

## Quiz for Video 5 – Thermodynamics

- Entropy is described as a measure of the \_\_\_\_\_ of a system.
  - Disorder
  - Order
  - Bond Energy
  - Free Energy
- Why is the mixing of two gas samples often associated with a positive entropy change?
  - Because the mixture has greater disorder
  - Because the energy of the mixture is more evenly distributed
  - Because gas samples do not “unmix”
  - All of the above
- Which thermodynamic property of a reaction do we use to determine if it will occur spontaneously?
  - Enthalpy change ( $\Delta H$ )
  - Entropy change ( $\Delta S$ )
  - Internal Energy change ( $\Delta E$ )
  - Free Energy change ( $\Delta G$ )
- What sign of the value stated in question 3 indicates a spontaneous reaction?
  - Positive (+)
  - Negative (-)
  - Zero
- Headphones tangling or cards becoming disorganized is a good example of:
  - The entropy of the universe increasing
  - Spontaneous reactions
  - Enthalpic favorability
  - Non-spontaneous processes occurring naturally
- A reaction with a negative enthalpy change ( $\Delta H < 0$ ) and a positive entropy change ( $\Delta S > 0$ ) is:
  - Always spontaneous
  - Never spontaneous
  - Sometimes spontaneous
  - Impossible to determine
- A reaction with a positive enthalpy change ( $\Delta H > 0$ ) and a negative entropy change ( $\Delta S < 0$ ) is:
  - Always spontaneous
  - Never spontaneous
  - Sometimes spontaneous
  - Impossible to determine
- A reaction with a positive enthalpy change ( $\Delta H > 0$ ) and a positive entropy change ( $\Delta S > 0$ ) is non-spontaneous at room temperature. What happens if we increase the temperature dramatically?
  - The equilibrium constant will become negative
  - The reaction is likely to become spontaneous
  - The reaction will slow down
  - No change
- If a reaction is sometimes spontaneous, what external condition determines its spontaneity?
  - Air density
  - Surface tension
  - Temperature
  - Altitude