QB365 Question Paper Software
11th Standard - Chemistry
Some Basic Concepts of Chemistry Assertion and reason

Exam Time: 00:20 Hrs | Date: 2025-10-11
Total Marks: 10

Questions:

Assertion and reason

1. **Assertion:** Significant figures for 0.200 is 3 where as for 200 it is 1.
Reason: Zero at the end or right of a number are significant provided they are not on the right side of the decimal point.
Codes:
(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) Both Assertion and Reason are false.

2. **Assertion :** Equal moles of different substances contain same number of constituent particles.
Reason : Equal weights of different substances contain the same number of constituent particles.
Codes:
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

3. **Assertion :** Volume of a gas is inversely proportional to the number of moles of gas.
Reason : The ratio by volume of gaseous reactants and products is in agreement with their mole ratio.
Codes:
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

4. **Assertion :** Significant figures for 0.200 is 3 whereas for 200 it is 1.
Reason : Zero at the end or right of a number are significant provided they are not on the right side of the decimal point.
Codes:
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

5. **Assertion :** One atomic mass unit is defined as one twelfth of the mass of one carbon – 12 atom.
Reason : Carbon-12 isotope is the most abundant isotope of carbon and has been chosen as standard.
Codes:
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

6. **Assertion:** The number of O atoms in 16 g of oxygen and 16 g of ozone is same.
Reason: Each of the species represent 1 g-atom of oxygen.
Codes:
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

7. **Assertion**: The ash produced by burning Mg in air is lighther than the original mass of Mg.
Reason: Mg burns in air to produce MgO2 and Mg_3N_2.
Codes:
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

8. **Assertion:** The compounds NaCl and CaO do not exists as discrete molecules.
Reason: For a substance that does not exist as discrete molecules, the formula weight and the molecular weight are identical.
Codes:
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

9. Chemistry plays an important role in human needs for food, health care products, and improving life. Cis platin and taxol are used in chemotherapy, and AZT (Azidothymidine) is used for AIDS. SI units are international units of measurement. The matter is classified into elements, compounds, and mixtures, which can be homogeneous as well as heterogeneous. A mixture can be separated by physical methods, compounds can be separated by chemical methods only. Atomic mass is the average of masses of isotopes depending upon their natural abundance. The empirical formula is calculated with the help of the percentage composition of elements in a compound and molecular mass helps to calculate the molecular formula. A chemical equation must be balanced so as to follow the laws of chemical combination.
1.Which of the following are used in chemotherapy?

A) Taxol
B) AZT
C) Cis platin
D) A and C
E) A, B, and C

2.What are SI units?

A) Chemical formulas
B) Units of time
C) International units of measurement
D) Isotopes

3.How can a compound be separated?

A) Physical methods
B) Chemical methods
C) Both physical and chemical methods
D) None of the above

4.What does the atomic mass of an element represent?

A) Mass of a single atom
B) Mass of all isotopes combined
C) Average mass of isotopes based on natural abundance
D) Mass of the most common isotope

5.Which of the following statements is true regarding a chemical equation?

A) It does not need to be balanced
B) It must be balanced according to the laws of chemical combination
C) It represents only the physical states of the reactants
D) It includes only empirical formulas

10.The identity of a substance is defined not only by the types of atoms or ions it contains, but by the quantity of each type of atom or ion. The experimental approach required the introduction of a new unit for amount of substances, the mole, which remains indispensable in modern chemical science. The mole is an amount unit similar to familiar units like pair, dozen, gross, etc. It provides a specific measure of the number of atoms or molecules in a bulk sample of matter. A mole is defined as the amount of substance containing the same number of discrete entities (atoms, molecules, ions, etc.) as the number of atoms in a sample of pure 12C weighing exactly 12g. One Latin connotation for the word “mole” is “large mass” or “bulk,” which is consistent with its use as the name for this unit. The mole provides a link between an easily measured macroscopic property, bulk mass, and an extremely important fundamental property, number of atoms, molecules and so forth. The number of entities composing a mole has been experimentally determined to be $6.02214179 \times 10^{23}$.
$6.02214179 \times 10^{23}$, a fundamental constant named Avogadro’s number (NA) or the Avogadro constant in honor of Italian scientist Amedeo Avogadro. This constant is properly reported with an explicit unit of “per mole,” a conveniently rounded version being 6.022×10^{23}/mol. Consistent with its definition as an amount unit, 1 mole of any element contains the same number of atoms as 1 mole of any other element. The masses of 1 mole of different elements, however, are different, since the masses of the individual atoms are drastically different. The molar mass of an element (or compound) is the mass in grams of 1 mole of that substance, a property expressed in units of grams per mole (g/mol).

1. A sample of copper sulphate pentahydrate contains 8.64 g of oxygen. How many

grams of Cu is present in the sample ?

(a) 0.952g

(b) 3.816g

(c) 3.782g

(d) 8.64g

2. A gas mixture contains 50% helium and 50% methane by volume. What is the percent by \ weight of methane in the mixture?

(a) 19.97%

(b) 20.05%

(c) 50%

(d) 80.03%

3. The mass of oxygen gas which occupies 5.6 litres at STP could be

(a) gram atomic mass of oxygen

(b) one fourth of the gram atomic mass of oxygen

(c) double the gram atomic mass of oxygen

(d) half of the gram atomic mass of oxygen

4. What is the mass of one molecule of yellow phosphorus? (Atomic mass of phosphorus = 30)

(a) 1.993×10^{-22} mg

(b) 1.993×10^{-19} mg

(c) 4.983×10^{-20} mg

(d) 4.983×10^{-23} mg

5. The number of moles of oxygen in 1L of air containing 21% oxygen by volume, in standard conditions is

(a) 0.186 mol

(b) 0.21 mol

(c) 2.10 mol

(d) 0.0093 mol

Answers Key:

Assertion and reason

1. (c) Assertion is true but Reason is false.
2. (c) Assertion is correct, reason is incorrect

   Explanation:

   Equal moles of different substances contain same number of constituent particles but equal weights of different substances do not contain the same number of constituent particles.
3. (d) Assertion is incorrect, reason is correct.
4. (c) Assertion is correct, reason is incorrect
5. (b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
6. (a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
7. (d) Assertion is incorrect, reason is correct
8. (b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
9. 1. D) A and C
   2. C) International units of measurement
   3. B) Chemical methods
   4. C) Average mass of isotopes based on natural abundance
   5. B) It must be balanced according to the laws of chemical combination

10. 1. (b) 3.816g
    2. (d) 80.03%
    3. (d) half of the gram atomic mass of oxygen
    4. (b)1.993 x 10-19 mg
    5. (d) 0.0093 mol