Resonance®
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TARGET : NEET (UG) 2024

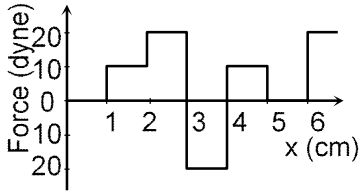
Course : SARANSH (Youtube Live CRASH COURSE)

PHYSICS
DPP
DAILY PRACTICE PROBLEMS
DPP NO. 1

PHYSICS: WORK,POWER, ENERGY

DPP No. : 1

1. The relationship between force and position is shown in the figure given (in one dimensional case). The work done by the force in displacing a body from x = 1 cm to x = 5 cm is



(1) 20 ergs (2) 60 ergs (3) 70 ergs (4) 700 ergs

2. A particle of mass m at rest is acted upon by a force F for a time t. Its kinetic energy after an interval t is :

(1) $\frac{F^2t^2}{m}$ (2) $\frac{F^2t^2}{2m}$ (3) $\frac{F^2t^2}{3m}$ (4) $\frac{Ft}{2m}$

3. A body starts from rest with uniform acceleration and acquires a velocity V in time T. The instantaneous kinetic energy of the body after any time t is proportional to :

(1) $(V/T)\,t$ (2) $(V^2/T)t^2$ (3) $(V^2/T^2)\,t$ (4) $(V^2/T^2)t^2$

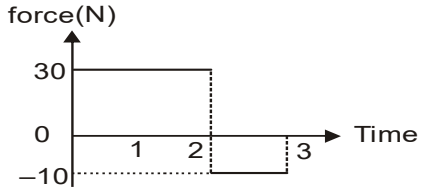
4. A rigid body of mass m is moving in a circle of radius r with a constant speed v. The force on the body is $\frac{mv^2}{r}$ and is directed towards the centre. What is the work done by this force in moving the body over half the cirumference of the circle.

(1) $\frac{mv^2}{\pi r^2}$ (2) Zero (3) $\frac{mv^2}{r^2}$ (4) $\frac{\pi r^2}{mv^2}$

5. A ball is released from the top of a tower. The ratio of work done by force of gravity in first, second and third second of the motion of the ball is

(1) 1 : 2 : 3 (2) 1 : 4 : 9 (3) 1 : 3 : 5 (4) 1 : 5 : 3

6. Starting at rest, a 10 kg object is acted upon by only one force as indicated in figure. Then the total work done by the force is



(1) 90 J (2) 125 J (3) 245 J (4) 490 J

7. A stone projected vertically up with a velocity u reaches a maximum height h. When it is at a height of 3h/4 from the ground, the ratio of KE and PE at that point is : (consider PE = 0 at the point of projectory)

(1) 1 : 1 (2) 1 : 2 (3) 1 : 3 (4) 3 : 1

8. An engine exerts a force $\vec{F} = (20\hat{i} - 3\hat{j} + 5\hat{k})N$ and moves with velocity $\vec{v} = (6\hat{i} + 20\hat{j} - 3\hat{k})m/s$. The power of the engine (in watt) is :

(1) 45 (2) 75 (3) 20 (4) 10

9. A particle of mass M, starting from rest, undergoes uniform acceleration. If the speed acquired in time T is V, the power delivered to the particle is

(1) $\frac{MV^2}{T}$ (2) $\frac{1}{2}\frac{MV^2}{T^2}$ (3) $\frac{MV^2}{T^2}$ (4) $\frac{1}{2}\frac{MV^2}{T}$

10. A body is dropped from a certain height. When it loses U amount of its energy it acquires a velocity 'v'. The mass of the body is :

(1) $2U/v^2$ (2) $2v/U^2$ (3) $2v/U$ (4) $U^2/2v$