

ATOMS, MOLECULES AND CHEMICAL REACTIONS

1. Explain the process and precautions in verifying law of conservation of mass. (AS-3)
2. 0.24g sample of a compound of oxygen and boron was found by analysis to contain 0.144g of oxygen and 0.096g of boron. Calculate the percentage composition of the compound by weight. (AS-1)
3. In a class, a teacher asked students to write the molecular formula of oxygen Shamita wrote the formula as O_2 and Priyanka as O . which one is correct? State the reason. (AS-1)
4. Lakshmi gives a statement " CO and Co both represent element". Is it correct? State reason. (AS-1)
5. Find out the chemical names and formulae for the following common household substances. (AS-1)
a) common salt b) baking soda c) washing soda d) vinegar
6. Calculate the mass of the following (AS-1)
a) 0.5 mole of N_2 gas. b) 0.5 mole of N atoms.
c) 3.011×10^{23} number of N atoms. d) 6.022×10^{23} number of N_2 molecules.
7. Calculate the number of particles in each of the following (AS-1)
a) 46g of Na b) 8g of O_2 c) 0.1 mole of hydrogen
8. Convert into mole (AS-1)
a) 12g of O_2 gas. b) 20g of water. c) 22g of carbon dioxide.
9. Write the valencies of Fe in $FeCl_2$ and $FeCl_3$ (AS-1)
10. Calculate the molar mass of Sulphuric acid (H_2SO_4) and glucose ($C_6H_{12}O_6$)(AS-1)
11. Which has more number of atoms - 100g of sodium or 100g of iron? Justify your answer. (atomic mass of sodium = 23u, atomic mass of iron = 56u) (AS-1)
12. 15.9g. of copper sulphate and 10.6g of sodium carbonate react together to give 14.2g of sodium sulphate and 12.3g of copper carbonate. Which law of chemical combination is obeyed? How? (AS-1)
13. Carbon dioxide is added to 112g of calcium oxide. The product formed is 200g of calcium carbonate. Calculate the mass of carbon dioxide used. Which law of chemical combination will govern your answer. (AS-1)
14. Imagine what would happen if we do not have standard symbols for elements?(AS-2)

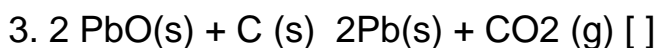


The above reaction is an example of:

- a) Combination reaction
- b) Decomposition reaction
- c) Displacement reaction
- d) Double decomposition reaction

2. What happens when dil. hydrochloric acid is added to iron filings? Choose the correct answer.

- a) Hydrogen gas and iron chloride are produced. []
- b) Chlorine gas and iron hydroxide are produced.
- c) No reaction takes place.
- d) Iron salt and water are produced.



Which of the following statements are correct for the above chemical reaction?

- a) Lead oxide is reduced
- b) Carbon dioxide is oxidized
- c) Carbon is oxidized
- d) (a) and (c) are correct

4. The chemical equation $\text{BaCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$ represents following type of chemical reaction. []

- i) displacement
- ii) combination
- iii) decomposition
- iv) double-displacement

5. The reaction of formation hydrogen chloride from hydrogen and chloride represents following type of chemical reaction []

- i) decomposition
- ii) displacement
- iii) combination
- iv) double-displacement