



PHYSICS

BOOKS - HC VERMA

WORK, ENERGY AND POWER

Question Bank

1. A 10-kg ball is dropped from a height of 10 m. Find the initial potential of the ball.



[View Text Solution](#)

2. The work done by the weight of a 1-kg mass while it moves up through 1 m is

A. 9.8 J

B. -9.8 J

C. $\frac{1}{9.8} \text{ J}$

D. $\frac{1}{9.8} \text{ J}$

Answer: B



View Text Solution

3. A force of 10 N acts on a body towards the east. The work done by the force while the body moves through 1 m in the east-north direction (midway between east and north) is

A. $10\sqrt{2}J$

B. $\frac{10}{\sqrt{2}}J$

C. $-10J$

D. $\frac{10}{\sqrt{2}}J$

Answer: B



[View Text Solution](#)

4. When a stone tied to a string is whirled in a circle, the work done on it by the string is

A. positive

B. negative

C. zero

D. undefined

Answer: C



[View Text Solution](#)

5. A man with a box on his head is climbing up a ladder. The work done by the man on the box is

A. positive

B. negative

C. zero

D. undefined

Answer: A



6. A porter with a suitcase on his head is climbing up a flight of stairs with a uniform speed. The work done by the 'weight of the suitcase' on the suitcase is

A. positive

B. negative

C. zero

D. undefined

Answer: B



View Text Solution

7. As a body rolls down in inclined plane, it has

A. only kinetic energy

B. only potential energy

C. both kinetic energy and potential energy

D. neither kinetic energy nor potential
energy

Answer: C



View Text Solution

8. The kinetic energy of a body depends

A. on its mass only

B. on its speed only

C. on its mass as well as on its speed

D. neither on its mass nor on its speed

Answer: C



[View Text Solution](#)

9. In which of the following cases is the potential energy of a spring minimum ?

A. When it is compressed

B. When it is extended

C. When it is at its natural length

D. When it is at its natural length but is kept at a height h above the ground

Answer: C



View Text Solution

10. A particle of mass 100 g moves at a speed of 1 m/s. Its kinetic energy is

A. 50 J

B. 5 J

C. 0.5 J

D. 0.05 J

Answer: D



View Text Solution

11. A ball is thrown upwards from a point A. It reaches up to the highest point B and returns.

A. Kinetic energy at A = kinetic energy at B

B. Potential energy at A = potential energy at B

C. Potential energy at B = kinetic energy at B

D. Potential energy at B= kinetic energy at A

Answer: D



View Text Solution

12. A body of mass 2 kg is dropped from a height of 1 m. Its kinetic energy as it reaches the ground is

A. 19.6 J

B. 19.6 N

C. 19.6 kg

D. 19.6 m

Answer: A



View Text Solution

13. Two bodies of unequal masses are dropped from a cliff. At any instant, they have equal

A. momentum

B. acceleration

C. Potential energy

D. kinetic energy

Answer: B



[View Text Solution](#)

14. When the speed of a particle is doubled, its kinetic energy

A. remains the same .

B. gets doubled

C. becomes half

D. becomes 4 times

Answer: D



[View Text Solution](#)

15. When the speed of a particle is doubled, the ratio of its kinetic energy to its momentum

A. remains the same

B. gets doubled

C. becomes half

D. becomes 4 times

Answer: B



View Text Solution

16. The unit of power is

A. watt

B. joule

C. newton

D. kg

Answer: A



View Text Solution

17. A person A does 500 J of work in 10 minutes and another person B does 600 J of work in 20 minutes. Let the power delivered by A and B be P_1 and P_2 respectively. Then,

A. $P_1 = P_2$

B. $P_1 > P_2$

C. $P_1 < P_2$

D. P_1 and P_2 are undefined

Answer: B



View Text Solution

18. Mark the statement true(T) or false (F):

Work and energy have different units.



 [View Text Solution](#)

19. Mark the statement true(T) or false (F): A stone tied to a string is whirled in a circle . The work done by the weight of the stone for a small displacement is zero.



[View Text Solution](#)

20. Mark the statement true(T) or false (F):
When an aeroplane takes off, the work done by its weight is positive.



[View Text Solution](#)

21. Mark the statement true(T) or false (F): The potential energy of a spring increases when it is extended and decrease when it is compressed.



[View Text Solution](#)

22. Mark the statement true(T) or false (F):
When negative work is done by external forces

on a system , the energy of the system decreases.



[View Text Solution](#)

23. Mark the statement true(T) or false (F): A person stands for a long time. Work is done by forces operating inside his body .



[View Text Solution](#)

24. Mark the statement true(T) or false (F):

When a body falls, its kinetic energy remains constant.



View Text Solution

25. Mark the statement true(T) or false (F): A rubber band has more potential energy when wrapped a packet a packet than when it was lying unused.



View Text Solution

26. A 2-kg body is sliding up an inclined plane of inclination 30° . Find the work done by the force of gravity in moving the body through 1 m.



View Text Solution

27. A ball of mass 1 kg is dropped from a height of 5 m. What is its speed at this instant ?



View Text Solution

28. A 1000-W heater is used for 1 hour every day for 30 days . Find the cost of electricity if the rate is Rs 3.00 /unit.



View Text Solution