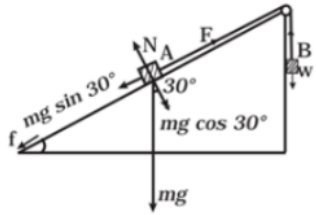


QUES 06

Block A of weight 100 N rests on a frictionless inclined plane of slope angle 30° (Fig.). A flexible cord attached to A passes over a frictionless pulley and is connected to block B of weight W. Find the weight W for which the system is in equilibrium.



Sol. In equilibrium there is no motion of blocks i.e, the forces should balance out.

For block B, the equation is:

$$F = Mg \dots(i)$$

For block A the equation is:

$$F - mg \sin 30 = 0 \dots(ii)$$

Substituting the value of F from

$$Mg = mg \sin 30$$

$$\Rightarrow Mg = 100 \times 0.5 = 50 \text{ N}$$

So the weight of the block should be 50 N
