

System of Forces

“When two or more forces act on a body, they are said to form a system of forces or force system.”

1. Coplanar Force System

“If the lines of action of all the forces lie on the same plane, the system is called coplanar force system.”

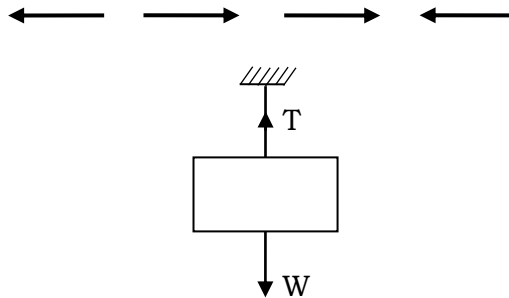
Example: Forces shown on black board.

Classification of Co-planer Force System

1. Collinear Force System
2. Concurrent Force System
3. Non-Concurrent Force System
4. Parallel Force System
 - a. Like Parallel
 - b. Unlike Parallel

1. Collinear Force System

“The forces acting along the same line of action are known as collinear forces.”

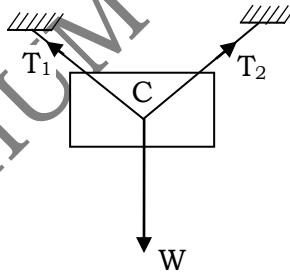


Collinear Force System

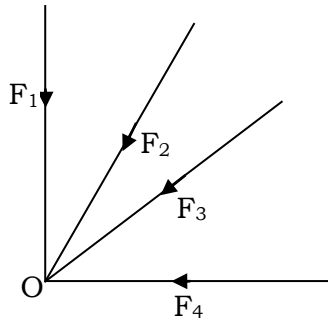
2. Concurrent Force System

“The forces which meet at a point are called as concurrent forces.”

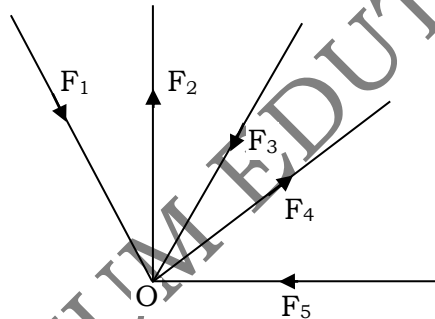
i. Pull Type Concurrent Forces



Pull Type Concurrent Forces



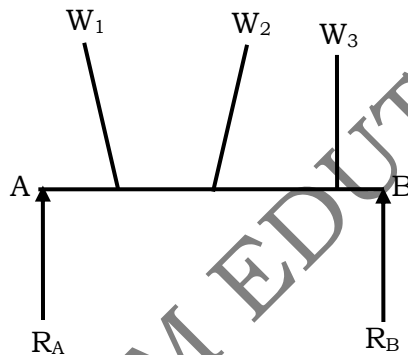
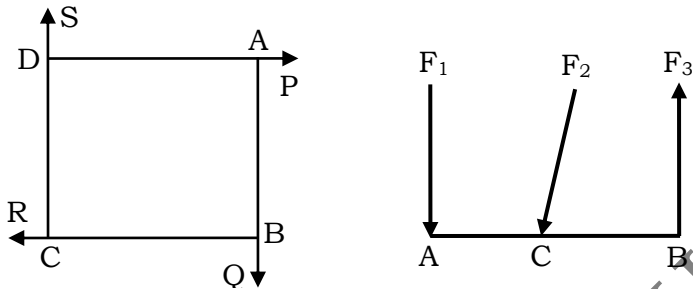
Push type concurrent forces



Combination of Pull and Push

3. Non-Concurrent Force System

“The forces which acts at different points are known as non-concurrent force system.”

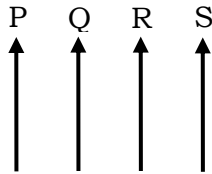


4. Parallel Force System

“The forces whose lines of action are parallel to each other are called as parallel forces.”

a. Like Parallel

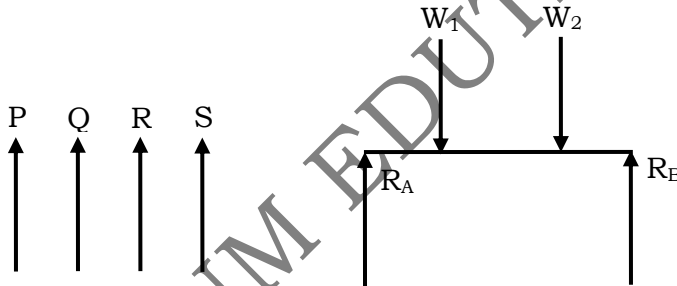
“Parallel forces acting in the same direction are called as like parallel forces.”



Like Parallel Forces

b. Unlike Parallel

“Parallel forces acting in the opposite directions are called as unlike parallel forces.”



Unlike Parallel Forces Unlike Parallel Forces

2. Non-Coplaner Force system

“If the lines of action of all the forces lie on the different planes, the system is called non concurrent force system.”

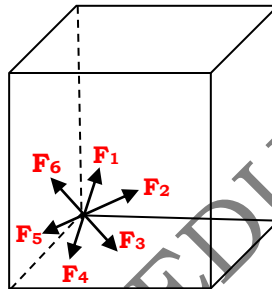
Classification of Non-Coplaner Force System

- 1. Concurrent Force System
- 2. Parallel Force System

3. Non-Concurrent Force System Or Non Parallel Or General Force System

1. Non-Coplaner Concurrent Force System

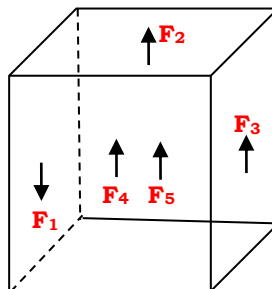
“These forces exist in different planes but possesses common point.”



Non co-planer concurrent force system

2. Non Co-planer Parallel Force System

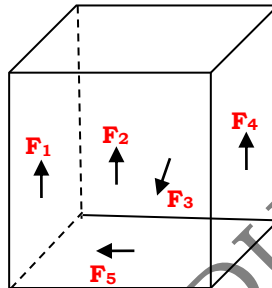
“These forces exist in different planes but are parallel to each other.”



Non-Co-planer Parallel Force System

3. Non Co-planer non concurrent forces

“These forces act in different plane and they do not possess one single point of concurrency.”



Non Co-planer non concurrent forces

PREMIUM EDUTECH