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Tamanna Chaudhary
(Physics Expert)

Tamanna Chaudhary

Expert in NEET UG

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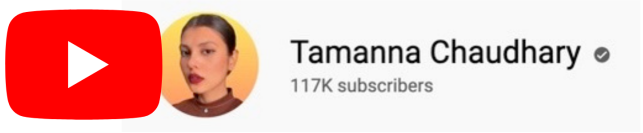

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Updated- 11 November'22

Books Covered in this Session-

- HC Verma
- SL Arora
- DC Pandey
- TC Selected

In a certain situation, $\vec{F}$ and $\vec{s}$ are not equal to zero but the work done is zero. From this, we conclude that :

(a) $\vec{F}$ and $\vec{s}$ are in same direction

(b) $\vec{F}$ and $\vec{s}$ are perpendicular to each other

(c) $\vec{F}$ and $\vec{s}$ are in opposite direction

(d) none of the above

A gas expands from 5 litre to 205 litre at a constant pressure 50 N/m^2. The work done is :

(a) 2000 J (b) 1000 J

(c) 10000 J (d) none of these

A block of mass 5 kg slides down a rough inclined surface. The angle of inclination is 45°. The coefficient of sliding friction is 0.20. When the block slides 10 m, the work done on the block by force of friction is :

(a) $50\sqrt{2}$ J (b) $-50\sqrt{2}$ J

(c) 50 J (d) −50 J

A particle moves along the x-axis from $x=0$ to $x=5\,\text{m}$ under the influence of a force given by $F=7-2x+3x^2$. The work done in the process is:

(a) 70 J (b) 270 J

(c) 35 J (d) 135 J

A body of mass 10 kg is moving on an inclined plane of inclination 30° with an acceleration 2 m/s^2. The body starts from rest. The work done by force of gravity in 2 second is :

(a) 10 joule (b) zero

(c) 98 joule (d) 196 joule

A body of mass 1 kg moves from point A (2 m, 3 m, 4 m) to B (3 m, 2 m, 5 m). During motion of body, a force $\vec{F} = (2N)\hat{i} - (4N)\hat{j}$ acts on it. The work done by the force on the particle during displace- ment is :

(a) $2\hat{i} - 4\hat{j}$ joule
(b) 2 joule
(c) – 2 joule
(d) none of these

A bucket tied to a string is lowered at a constant acceleration of $\frac{g}{4}$. If the mass of the bucket is m and is lowered by a distance d, the work done by the string will be :

(a) $\frac{mgd}{4}$

(b) $-\frac{3}{4}mgd$

(c) $-\frac{4}{3}mgd$

(d) $\frac{4}{3}mgd$

Calculate the amount of work done by a labourer who carries n bricks, each of mass m, to the roof of a house of height h by climbing up a ladder. **(Ans.** $n\ mgh$**)**

EXAMPLE 10. *A body moves from point A to B under the action of a force, varying in magnitude as shown in Fig. 6.8. Obtain the work done. Force is expressed in newton and displacement in metre.*

