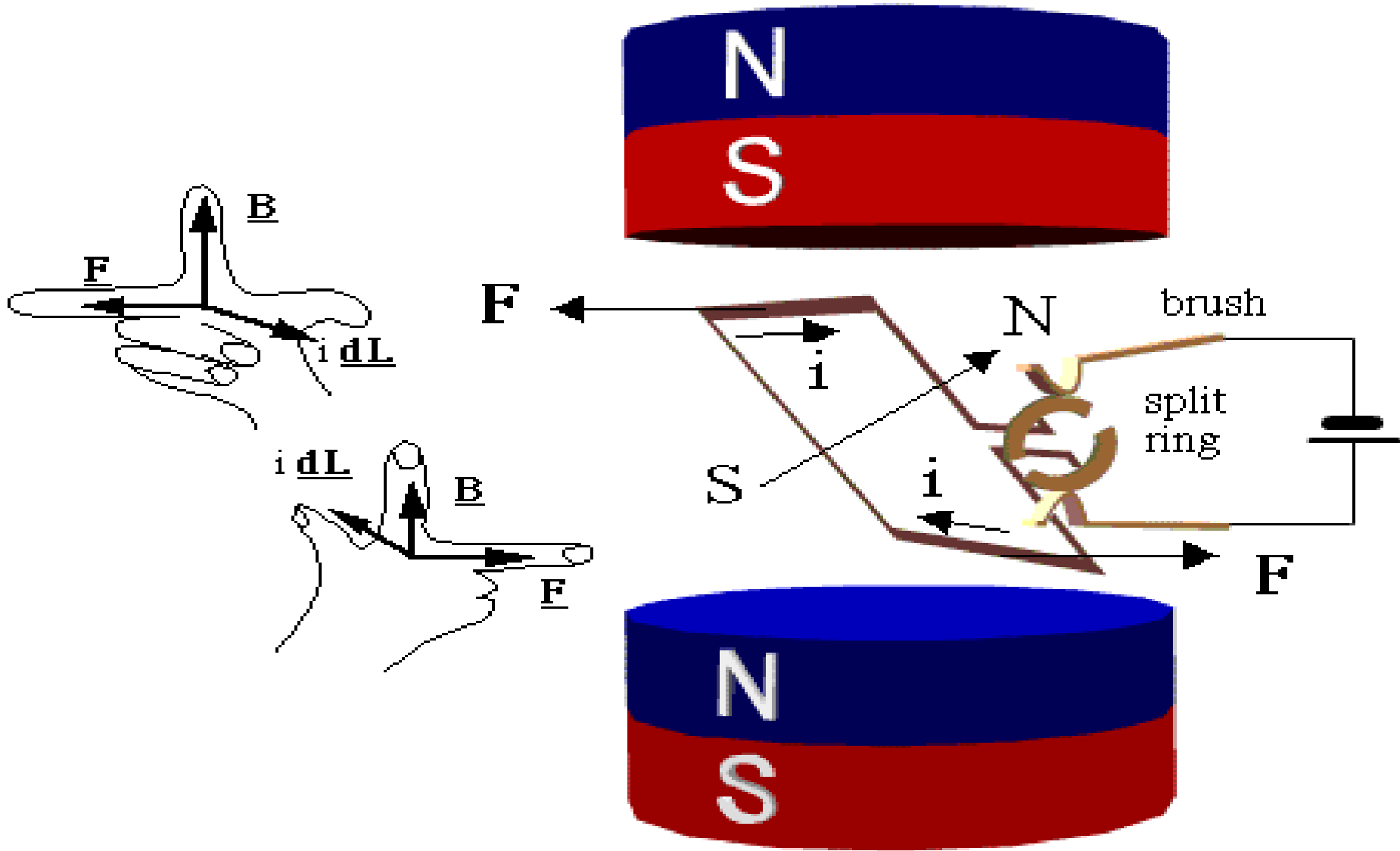


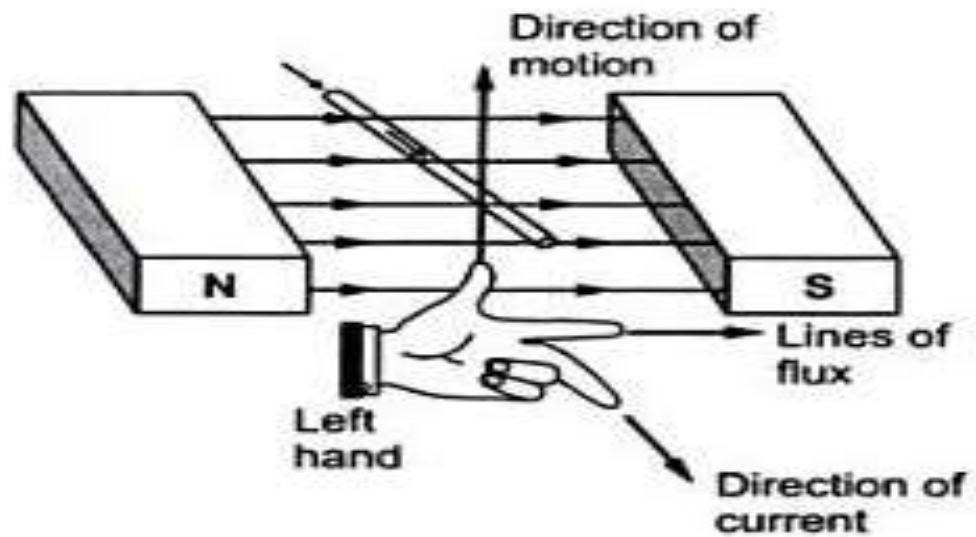
