

International Indian School Buraidah
Worksheet of the year 2024-25
Class-9th Chemistry Lesson -4

Q1. MCQ

Question 1:

Which of the following is NOT a characteristic of atoms?

- A) Smallest unit of matter are Atoms.
- B) Atoms cannot be divided further by ordinary chemical means.
- C) Atoms always exist in isolation, never forming compounds.
- D) Atoms combine to form molecules.

Answer:

C) Atoms always exist in isolation, never forming compounds.

Question 2:

Which subatomic particle carries a negative charge?

- A) Proton
- B) Neutron
- C) Electron
- D) Nucleus

Answer: C) Electron

Question 3:

What is the atomic number of an element?

- A) The total number of protons & neutrons in the nucleus.
- B) The total number of electrons in the outermost shell.
- C) The total number of protons in the nucleus.
- D) The total number of neutrons in the nucleus.

Answer: C) The total number of protons in the nucleus.

Question 4:

What is the mass number of an atom?

- A) The total number of electrons in the atom.
- B) The number of protons in the nucleus.
- C) The sum of protons and neutrons in the nucleus.
- D) The number of shells in the atom's electron cloud.

Answer: C) The sum of protons and neutrons in the nucleus.

Question 5:

When atoms share electrons what type of bond is formed?

- A) Ionic bond
- B) Covalent bond
- C) Metallic bond
- D) Hydrogen bond

Answer: B) Covalent bond

Question 8: What representation accurately corresponds to 360 grams of water?

- (i) 2 moles of water
 - (ii) 20 moles of water
 - (iii) 6.022×10^{23} molecules of water
 - (iv) 1.2044×10^{25} molecules of water
- (a) (i)
(b) (i) and (iv)
(c) (ii) and (iii)
(d) (ii) and (iv)

Answer: (d) (ii) and (iv)

Question 9: Which statement below does not align with the nature of an atom?

- (a) Atoms are unable to exist independently.
 - (b) Atoms constitute the fundamental units from which molecules and ions are constructed.
 - (c) Atoms inherently possess a neutral charge.
 - (d) Atoms independently combine in vast quantities to form the tangible matter we perceive.
- Answer: (d) Atoms independently combine in vast quantities to form the tangible matter we perceive.

Question 10: What is the significance of 1 u or 1 amu?

- (a) 1/12th the mass of a C-12 atom
 - (b) The mass of a C-12 atom
 - (c) The mass of an O-16 atom
 - (d) The mass of a Hydrogen molecule
- Answer: (a) 1/12th the mass of a C-12 atom

Q2.Assertion And Reason

1. Both A and R are true and R is the correct explanation of A.
2. Both A and R are true but R is not the correct explanation of A.
3. A is true but R is false.
4. A is false but R is true.
5. Both A and R are false

Q.1. Assertion: For noble gases, valency is zero.

Reason: Noble gases have 8 valence electrons.

Answer: (a)

Q.2. Assertion: Thomson's atomic model is known as 'raisin pudding' model.

Reason: The atom is visualized as a pudding of positive charge with electrons (raisins) embedded in it.

Answer: (a)

Q.3. Assertion: The mass of the total number of protons and neutrons is a measure of the approximate mass of an atom.

Reason: The mass of an electron is negligible.

Answer: (a)

Q.4. Assertion: Electrons moving in the same orbit will lose or gain energy.

Reason: On jumping from higher to lower energy level, the electron will gain energy

Answer: (d)

Q.5. Assertion: Isotopes are electrically neutral.

Reason: Isotopes are species with same mass number but different atomic numbers

Answer: (c)

Q.6. Assertion: Atom is electrically neutral.

Reason: A neutral particle, neutron is present in the nucleus of atom. Answer: (b)

Q.7. Assertion: The size of the nucleus is very small as compared to the size of the atom.

Reason: The electrons revolve around the nucleus of the atom

Answer: (b)

Q.8. Assertion: Isotopes are electrically neutral.

Reason: Isotopes of an element have equal number of protons and electrons.

Answer (a)

Q.9. Assertion: Isobars are identical in chemical properties.

Reason: Isobars have same atomic number.

Answer (d)

Q.10. Assertion: Anions are larger in size than the parent atom.

Reason: In an anion, the number of protons in the nucleus is less than the number of electrons moving around it

Answer: (a)

SECTION -2

1. **From what observation do you derive the following inferences ?**
 - A. The most of the space inside the atom is empty.
 - B. The volume of the nucleus is very small.

2. **Ar (40) and Ca (40) have the same mass number but their properties are entirely different. Why ?**

3. **Define atomic number. Why is it called the main characteristic property of the elements ?**

4. **Who proposed the existence of neutron and what was the basis of this assumption ?**

5. **What type of information is obtained about the atom by Rutherford particle scattering experiment ?**

6. **What are isotopes ? Give one example.**
 - A. **Give the application of isotopes in industry and in medicine**
 - B. **The relative mass of an element A is 16.2. There are two isotopes of the element.**

7. **Calculate the percentage of these two isotopes present in the element.**