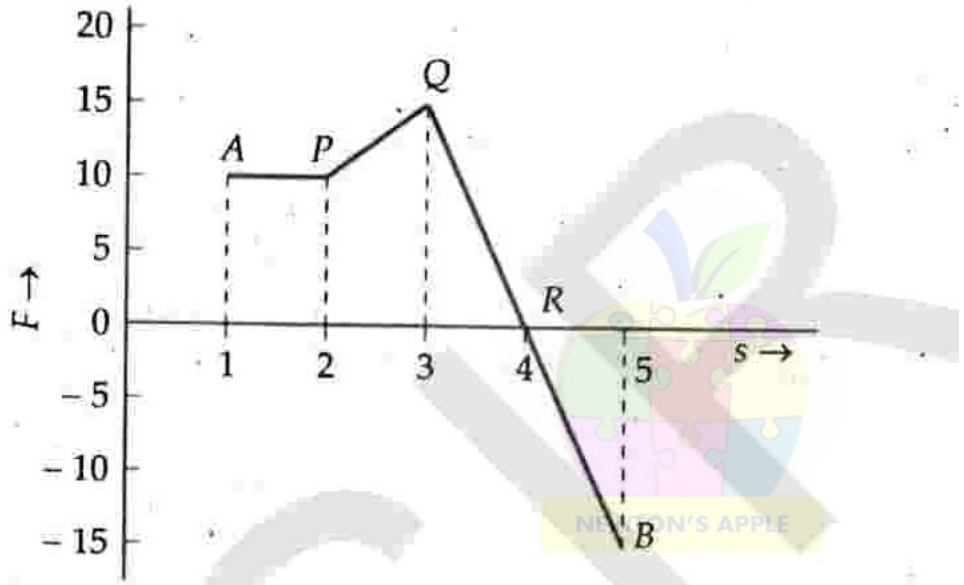
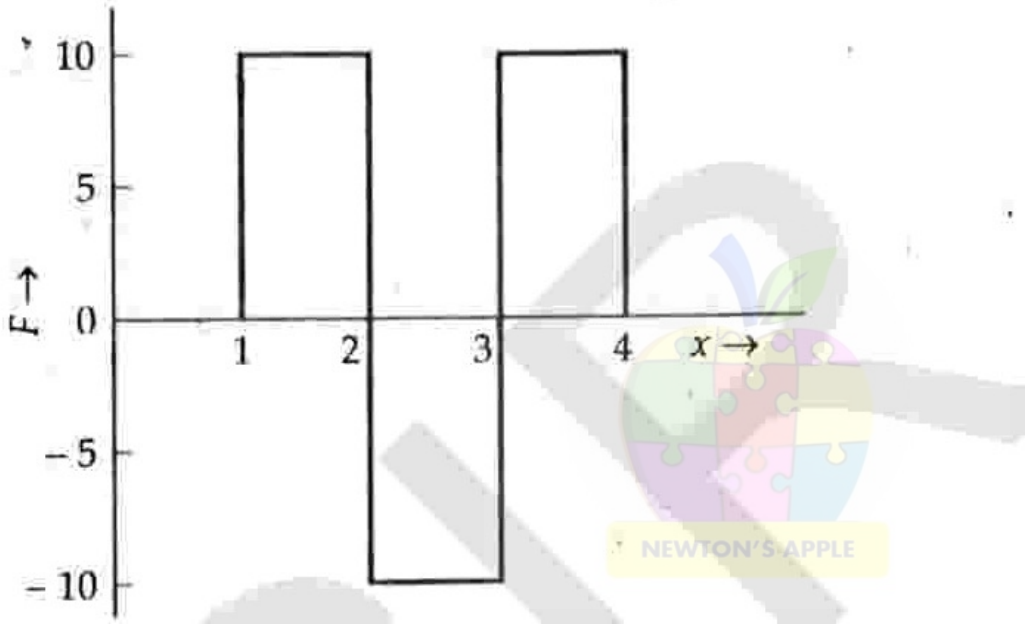


Fig. 6.11 shows the F-x graph. Here the force F is in newton and distance x in metre. What is the work done ? **(Ans. 10 J)**



Problem 2. The earth moving around the sun in a circular orbit is acted upon by a force and hence work must be done on the earth by the force. Do you agree by this statement ?

Problem 5. Is it possible that a body be in accelerated motion under a force acting on the body, yet no work is being done by the force ? Explain your answer giving a suitable example.

Problem 10. A man rowing boat upstream is at rest with respect to the shore. Is he doing work ?

Problem 5. *A small object of weight mg hangs from a string of length l, as shown in Fig. 6.43. A variable force F, which starts at zero and gradually increases is used to pull the object very slowly (so that equilibrium exists at all the times) until the string makes an angle θ with the vertical. Calculate the work done by the force F.*

[CPMT 93]