

Dougherty Valley HS AP Chemistry Final Exam Study Guide

Note: Final exam will be approx. 80 questions. You will get use a calculator, non-graphing, you will get a periodic table. The list provided here is a complete list. "___" = ranking (1-5, 1= we learned this?, 5 = I can teach it!)

Directions: First rank each major topic 1-5 according to above, then rank each topic within major topic according to above. Focus your studying on the 1's, 2's, and 3's...don't worry about the 4's and 5's. The point is to review, study, fix or repair your thought process on topic. You know your 4's and 5's, you don't study them, you review them. You also get a 4"x6" notecard, handwritten only, name, period must be on it in LOWER RIGHT CORNER

Thermochemistry ___

- ___ $m\Delta T$
- ___ Enthalpy (Heat of formation, of reaction, combustion, etc...)
- ___ Hess's Law
- ___ Heating curve
- ___ State Functions
- ___ Endo vs. Exo - thermic

Thermodynamics ___

- ___ Enthalpy
- ___ Entropy (system: micro states)
- ___ Gibbs Free Energy (Gibbs-Helmholz, relation to K)
- ___ State Functions

Kinetics ___

- ___ Rate Laws (differential, Integrated from a graph)
- ___ Method of initial rates
- ___ Rate constants units
- ___ Relationship of k to K
- ___ Reaction Mechanisms (slow, fast steps, intermediates, catalysts)
- ___ Pseudo- 1st, 2nd - order

Equilibrium ___

- ___ Meaning of constant value on extent of reaction
- ___ ICE tables
- ___ Le Chatèlier's Principle

Atomic Structure ___

- ___ Trends (atomic radius, ionic radius, IE, electronegativity, affinity)
- ___ "Size of radius vs strength of nucleus"
- ___ Z_{eff}
- ___ Orbitals
- ___ Electrons rules (aufbau, pauli, hunds)
- ___ PES

Bonding ___

- ___ Covalent, Ionic, Metallic - properties, structure
- ___ VSEPR (shapes, angles, AXE)
- ___ Hybridization ($sp - sp^3$)
- ___ Sigma and pi bonds
- ___ Coulombs Law