

Summer Session Pre AP/IB Final Study Guide

1. Determine the empirical formula from the percentage composition or from other suitable experimental data.
2. State the law of conservation of mass and be able to apply it to balancing equations.
3. Use mole ratios to convert between moles of reactants and products.
4. Define the terms empirical formula and molecular formula. The molecular formula is a multiple of the empirical formula. Determine the empirical formula and/or the molecular formula of a given compound. Determine the empirical formula from the percentage composition or from other suitable experimental data.
5. Calculate and explain non-integer atomic masses from the relative abundance of isotopes. Calculate the relative atomic mass from the abundance of the isotopes.
6. Calculate the % by mass of water present in a hydrate.
7. Convert between moles and mass/number of particles using dimensional analysis. Do you have an understanding of the magnitude of Avogadro's number and the small size of molecules, atoms and ions.
8. Calculate the mass % of a substance, % composition of a compound and design/plan an experiment to calculate the % of flavoring in gum.
9. State the position of protons, electrons and neutrons. State the relative mass and relative charge of protons, electrons and neutrons. Define the terms mass number (A), atomic number (Z), and isotope. State the symbol for an isotope. Explain how the isotopes of an element differ.
10. Define a mole and convert between moles and mass/number of particles using dimensional analysis.
11. Apply IUPAC nomenclature rules to name inorganic and organic substances and write their formula. (International Union of Pure and Applied Chemists).
12. Convert between various units using dimensional analysis and record the answer to the correct number of sig. figs. Apply problem solving skills when working with density calculations. Select and use appropriate tools and technology to collect data. Apply problem solving skills when working with density calculations and apply these skills to determine the number of Al atoms in a sample of foil.
13. What is the SI system of measurement? Be able to describe how uncertainty in a measurement arises and be able to indicate a measurement's uncertainty by using significant figures. Be able to apply significant figure rules when calculating using data.

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