

Equilibrium of Rigid Bodies

Support Reactions

Beam:

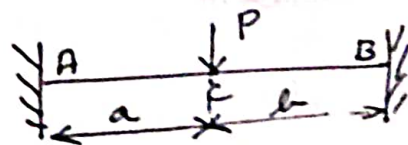
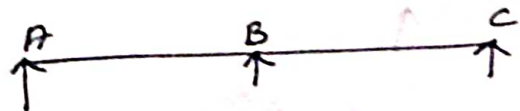
A Beam is a horizontal structural member which carries a load, transverse (perpendicular) to its axis and transfers the load through supporting columns or walls.

Frame:

A structure made up of several members, riveted or welded together is known as frame.

Types of beams

- (i) Simply supported beam
- (ii) Overhanging beam
- (iii) Cantilever beam
- (iv) Continuous beam
- (v) Fixed beam.

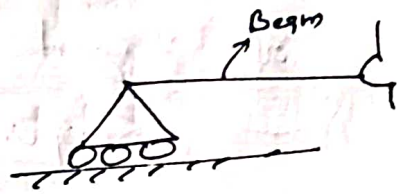
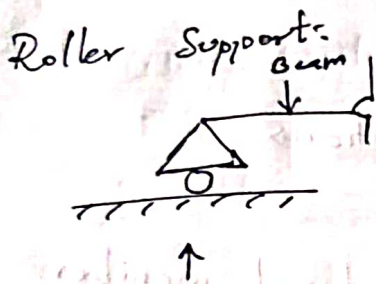


Support Reactions of Beam:

The members that takes the loads/moments are called as supports.

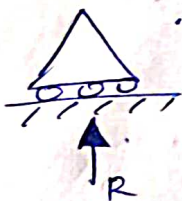
Types of supports

- 1) Roller Support
- 2) Hinged Support
- 3) Fixed Support



Roller support inclined to horizontal.

(a)



(a)

Support parallel to horizontal (or)
 $\theta = 0^\circ$



(b)

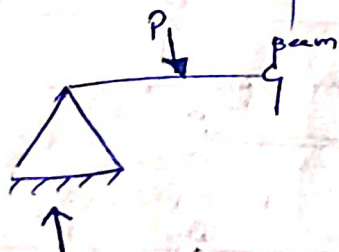
Support perpendicular to horizontal (or)
 $\theta = 90^\circ$



(c)

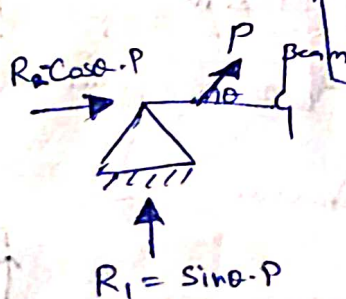
Support reaction at angle θ to the horizontal.
 $\alpha = 90 - \theta$

Hinged Support.



Vertical load.

(b)



Inclined Load.

(c)