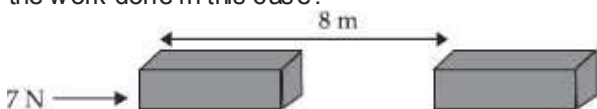


Q 1.

A force of 7 N acts on an object. The displacement is, say 8 m, in the direction of the force as shown in figure. Let us take it that the force acts on the object through the displacement. What is the work done in this case?

**SOLUTION:**

Force, $F = 7 \text{ N}$

Displacement, $s = 8 \text{ m}$

Then, Work done = $7 \text{ N} \times 8 \text{ m}$
 $= 56 \text{ N m} = 56 \text{ J}$

Q 2.

When do we say that work is done?

SOLUTION:

Work is done by a force on an object if a force acts on the object and the object is displaced from its original position.

Q 3.

Write an expression for the work done when a force is acting on an object in the direction of its displacement.

SOLUTION:

If F is the constant force acting in the direction of displacement s , then work done by the force, i.e., $W = F \times s = Fs$.

Q 4.

Define 1 J of work.

SOLUTION:

The amount of work done when a force of 1 N moves a body through a distance of 1 m in the direction of the force is called 1 joule.

Q 5.

A pair of bullocks exerts a force of 140 N on a plough. The field being ploughed is 15 m long. How much work is done in ploughing the length of the field?

SOLUTION:

Here, $F = 140 \text{ N}$, $s = 15 \text{ m}$.

Work done in ploughing the field,

$$W = F \times s = (140 \text{ N}) \times (15 \text{ m}) = 2100 \text{ J}$$

Q 6.

What is the kinetic energy of an object?

SOLUTION:

Kinetic energy of an object is the energy possessed by it due to its motion. In fact, kinetic energy of an object moving with a certain velocity is equal to the work done to make it acquire that velocity.