Conditions of equilibrium of a floating and submerged bodies:

The stability of a body depends on relative position of centre of buoyancy (B) and centre of gravity(G).

Stability of a sub-merged body:

Stability of submerged body is determined from relative position of Centre of gravity and centre of buoyancy. The position of centre of gravty and centre of buoyancy in case od sub-merged body are fixed.

* Stable equilibrium-

A body is said to be in stable equilibrium when Fb = W and B is above G. Weight W acts in downward direction while buoyant force act in upward direction. When body is given small displacement in clockwise direction the couple generated due weight and centre of buoyancy tries to rotated the body in anti-clockwise direction and hence body remains stable.

* Unstable equilibrium-

A body is said to be in unstable equilibrium if Fb =W and G is above B. When body is in unstable equilibrium it does not regain its initial position under small displacement. If body is given small displacement in clockwise direction the couple generated due to weight and centre of buoyancy also tried to rotate the body in same direction which leads to unstable equilibrium.

* Neutral equilibrium-

In case of neutral equilibrium B and G coincides with each other and Fb =W. So bothe forces acting at same point in opposite direction nullifies each other’s effect.