

Class: XI
Subject: Chemistry
Topic: Some Basic Concepts of Chemistry
No. of Questions: 27

Q1. What is the mass of 2.6 g molecule of sulphur dioxide?

- A. 123.5 g
- B. 166.4 g
- C. 75.5 g
- D. 50.9 g

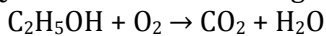
Q2. The approximate number of molecules in one litre of water is

- A. $6.023 \times 10^{23} \times 23.4$
- B. $6.023 \times 10^{23} \times 22.4$
- C. $6.023 \times 10^{23} \times 36.4$
- D. $6.023 \times 10^{23} \times 55.5$

Q3. Which of the following contains more number of molecules?

- A. 1 g of hydrogen
- B. 1 g of oxygen
- C. 1 g of carbon dioxide
- D. 1 g of water

Q4. Balance the following equation:



- A. $\text{C}_2\text{H}_5\text{OH} + 3\text{O}_2 \rightarrow 2\text{CO}_2 + 3\text{H}_2\text{O}$
- B. $\text{C}_2\text{H}_5\text{OH} + 3\text{O}_2 \rightarrow 5\text{CO}_2 + 3\text{H}_2\text{O}$
- C. $\text{C}_2\text{H}_5\text{OH} + 3\text{O}_3 \rightarrow 5\text{CO}_2 + 5\text{H}_2\text{O}$
- D. None of these

- Q5. Air is a mixture of gases. It can be regarded as a
- A. substance
 - B. chemical element
 - C. compound
 - D. molecule
- Q6. The volume of oxygen necessary for complete combustion of 20 litres of propane is _____ litres.
- A. 40
 - B. 60
 - C. 80
 - D. 100
- Q7. The weight of a residue obtained by heating 2.76 g of silver carbonate is
- A. 2.76 g
 - B. 2.96 g
 - C. 2.16 g
 - D. 2.44 g
- Q8. Volume of CO_2 obtained from complete decomposition of 126 g CaCO_3 at STP is
- A. 2.24 litres
 - B. 28.22 litres
 - C. 20 litres
 - D. 22.4 litres
- Q9. Which of the following statements about oxidation number is wrong?
- A. Oxidation number of an element in its compound can be zero.
 - B. Fluorine can show positive oxidation state in its compound.
 - C. Oxygen can show an oxidation state of + 2 in its compound.
 - D. Oxidation number of an element is always a positive or negative integer.

Q10. A 24 g Mg wire burns in 5 g oxygen. Find the atomic weight of magnesium oxide formed.

- A. 40 g
- B. 20 g
- C. 14 g
- D. 56 g

Q11. If 10^{21} molecules are removed from 200 mg of CO_2 , then the number of moles of CO_2 left will be

- A. 2.88×10^{-3}
- B. 1.66×10^{-3}
- C. 4.54×10^{-3}
- D. 3.341×10^{23}

Q12. What is the unit of formula unit mass?

- A. Atomic mass unit (amu)
- B. Unified mass (u)
- C. Gram (g)
- D. Microgram (Mg)

Q13. Atomic mass of carbon is 12 u. One atom of magnesium is twice as heavy as one carbon atom. What is the atomic mass of magnesium?

- A. 6 u
- B. 6 g
- C. 24 u
- D. 24 g

Q14. Atomic masses of calcium and chlorine are 40 u and 35.50 u respectively. What is the formula for unit mass of calcium chloride?

- A. 75.5 u
- B. 111 u
- C. 75.5 g
- D. 111 g

Q15. The ratio of the number of atoms of hydrogen to the number of atoms of oxygen in water is

- A. 2 : 1
- B. 1 : 2
- C. 1 : 8
- D. 8 : 1

Q16. The number of particles present in one mole of any substance has a fixed value of 6.022×10^{23} . What is the name given to this number?

- A. Dalton's number
- B. Proust's number
- C. Avogadro's number
- D. Lavoisier's number

Q17. Which of the following relations is correct?

- A. 1 mole of carbon atom = 1 g of hydrogen atom
- B. 6.022×10^{23} atoms of carbon = 12 g of carbon
- C. 6.022×10^{23} atoms of hydrogen = 12 u of carbon
- D. 1 mole of hydrogen atom = 6.022×10^{23} atoms of carbon

Q18. Which of the following postulates of Dalton's atomic theory could explain the second law of chemical combination?

- A. All matter is made up of very tiny particles called atoms.
- B. The number and kind of atoms are constant in a particular compound.
- C. In a chemical reaction, atoms can neither be created nor destroyed.
- D. Atoms of different elements have different mass and chemical properties.

Q19. If the mass of one sulphur atom is $2x$ g and mass of one oxygen atom is x g. What is the ratio of the masses of sulphur and oxygen in sulphur dioxide?

- A. $x : 2$
- B. 1 : 1
- C. $2 : x$
- D. 1 : 2

Q20. The ratio between the volumes of the reactant gases and the products can be expressed in simple whole numbers. This law is known as

- A. law of constant composition
- B. law of multiple proportions
- C. law of combining volumes
- D. law of reciprocal proportions

Q21. Calculate the mass of sodium acetate (CH_3COONa) required to make 500 mL of 0.375 molar aqueous solution. (Molar mass of sodium acetate is $82.0245 \text{ g mol}^{-1}$).

Q22. What is the concentration of sugar ($\text{C}_{12}\text{H}_{22}\text{O}_{11}$) in mol L^{-1} if its 20 g are dissolved in enough water to make a final volume up to 2L?

Q23. A sample of drinking water was found to be severely contaminated with chloroform, CHCl_3 , supposed to be carcinogenic in nature. The level of contamination was 15 ppm (by mass).

- A. Express this in percent by mass.
- B. Determine the molality of chloroform in the water sample.

Q24. Calculate the number of atoms in each of the following

- A. 52 moles of Ar;
- B. 52 u of He;
- C. 52 g of He;

Q25. Calculate the atomic mass (average) of chlorine using the following data:

Isotope	% Natural Abundance	Molar Mass
^{35}Cl	75.77	34.9689
^{37}Cl	24.23	36.9659

Q26. In three moles of ethane (C_2H_6), Calculate the following:

- A. Number of moles of carbon atoms.
- B. Number of moles of hydrogen atoms.
- C. Number of molecules of ethane.

Q27. If ten volumes of dihydrogen gas reacts with five volumes of dioxygen gas, how many volumes of water vapour would be produced?

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