

CHAPTER-10 | Work and Energy

QUIZ-01

1. When is work said to be done on an object?

- A. Only when force is applied
- B. Only when displacement occurs
- C. When force is applied and the object is displaced
- D. When the object is at rest (C)

Explanation: For work to be done, both force must be applied and displacement must occur in the direction of the force.

2. What is the SI unit of work?

- A. Newton
- B. Joule
- C. Watt
- D. Kilogram (B)

Explanation: Work is measured in joules, where
1 joule = 1 newton × 1 meter.

3. A man applies a force of 10 N and moves an object 2 m in the direction of the force. What is the work done?

- A. 5 J
- B. 10 J
- C. 20 J
- D. 0 J (C)

Explanation: Work done = Force × Displacement =
10 N × 2 m = 20 J.

4. What type of energy is stored in an object due to its position above the ground?

- A. Kinetic energy
- B. Potential energy
- C. Chemical energy
- D. Light energy (B)

Explanation: Energy possessed by a body due to its height (position) is called gravitational potential energy.

5. Which formula gives the kinetic energy of an object of mass m and velocity v ?

- A. $KE = mv$
- B. $KE = mgh$
- C. $KE = \frac{1}{2} mv^2$
- D. $KE = mg$ (C)

Explanation: Kinetic energy = $\frac{1}{2} mv^2$.

6. What happens to the total mechanical energy of a freely falling object (ignoring air resistance)?

- A. It increases
- B. It decreases
- C. It remains constant
- D. It becomes zero (C)

Explanation: According to the law of conservation of energy, total mechanical energy remains constant.

7. What is 1 kilowatt equal to?

- A. 10 W
- B. 100 W
- C. 1000 W
- D. 1 W (C)

Explanation: 1 kilowatt = 1000 watts.

8. If an object is moved horizontally on a table without change in height, what is the work done by gravity?

- A. Positive
- B. Negative
- C. Zero
- D. Infinite (C)

Explanation: There is no displacement in the direction of gravity; hence, work done by gravity is zero.

9. What is the formula for power?

- A. Power = Energy × Time
- B. Power = Work / Time
- C. Power = Force × Time
- D. Power = Distance / Work (B)

Explanation: Power is defined as the rate of doing work: Power = Work ÷ Time.

10. What kind of work is done when force and displacement are in opposite directions?

- A. Zero work
- B. Maximum work
- C. Positive work
- D. Negative work (D)

Explanation: When force and displacement are in opposite directions, the work done is negative.