

Introduction – The propulsion of a vehicle is called traction and the system of traction using electricity is called electric traction system. Traction systems can be broadly classified as those which do not involve use of electrical energy at any stage, such as steam engine drive and internal combustion drive and those traction systems which involve use of electrical energy at some stage or the other such as diesel electric drive, battery electric drive and straight electric drive. Each system of traction has its own merits and demerits. No single system fulfills the requirement of an ideal traction system which is given as follows:

- a) High starting tractive effort in order to have rapid acceleration.
- b) The locomotive or train should be a self contained and compact unit so that it maybe able to run on any route.
- c) The track wear should be minimum.
- d) The equipment should be capable of withstanding large temporary overloads.
- e) The equipment required should be minimum, have high efficiency, low initial and maintenance cost.
- f) There should be no interference with the communication lines running alongside the track.
- g) It should have easy speed control.
- h) It should be pollution free.

Systems of Traction – The following are the various systems of traction:

- 1) Steam engine drive
- 2) Direct internal combustion engine drive
- 3) Steam electric drive
- 4) Diesel electric drive
- 5) Battery electric drive
- 6) Direct electric drive