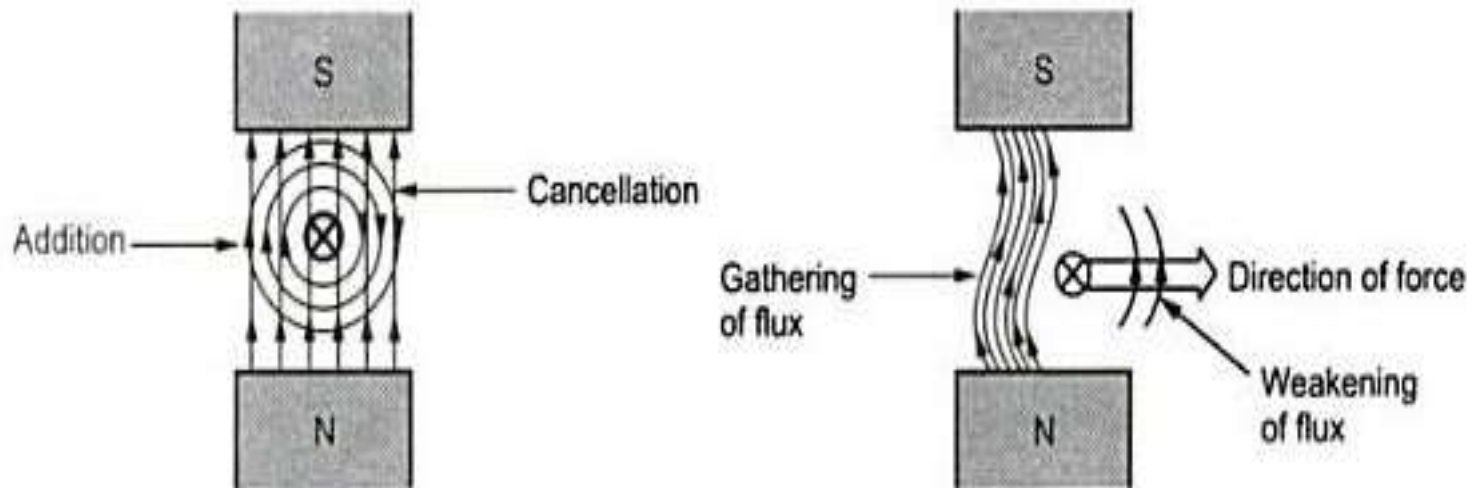
# DC motors

