

Dougherty Valley HS AP Chemistry

Test Objectives: Thermo -chem, -dynamics, Kinetics

Directions:

- Rank each of the following according to a 1 – 5 scale, where a “5” means you can teach another student and a “1” means I never learned this. **You need to be HONEST with yourself on these rankings.**
- Highlight each objective that you gave a 1 or 2.
- Circle each objective that you gave a 3
- Box each objective that is gave a 4 and 5

- ____ Use **Collision Theory** to describe how chemical reactions occur
 - ____ Describe the difference between **effective & ineffective collisions**
 - ____ Know the **factors that influence reaction rate**
 - ____ Describe how changes in temp, pressure, concentration & surface area effect reaction rate
 - ____ Describe how the **nature of the reactants** influences reaction rate
 - ____ Describe how the presence of a **catalyst** affects reaction rate
 - ____ Be able to write **thermochemical equations** for **endothermic and exothermic** reactions
 - ____ Draw, label & interpret **potential energy diagrams** for both endothermic & exothermic reactions
 - Be able to Label:
 - ____ **PE of reactants, products & activated complex**
 - ____ **Activation energy of forward & reverse reactions**
 - ____ **Heat of reaction**
 - ____ Be able to indicate the effect of a catalyst on a PE diagram
 - ____ Be able to calculate the heat of reaction (ΔH) given the heats for formation for products & reactants
 - ____ Be able to use Hess’s Law to calculate (ΔH) for a reaction/process
 - ____ Be able to tell from the ΔH if a reaction is endothermic or exothermic
 - ____ Define **enthalpy**
 - ____ Linear relationship with equilibrium constant and T in Kelvin (Gibbs-Helmholtz eq. = $-RT\ln(K)$)
 - ____ Define **entropy**
 - ____ Define **spontaneity**
 - ____ Define ΔG
 - ____ Know under what conditions a change will always be spontaneous or never be spontaneous
 - ____ Understand what factors increase or decrease entropy of the system
 - ____ Given a thermochemical equation for a chemical or physical change, be able to predict the spontaneity by assessing the signs of ΔH & ΔS
 - ____ Know how thermodynamics and equilibrium are related conceptually and mathematically
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- ____ Method of Initial Rates to determine the rate law
 - ____ Determine orders of each reactant
 - ____ Determine numerical value of rate constant
 - ____ Determine units of the rate constant
 - ____ How does concentration affect the rate of a reaction
 - ____ Factors that affect rate of reaction
 - ____ Graphical analysis for determination of rate order
 - ____ Integrated rate law determination
 - ____ Activation Energy (E_a)
 - ____ Linear relation with rate constant and T in Kelvin
 - ____ Half-life
 - ____ Relationship of kinetics with equilibrium (challenging)
 - ____ Pseudo -1st -2nd -0th integrated rate law

Now for Coggle: [Add to your current coggle from Thermo]

- Create a coggle diagram for the MIDTERM (use this as your center word, include NAME/PERIOD as well)
- Post this coggle in google classroom.
- Your coggle should be more focused on the lower rankings from above, however all should be included
- In the end, BE DETAILED as much as you can – get creative individually
- You may have some time in class to work on this. Bring your computer/device