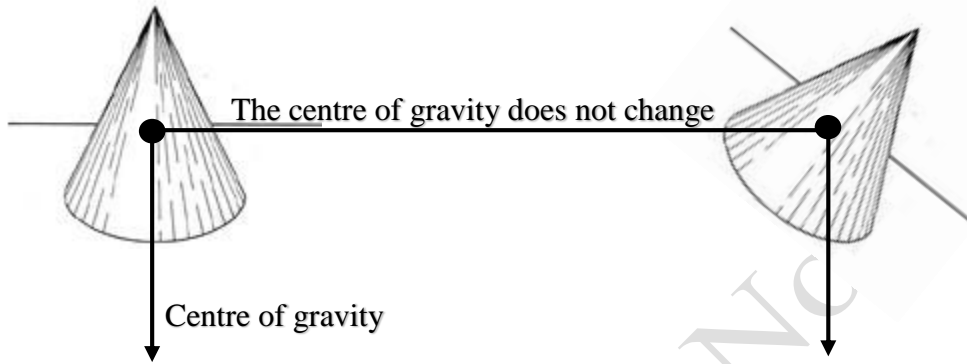


**PHYSICS
EQUILIBRIUM
FORM 5**

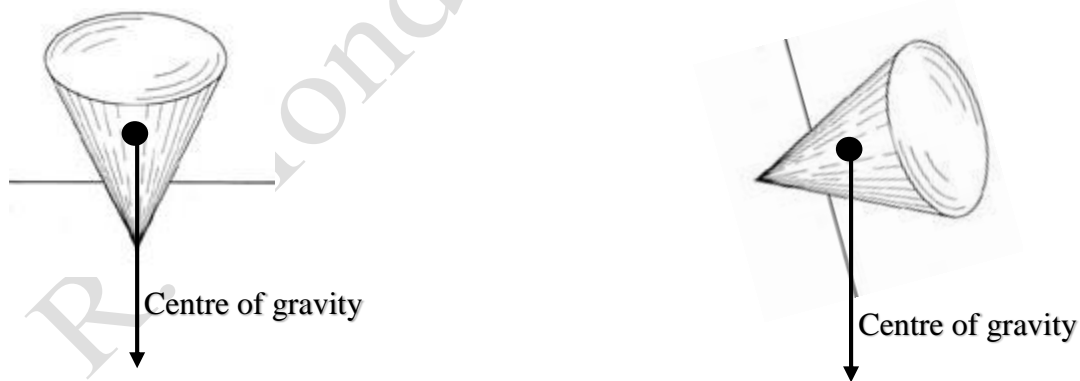
Stable Equilibrium

This is the state of an object where the centre of gravity lies vertically over the base. If the object is tilted the centre of gravity will still lie over the base. When released, the tilted cone returns to its original position.



Unstable Equilibrium

This is the state of an object such that when the object is tilted the centre of gravity falls outside of its base. The object therefore falls and adopts a new position.



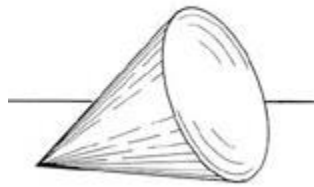
PHYSICS
EQUILIBRIUM
FORM 5

In stable equilibrium when an object was tilted the centre of gravity was made higher. In unstable equilibrium when the object was tilted, the centre of gravity was made lower. The object took the position that had the lower centre of gravity.

In both observations indicate the lower the centre of gravity, the more stable is the object.

Neutral Equilibrium

An object is said to be in neutral equilibrium when the position of its centre of gravity cannot be lowered to achieve greater stability. Ex. A cone on its side is rolled.

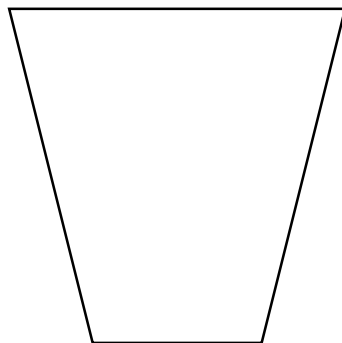


Factors to Increase The Stability Of An Object

1. A wide base : This ensures that if the object is tilted, the centre of gravity will lie over the base.
2. Lower the centre of gravity : This ensures that if tilted, the centre of gravity will be raised and the object will try to maintain the original position.

**PHYSICS
EQUILIBRIUM
FORM 5**

Practical Example:



The Vase

Most vases have narrow bases and usually very tall. They have a high centre of gravity. A vase is designed to fall. Since if tilted, the centre of gravity readily falls outside of the base.

To increase the stability of the vase, the following it done:

1. Lower the centre of gravity by making the vase bottom heavy, filling the vase with water, sand, stone or marbles.
2. Widening the base.