

General Chemistry 3

Course Outcome:

1. Define and differentiate between aldehydes and ketones based on their general properties.
2. Apply knowledge of reactions involving aldehydes and ketones with various reagents such as HCN, ROH, NaHSO₃, NH₂-G derivatives, Tollens' and Fehling's reagents, and demonstrate understanding of the iodoform test.
3. Analyze the mechanism of aldol condensation and Claisen-ester condensation reactions.
4. Explain the mechanisms of Cannizzaro reaction, Tischenko reaction, Perkin reaction, Wittig reaction, benzoin condensation, Clemmensen reduction, Wolff-Kishner reduction, and Meerwein-Pondorff-Verley (MPV) reduction.
5. Describe the preparations and reactions of carboxylic acids, esters, amides, nitriles, and other related compounds.
6. Apply principles of spectroscopy by understanding the Schrödinger equation as a proposal of Quantum Mechanics and its conditions of acceptable solutions.
7. Solve problems related to the particle in a one dimensional box problem with zero potential inside and infinite potential at boundary and beyond, considering the appearance of quantum number as a requirement of mathematical solution.
8. Interpret the energy quantization and transitions between different states in a three-dimensional box system.

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