

Dear student following is an Easy level [O ● O O O] test paper. Score of 18 Marks in 15 Minutes would be a satisfactory performance. Questions 1-10 (+3, -1). (All Questions have Single Options correct)

- Q.1** The unit of power of SI (watt) is equivalent to :
 (A) kg ms^{-2} (B) $\text{kg m}^2 \text{s}^{-2}$
 (C) $\text{kg m}^2 \text{s}^{-3}$ (D) None of the above
- Q.2** When the force retards the motion of a body, the work done is :
 (A) zero
 (B) negative
 (C) positive
 (D) +ve or -ve depending, upon the magnitude of force and displacement
- Q.3** A force of 10N displaces a body by 6m in 3 seconds. The power of the agency applying the force is :
 (A) 1.8 W (B) 5 W
 (C) 180 W (D) None of the above
- Q.4** A heavy weight is suspended from the spring. A person raises the weight till the spring becomes slack. The work done by him is W. The energy stored in the stretched spring was E. What will be the gain in gravitational potential energy ?
 (A) W (B) E
 (C) W + E (D) W - E
- Q.5** A body is acted upon by a force which is proportional to the distance covered. If distance covered be denoted by x, then work done by the force will be proportional to :
 (A) x (B) x^2
 (C) $x^{3/2}$ (D) None
- Q.6** If the range of a projectile be R, then its kinetic energy is minimum when horizontal distance covered by it is :
 (A) R/4 (B) R/2 (C) 3R/4 (D) R
- Q.7** The momentum of a particle is numerically equal to its kinetic energy. What is the velocity of the particle ?
 (A) 1 ms^{-1}
 (B) 2 ms^{-1}
 (C) 4 ms^{-1}
 (D) Momentum cannot be equal to the kinetic energy.
- Q.8** Which of the following is non conservative force ?
 (A) Viscous force (B) Gravitational force
 (C) Electric force (D) Elastic force
- Q.9** A ball strikes against the floor and returns with double the velocity. In which type of collision is it possible ?
 (A) Perfectly elastic (B) Inelastic
 (C) Perfectly inelastic (D) It is not possible
- Q.10** A nucleus of mass number A originally at rest emits α particle with speed v. What will be the recoil speed of the daughter nucleus.
 (A) $\frac{4v}{(A-4)}$ (B) $\frac{4v}{(A+4)}$
 (C) $\frac{v}{(A-4)}$ (D) $\frac{v}{(A+4)}$



PHYSICS IIT JEE (JULY 4th WEEK CLASS TEST 2) (WORK, POWER, ENERGY & COLLISION) ANSWER KEY

Name :					Roll No. :									
	A	B	C	D		A	B	C	D		A	B	C	D
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	10	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	C	B	D	C	B	B	B	A	D	A

SOLUTIONS

Sol.1 (C)**Sol.2 (B)**

$W = \vec{F} \cdot \vec{d}$ for retarding force \vec{F} should be inclined to \vec{d} at angle θ such that $\frac{\pi}{2} < \theta < \pi$.

Sol.3 (D)

Here power = $\frac{(10 \times 6)}{3} = 20W$

Sol.4 (C)

Total gravitation energy gained
= work done + energy released by the spring.

Sol.5 (B)

$F = kx$. Hence $w = \int Fdx = \frac{1}{2} kx^2$.

Sol.6 (B)

At the highest point where $x = \frac{R}{2}$, the vertical component of velocity is reduced to zero. So, its kinetic energy is minimum.

Sol.7 (B)

Here $(1/2) Mv^2 = Mv$
 $v = 2ms^{-1}$

Sol.8 (A)**Sol.9 (D)****Sol.10 (A)**

Here mass of the α -particle may be written as 4. Hence, applying the conservation of momentum we find :

$$(A - 4) V - 4v = 0.$$

Hence $V = \frac{4v}{(A - 4)}$