MASSACHUSETTS PHYSICS · UNIT 2 · 25 QUESTIONS

Work, Energy, and Momentum — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **A force of 20 N pushes a crate 5 m in the direction of the force. The work done is**



- **A** 4 J
- **B** 100 J
- **C** 25 J
- **D** 0.25 J

Understand It with Pulse | Flag a mistake

2 A 4 kg object moves at 3 m/s. Its kinetic energy is

- **A** 36 J
- **B** 12 J
- **C** 6 J
- **D** 18 J

Understand It with Pulse | Flag a mistake

3 Use g = 10 $\frac{m}{s^2}$. A 2 kg object is 6 m above the ground. Its gravitational potential energy is

- **A** 12 J
- **B** 120 J
- **C** 30 J
- **D** 60 J

Understand It with Pulse | Flag a mistake

4 **A spring with spring constant 50 N/m is stretched 0.4 m. Its elastic potential energy is**

A 20 J

B 10 J

C 4 J

D 8 J

Understand It with Pulse | Flag a mistake

5 **A machine does 200 J of work in 10 s. Its power is**

A 20 W

B 2000 W

C 0.05 W

D 210 W

Understand It with Pulse | Flag a mistake

6 **A 5 kg bowling ball moves at 4 m/s. Its momentum is**



A 9 kg $\frac{m}{s}$

B 1.25 kg $\frac{m}{s}$

C 80 kg $\frac{m}{s}$

D 20 kg $\frac{m}{s}$

Understand It with Pulse | Flag a mistake

7 **A force of 30 N acts for 2 s. The impulse delivered is**

- **A** 15 N s
- **B** 32 N s
- **C** 0.067 N s
- **D** 60 N s

Understand It with Pulse | Flag a mistake

8 **In a closed system with no outside forces, the total momentum before a collision compared with after is**

- **A** always larger
- **B** always smaller
- **C** the same
- **D** zero

Understand It with Pulse | Flag a mistake

9 **Work is zero when the force is applied**

- A in the direction of motion
- B opposite the motion
- C perpendicular to the motion
- D for a long time

Understand It with Pulse | Flag a mistake

10 **If the speed of an object doubles, its kinetic energy**

- A doubles
- B quadruples
- C halves
- D stays the same

Understand It with Pulse | Flag a mistake

11 **A 3 kg wagon moving at 4 m/s collides and sticks to a stationary 3 kg wagon. Their common speed is**



A 4 m/s

B 8 m/s

C 2 m/s

D 12 m/s

Understand It with Pulse | Flag a mistake

12 **A force of 10 N moves an object 8 m. The work done, in joules, is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

13 **A 2 kg object moves at 5 m/s. Its kinetic energy, in joules, is ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

14 **Use $g = 10\ \frac{m}{s^2}$. A 5 kg rock is 4 m above the ground. Its gravitational potential energy, in joules, is _____**



ANSWER _____

Understand It with Pulse | Flag a mistake

15 **A motor does 600 J of work in 20 s. Its power, in watts, is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

16 **An object of mass 6 kg moves at 3 m/s. Its momentum, in kilogram meters per second, is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

17 **The work energy theorem says the net work on an object equals its change in**

A potential energy

B momentum

C kinetic energy

D power

Understand It with Pulse | Flag a mistake

18 **In an elastic collision, both momentum and total**

A mass are conserved

B kinetic energy are conserved

C velocity are conserved

D force are conserved

Understand It with Pulse | Flag a mistake

19 Use $g = 10\ \frac{m}{s^2}$. An apple dropped from 20 m reaches the ground with speed



A 10 m/s

B 20 m/s

C 40 m/s

D 200 m/s

Understand It with Pulse | Flag a mistake

20 **A spring with spring constant 100 N/m is compressed 0.2 m. The spring force is**

- A 500 N
- B 20 N
- C 0.002 N
- D 50 N

Understand It with Pulse | Flag a mistake

21 **An impulse changes an object**

- A mass
- B weight
- C momentum
- D volume

Understand It with Pulse | Flag a mistake

22 **Two objects of equal mass m move toward each other at 3 m/s and 3 m/s. The total momentum is**

A 6m

B 0

C 3m

D 9m

Understand It with Pulse | Flag a mistake

23 **If friction does negative work on a sliding object, its kinetic energy**

A increases

B decreases

C stays the same

D becomes zero at once

Understand It with Pulse | Flag a mistake

24 **A 4 kg object at rest is pushed by a 12 N force for 3 s. Its final momentum, in kilogram meters per second, is ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

25 **A ball of mass 0.5 kg moves at 8 m/s. Its kinetic energy, in joules, is _____**



ANSWER _____

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. B
2. D
3. B
4. C
5. A
6. D
7. D
8. C
9. C
10. B
11. C
12. 80
13. 25
14. 200
15. 30
16. 18
17. C
18. B
19. B
20. B
21. C
22. B
23. B
24. 36
25. 16

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