

PREP FOR BSC COMMON EXAM FOR DUAL CREDIT COURSE CHEM 121/121L

Given a mass number, the element symbol, and possible charge on its ion, provide the number of protons, neutrons, and electrons.

Identify a chemical reaction based off a diagram representation versus a physical change

Providing a chemical formula for a written compound

Identifying a balanced chemical equation based off a diagram depiction of the reaction.

Calculating formula mass for an element using a periodic table

Calculating approximate % abundance of an element when given its isotopes and referencing the atomic mass on the periodic table

Given the formula and mass of a compound, calculate the # of atoms of an element within the compound.

Identify reaction types of chemical reactions: single, double, decomposition, acid-base neutralization, etc.

Oxidation numbers of an element within a compound or polyatomic ion.

Calculate the % composition of an element within a compound.

Calculate the molarity of a solution when given mass of the solute and volume of solution.

Properties of the kinetic molecular theory of gases.

Gas law calculations: pressure, volume, and temperature, density; $PV=nRT$

Identifying endo/exothermic reactions from equations that give states of matter.

Calorimetry calculations: $q = mC\Delta t$

Emission spectrum data interpretation: energy emitted from photon transitions from one level to another

Lewis dot diagrams/structures of elements and compounds: shared/unshared electrons, valence electrons, shapes, angles, hybridization, sigma/pi bonds

Periodicity: ion sizes, ionization energy

Stoichiometry: finding theoretical mass, volume given amounts of reactants; calculating % yield given mass reactant & mass product

Finding empirical formula, given % compositions