- **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





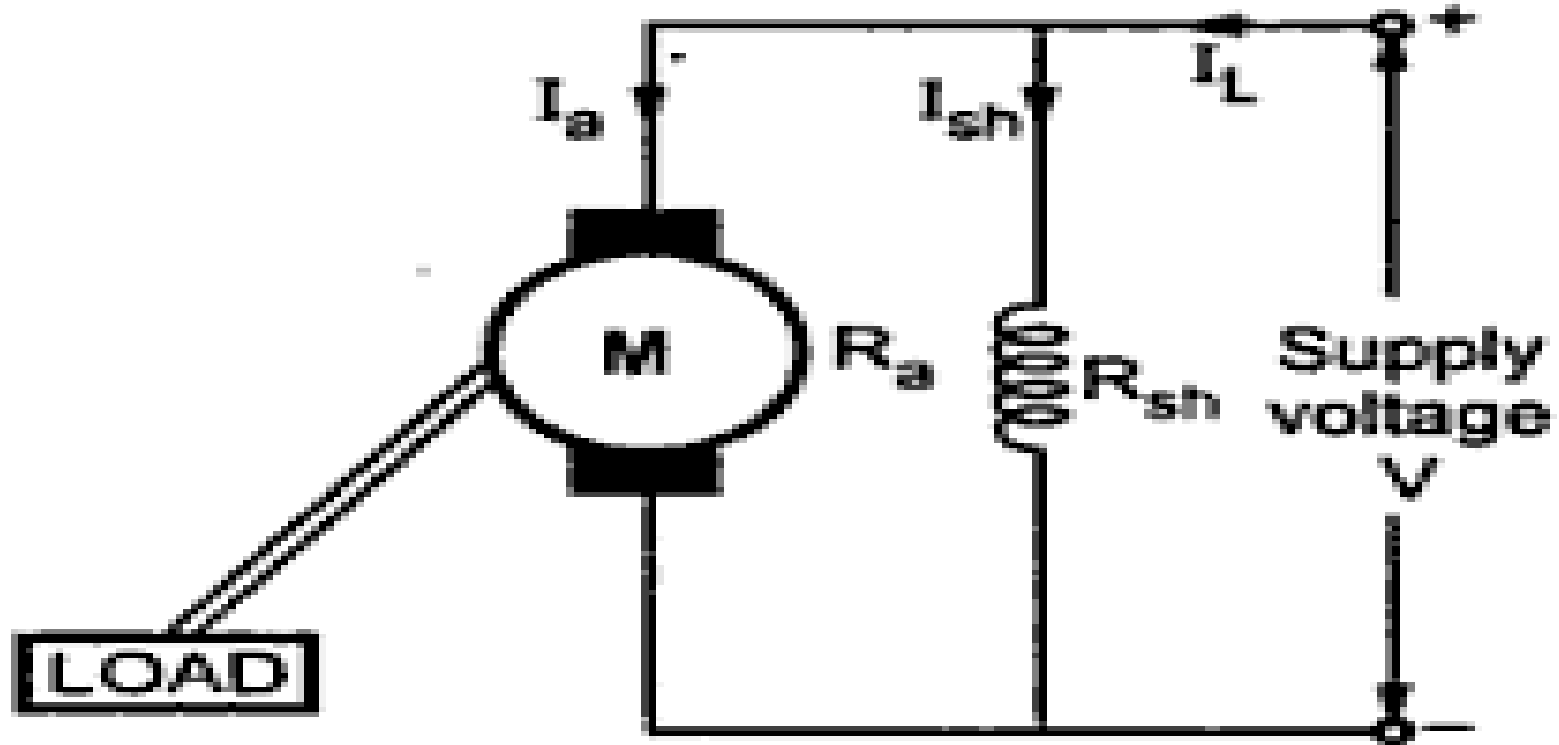






# Types of DC motors

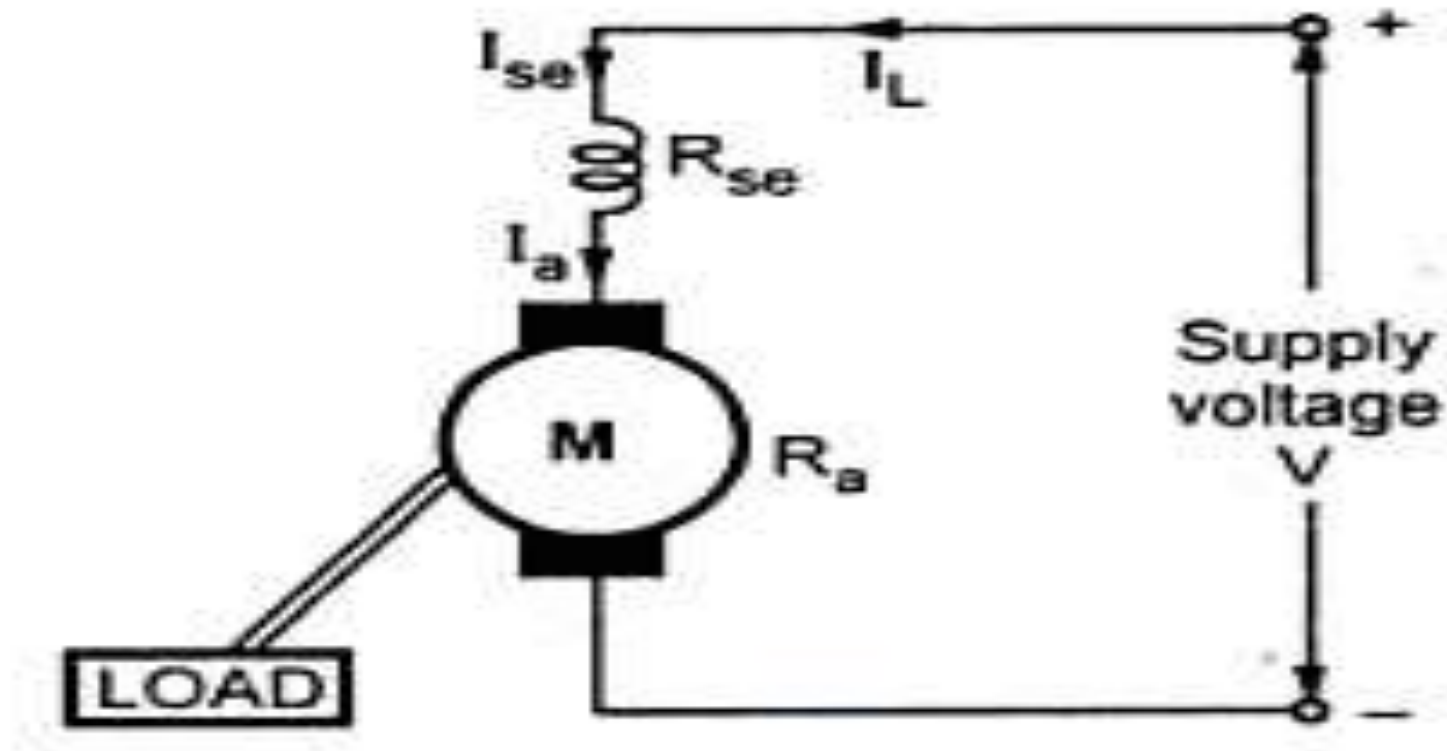
## DC shunt motor





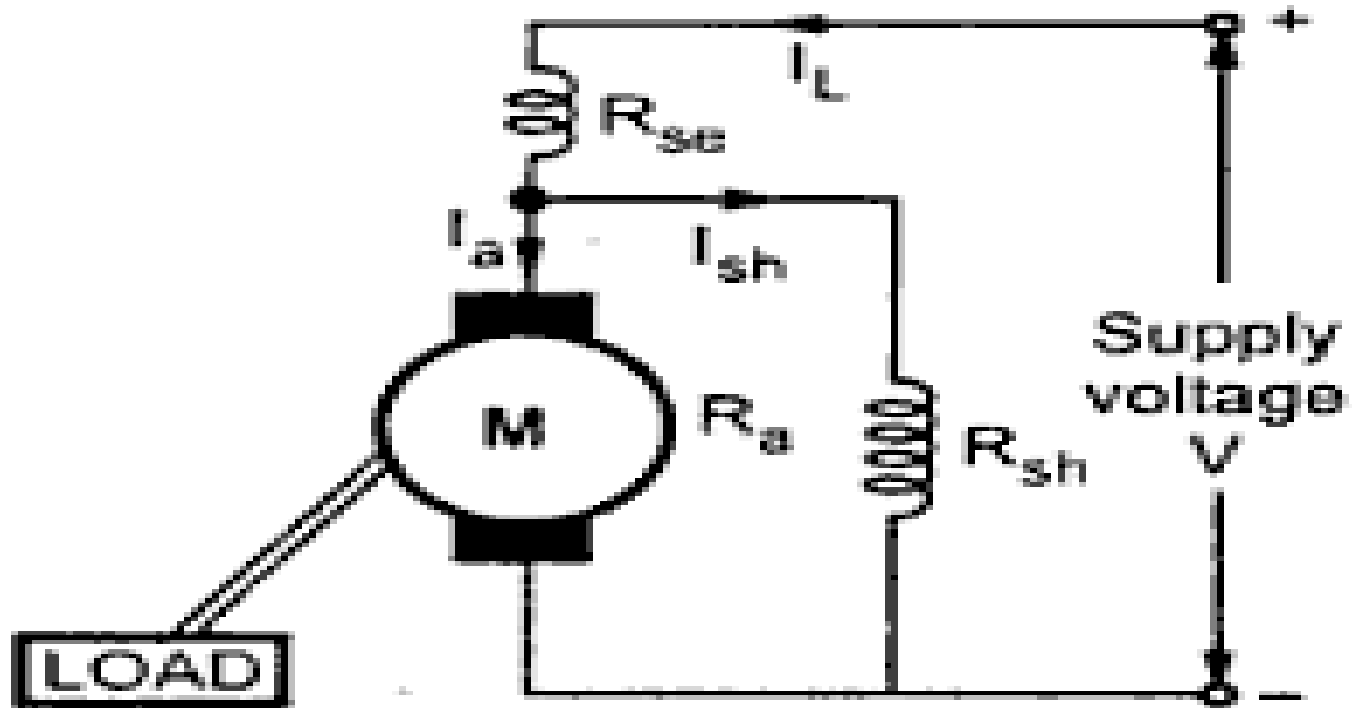


# DC series motor





# Short shunt compound motor





# Types of Electric Motors

WWW.ELECTRICALTECHNOLOGY.ORG



**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**



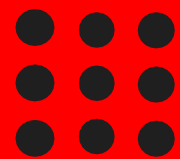
**Servo Motor**



**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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2. Gupta J.B,“ Theory and Performance of Electrical Machines”, S.K.Kataria and Sons, (2002)
3. Kothari D.P and Nagrath I.J“ Electric Machines”, Tata McGraw Hill Publishers, (2002)
4. Bhimbhra P.S., “Electrical Machinery”, Khanna Publishers, (2003)

**THANK YOU**