CBT IX SCIENCE NOVEMBER 2025

1. In case of no work is done then the angle between the direction of force applied and the displacement is:
(a) 0° (b) 45° (c) 90° (d) 180°
Ans 1 (c)
Feedback
The angle between the direction of force applied and the displacement is 90° when no work is done.

2.If the displacement in this image is 10 M and force applied is 5 N . Select the work done :
a) 10J (b) 100 J (c) 50 N.M (d) 100 N.M
Ans 2. (c)
Feedback
Given:
- Displacement (d) = 10 m
- Force (F) = 5 N
Work Done Formula:
$W = F \times d$
Calculation:
$W = 5\ N \times 10\ m$
$= 50\ J$ (or 50 N.m, since 1 J = 1 N.m)

3.Raju was playing with a ball of 100gm. He threw that towards the sky with a velocity of 2m/s. When the ball reaches to its maximum height its kineticenergy is :
(a) Maximum (b) minimum (c) remains constant (d) cannot calculated
Ans 3 (b)
Feedback
Given:
- Mass (m) = 100 gm = 0.1 kg
- Initial velocity (v) = 2 m/s
Kinetic Energy Formula:
$KE = (1/2) \times m \times v^2$
At Maximum Height:
At the maximum height, the velocity of the ball is momentarily zero.
Kinetic Energy at Maximum Height:
$KE = (1/2) \times 0.1\ kg \times 0^2$
$= 0\ J$

4.Which of the following is / are unit of work
(i) Kg.M3.S2 (ii) N / M (iii) N .M (iv) Kg.M2/S2
(a) (I) and (iii) (b) (ii) and (iii) (c) (iii) and (iv) (d) (I) and (iii)
Ans 4 (c)
Feedback:
(c) (iii) and (iv)

5. Which among the following does not contain neutrons?
(a)Helium (b) Hydrogen (c) Lithium (d)Boron
Ans 5 (b) Hydrogen
Feedback:
Hydrogen has only one proton in its nucleus, so its atomic number and mass number are the same (1), meaning it has no neutrons.

6. The relative mass of proton is -
(a) Less than the mass of a hydrogen atom.
(b) Equal to the mass of a hydrogen atom.
(c) More than the mass of a hydrogen atom.
(d) Equal to the mass of an oxygen atom.

Ans 6 (a)
Feedback:
A hydrogen atom consists of one proton and one electron. While the proton contributes the majority of the atom's mass, the electron also adds a small amount of mass, making the hydrogen atom slightly heavier than just a single proton.

7. Two oxygen atoms in CH3 COOH (Vinegar) have the same number of electrons .But different number of neutrons,which of the following is the correct reason for this?
(a) One of the oxygen atoms have gained electrons
(b) One of the oxygen atoms has gained two neutrons
(c) The two oxygen atoms are isobars.
(d) The two oxygen atoms are isotopes.
Ans 7 (d)
Feedback:
Isotopes: Isotopes of an element have the same number of protons (and therefore electrons) but different numbers of neutrons.

8. What will be the charge on an atom of sodium (Na) if it losses one electron
(a) positive (b) negative (c) neutral (d) no Change
Ans 8 (a)
Feedback:
A neutral sodium atom has 11 protons and 11 electrons, resulting in a net charge of zero. When it loses one electron, it is left with 11 protons and 10 electrons, giving it a positive charge of +1.

9.Assertion: a fraction of kinetic energy of a falling object converts into heat energy.
Reason: kinetic energy always remains constant.
(a) Both assertion and reason are true, and reason is the correct explanation of assertion.
(b) Both assertion and reason are true, but reason is not the correct explanation of assertion.
(c) Assertion is true, but reason is false.
(d) Assertion is false, but reason is true
Ans 9 (c)
Feedback:

The assertion is true, and the reason is false. A fraction of the kinetic energy of a falling object converts into heat due to factors like air resistance, but kinetic energy does not always remain constant.

10. Assertion (A): Isotopes of an element have the same chemical properties.
Reason (R): Isotopes have the same number of protons and electrons.
(a) Both assertion and reason are true, and reason is the correct explanation of assertion.
(b) Both assertion and reason are true, but reason is not the correct explanation of assertion.
(c) Assertion is true, but reason is false.
(d) Assertion is false, but reason is true
Ans 10 : (a)
Feedback:
Both A and R are true, and R is the correct explanation of A) .