

Syllabus – HAAS CAA Placement Test
Chemistry
Topics:

1	Matter and its properties
	<ul style="list-style-type: none"> • Chemistry and its scope • Units of measurement and conversion between them • Sources errors and uncertainty in measurements • Classification of matter, Changes of matter • Atomic theories, Atomic structure, Atomic spectra and their applications, Atomic composition • Periodic table and how elements properties determined based on their location, Periodicity • Volume, temperature, pressure, and amount of a gas, Relationships among the four quantities of a gas and their calculations • Characteristics of solutions and factors affecting solubility • Properties of solutions (qualitatively and quantitatively) • Electronic composition of the carbon atom • Diversity of organic compounds in terms of shape, size, and chemical and physical properties • Classifications of organic compounds in terms of functional groups • Types of organic reactions and their applications
2	Energy, force and conservation
	<ul style="list-style-type: none"> • Ionic, polar, and nonpolar covalent bonds, Shapes of molecules • The concept of the mole and its applications (stoichiometry) • Percent composition of a compound, Empirical and molecular formulas of a compound, Percent yield • Acids and bases (strong and weak), The concept and use of pH scale • The concept of neutralization, Common ion effect, buffer solutions, and solubility • Meaning of oxidation and reduction, redox reactions, and activity series • Redox reactions to produce electricity and manufacture electrolytic and galvanic cells • Factors affecting the reaction rate • Chemical equilibrium • Energy changes during chemical reactions and/or physical changes, Hess's law and how it can be used to predict the occurrence of the chemical reaction