1. What is the study of thermodynamics concerned with?

A. The behavior of matter and energy on the atomic and subatomic level
B. The transfer of heat and work
C. The relationship between entropy and enthalpy
D. The study of equilibrium

2. What is the zeroth law of thermodynamics?

A. If two systems are in thermal equilibrium with a third system, then they are in thermal equilibrium with each other.
B. The entropy of a perfect crystal at absolute zero is zero.
C. Energy can be neither created nor destroyed.
D. The pressure-volume product is a state function.

3. What is the first law of thermodynamics?

A. If two systems are in thermal equilibrium with a third system, then they are in thermal equilibrium with each other.
B. The entropy of a perfect crystal at absolute zero is zero.
C. Energy can be neither created nor destroyed.
D. The pressure-volume product is a state function.

4. What is the second law of thermodynamics?

A. If two systems are in thermal equilibrium with a third system, then they are in thermal equilibrium with each other.
B. The entropy of a perfect crystal at absolute zero is zero.
C. Energy can be neither created nor destroyed.
D. The pressure-volume product is a state function.

5. What is the third law of thermodynamics?

A. If two systems are in thermal equilibrium with a third system, then they are in thermal equilibrium with each other.
B. The entropy of a perfect crystal at absolute zero is zero.
C. Energy can be neither created nor destroyed.
D. The pressure-volume product is a state function.

6. What is the relationship between entropy and enthalpy?

A. Entropy is a state function and enthalpy is not.
B. Entropy is a measure of the disorder of a system and enthalpy is a measure of the heat content of a system.
C. Entropy and enthalpy are state functions.
D. Entropy and enthalpy are not state functions.

7. What is the most important factor that determines the direction of a chemical reaction?

A. The enthalpy of the reaction
B. The entropy of the reaction
C. The free energy of the reaction
D. The Gibbs free energy of the reaction

8. What is the standard enthalpy of formation?

A. The enthalpy of a reaction that forms one mole of a substance in its standard

state from its elements in their standard states
B. The enthalpy of a reaction that forms one mole of a substance in its standard state from its elements in their natural states
C. The enthalpy of a reaction that forms one mole of a substance in its natural state from its elements in their standard states
D. The enthalpy of a reaction that forms one mole of a substance in its natural state from its elements in their natural states

9. What is the standard entropy of formation?

A. The entropy of a reaction that forms one mole of a substance in its standard state from its elements in their standard states
B. The entropy of a reaction that forms one mole of a substance in its standard state from its elements in their natural states
C. The entropy of a reaction that forms one mole of a substance in its natural state from its elements in their standard states
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10. What is the standard free energy of formation?

A. The free energy of a reaction that forms one mole of a substance in its standard state from its elements in their standard states
B. The free energy of a reaction that forms one mole of a substance in its standard state from its elements in their natural states
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11. What is the standard Gibbs free energy of formation?

A. The Gibbs free energy of a reaction that forms one mole of a substance in its standard state from its elements in their standard states
B. The Gibbs free energy of a reaction that forms one mole of a substance in its standard state from its elements in their natural states
C. The Gibbs free energy of a reaction that forms one mole of a substance in its natural state from its elements in their standard states
D. The Gibbs free energy of a reaction that forms one mole of a substance in its natural state from its elements in their natural states

12. What is the most important factor that determines the direction of a chemical reaction?

A. The enthalpy of the reaction
B. The entropy of the reaction
C. The free energy of the reaction
D. The Gibbs free energy of the reaction

13. What is the standard enthalpy of formation?

A. The enthalpy of a reaction that forms one mole of a substance in its standard state from its elements in their standard states
B. The enthalpy of a reaction that forms one mole of a substance in its standard state from its elements in their natural states
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from its elements in their natural states

14. What is the standard entropy of formation?

A. The entropy of a reaction that forms one mole of a substance in its standard state from its elements in their standard states
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15. What is the standard free energy of formation?

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16. What is the standard Gibbs free energy of formation?

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17. What is the most important factor that determines the direction of a chemical reaction?

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18. What is the standard enthalpy of formation?

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19. What is the standard entropy of formation?

A. The entropy of a reaction that forms one mole of a substance in its standard state from its elements in their standard states

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22. What is the most important factor that determines the direction of a chemical reaction?

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31. What is the standard Gibbs free energy of formation?

A. The Gibbs free energy of a reaction that forms one mole of a substance in its standard state from its elements in their standard states
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32. What is the most important factor that determines the direction of a chemical reaction?

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D. The Gibbs free energy of the reaction

33. What is the standard enthalpy of formation?

A. The enthalpy of a reaction that forms one mole of a substance in its standard state from its elements in their standard states
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34. What is the standard entropy of formation?

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36. What is the standard Gibbs free energy of formation?

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37. What is the most important factor that determines the direction of a chemical reaction?

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B. The entropy of the reaction
C