



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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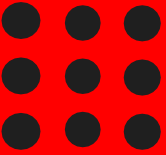
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME : 19EC309 ELECTRICAL MACHINES AND POWER SYSTEMS

II YEAR / 03 SEMESTER MECH & MCT

Unit 1 – DC Machines

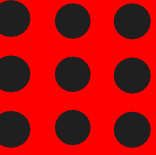
Construction and Operation of DC Motor





Can You Guess?

- Which gear we are chosen while starting the vehicle?
- Which gear we are chosen while travelling in the hills?
- Which gear we are chosen while travelling in linear NH?
- What's your speed to travel of 100m with No-load, 5Kg, 10kg & 50kg etc?





TYPES OF CHARACTERISTICS

1. Torque and Armature Current Characteristics (T vs I_a)

It is also known as electrical characteristics.

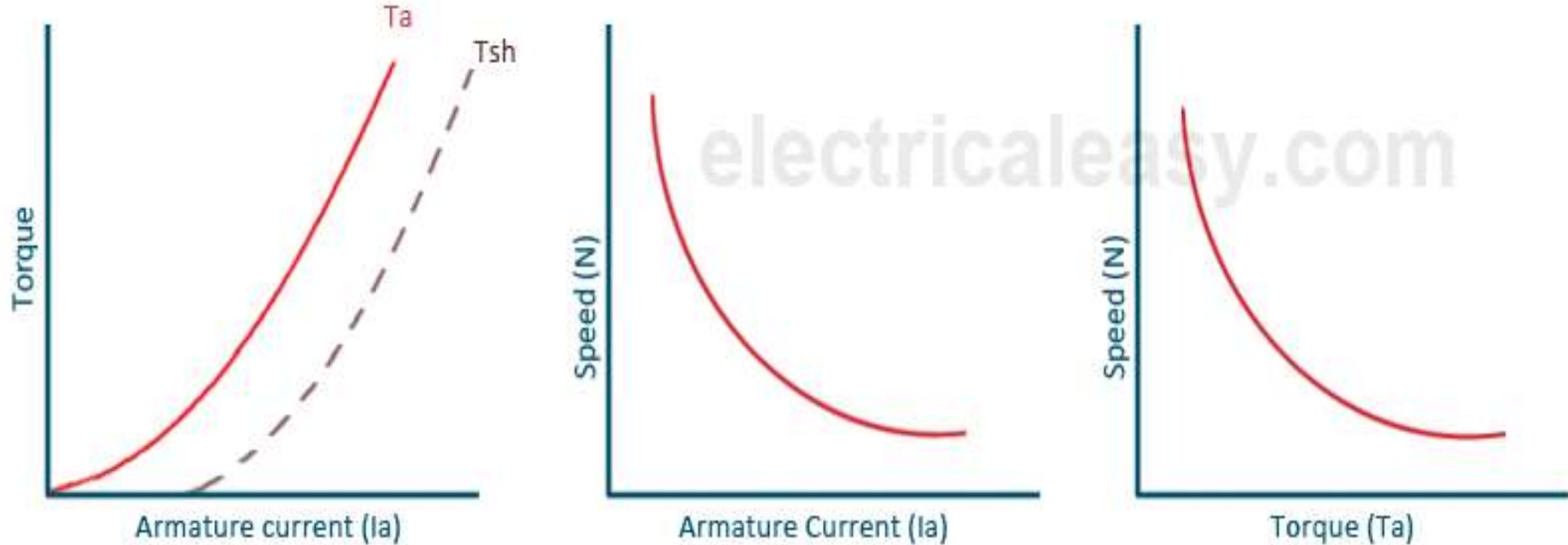
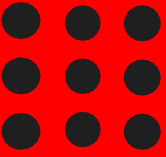
2. Speed and Armature Current Characteristics (N vs I_a)

3. Speed and Torque Characteristics (N vs T)

It is also known as mechanical characteristics.



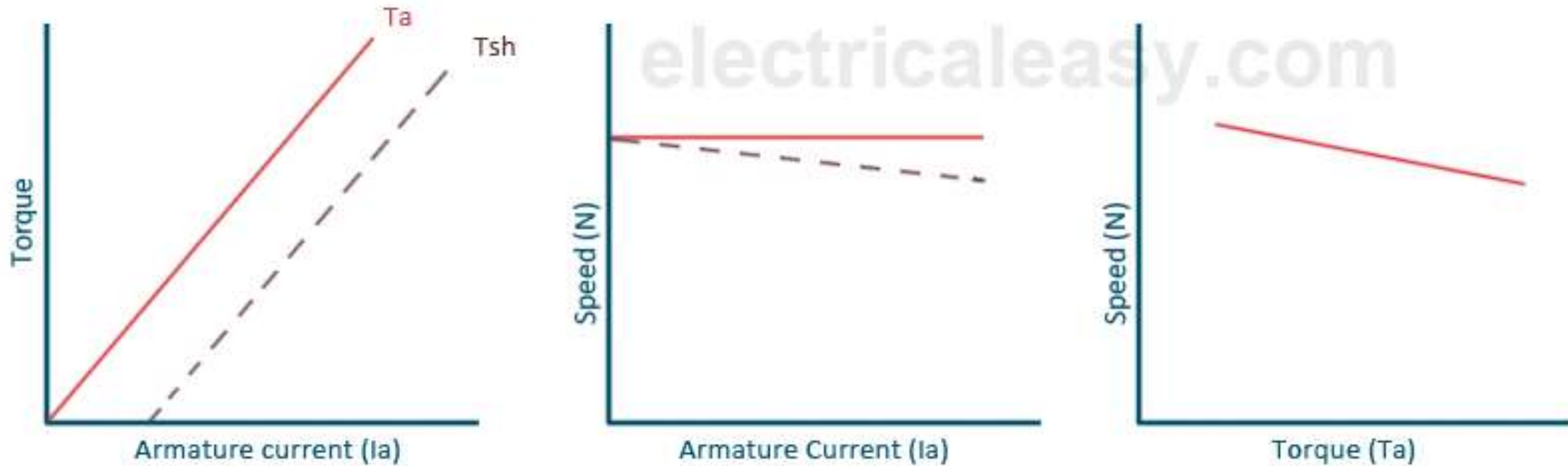
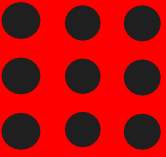
DC Series Motor



Characteristics of DC series motor



DC Shunt Motor



Characteristics of DC shunt motor





ASSESSMENT

1. What is the relationship between the speed (N) and armature current (I_a) in the case of a dc-series motor?

- (a) $N \propto 1/I_a$
- (b) $N \propto \sqrt{I_a}$
- (c) $N \propto I_a^2$
- (d) $N = I_a$

2. A _____ motor runs at the highest speed when the load is removed.

- (a) Cumulatively compound
- (b) Series
- (c) Shunt
- (d) Differentially compound



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