

CBT X SCIENCE APRIL 2025

Q1 A sample of NH_3 molecule, irrespective of source, contains 82.35% Nitrogen and 17.65% of Hydrogen by mass. This data supports:

- (a) Law of Conservation of Mass
- (b) Law of Multiple Proportions
- (c) Law of Definite Proportions
- (d) Avogadro's Law

Answer: (a) Law of Conservation of Mass

Feedback: Law of conservation of mass states that the mass can neither be created nor destroyed but is transformed from one form to another.

Q2 An element X has a valency of 2, while another element Y has a valency of 4. What compound will form when these two elements combine?

- (a) XY
- (b) XY_2
- (c) X_2Y
- (d) XY_4

Answer: (c) X_2Y

Q3'Which of the following statements about isotopes is true?

- A) Isotopes have the same number of protons but different numbers of neutrons.
- B) Isotopes have the same number of neutrons but different numbers of protons.
- C) Isotopes have the same number of protons and neutrons.
- D) Isotopes have different numbers of protons

Answer: A) Isotopes have the same number of protons but different numbers of neutrons.

Feedback: Isotopes are defined as the atoms of the same element, having the same atomic number but different mass number. isotopes have same number of protons but different number of neutrons.

Q4 The work done on an object is independent of

- (a) Angle between force and displacement.
- (b) Force applied
- (c) Initial velocity of object
- (d) Displacement

Answer: Initial velocity of object

Q5 The tissue responsible for providing insulation and storing energy in animals is

- (a) Adipose tissue
- (b) Nervous tissue
- (c) Blood tissue
- (d) Muscle tissue

Answer: (a) Adipose tissue

Q6 **Osmosis describes the movement of solvent molecules across a semipermeable membrane from a less concentrated solution to a more concentrated one. Which option does not belong to this process?**

- (a) The movement of water across the membrane depends on the dissolved substances.
- (b) Membranes are composed of organic molecules like proteins and lipids.
- (c) Solutes soluble in organic solvents can permeate the membrane easily.
- (d) Plant plasma membrane contain chitin sugar.

Answer: (d) Plant plasma membrane contain chitin sugar

Q7 **If the radius of the Earth were doubled while its mass remained the same, what would happen to the weight of an object on its surface?**

- a) It doubles
- b) It halves
- c) It becomes one fourth
- d) It remains same

Answer: It becomes one fourth.

Q8 **What happens to the temperature of water as it boils when heat is consistently applied by a burner?**

- (a) Rises very slowly
- (b) Rises rapidly until steam is produced
- (c) First rises and then becomes constant
- (d) Does not rise at all

Answer: (d) Does not rise at all.

Feedback: When water boils and heat is consistently applied, its temperature remains constant at the boiling point (100°C at standard atmospheric pressure), as the added heat energy is used to change the water's state from liquid to gas (vaporization) rather than increasing its temperature.

Q9 **As per the second law of motion, what parameter is directly linked to the acceleration of an object?**

- a) Its mass.
- b) Its inertia.
- c) The applied force.
- d) None of the above.

Answer: (c) The applied force

Feedback: The acceleration of the body is directly proportional to the net force acting on the body and inversely proportional to the mass of the body. This means that as the force acting upon an object is increased, the acceleration of the object is increased.

Q10 The meiotic cell division in plants occurs in

- (a) leaves and stem
- (b) stem and branches
- (c) in anther and ovary
- (d) None of the above

Answer : (c) in anther and ovary

Feedback : Meiosis is a type of cell division which takes place in germ cells in plants. Anther and Ovary in plants contains male and female germ cells.