

Chemistry Spring Final Study Guide

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

- ___ 1. The enthalpy change for melting a solid, such as ice, is called
- heat capacity.
 - heat of fusion.
 - specific heat.
 - heat of vaporization.
- ___ 2. A smooth, slippery feel is associated with
- indicators.
 - salts.
 - acids.
 - bases.
- ___ 3. How many grams of CaCl_2 are needed to prepare 0.500 L of a 3.86M solution of CaCl_2 ?
- 22.4 g
 - 228 g
 - 118 g
 - 214 g
- ___ 4. How many grams of water are produced when 15.0 g of methane CH_4 reacts with 15.0 g of oxygen in a combustion reaction?
- 33.7 g
 - 11.3 g
 - 8.44 g
 - 16.8 g
- ___ 5. A class of chemistry students examines the compound NH_3 . Each student considers the properties of the compound to determine if it is an acid or base. Given the equation below, with which student(s) do you most agree? $\text{NH}_3 + \text{H}_2\text{O} \rightarrow \text{NH}_4^{+1} + \text{OH}^{-1}$

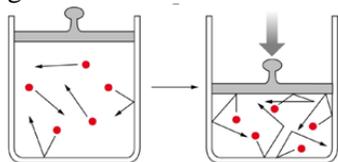
Doug	According to the Arrhenius theory, NH_3 is an acid because it contains hydrogen.
Alyson	According to the Arrhenius theory NH_3 is not a base because it does not contain hydroxide.
Melanie	According to the Bronsted-Lowry theory, NH_3 is an acid because it can accept an additional hydrogen.
Jay	According to the Bronsted-Lowry theory, NH_3 is a base because it can accept an additional hydrogen.

- Alyson and Melanie are correct.
 - Alyson and Jay are correct.
 - Melanie and Jay are correct.
 - Doug and Alyson are correct.
- ___ 6. In the Arrhenius definition, an acid is a substance that
- furnishes hydroxide ions in water solution.
 - turns litmus paper from blue to red.
 - has a sour taste and neutralizes bases.
 - furnishes hydrogen ions in water solution.

- ___ 7. Like most alkali metals, potassium reacts with water to form basic potassium hydroxide and hydrogen gas:
- $$\text{___ K} + \text{___ H}_2\text{O} \rightarrow \text{___ KOH} + \text{___ H}_2$$

How much hydrogen gas will be formed by reacting 125g of potassium with 65g of water?

- None of the other answers
 - 3.22g
 - 3.64g
 - 1.61g
- ___ 8. Mary and Ben were investigating the relationship between pressure, temperature, and volume in a lab. One of their investigations included the following scenario:



Which statement best describes the relationship illustrated above?

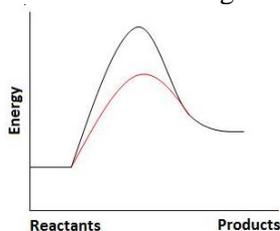
- An increase in volume will lead to a decrease in pressure at constant temperature.
 - A decrease in volume will lead to an increase in temperature at constant pressure.
 - A decrease in pressure will lead to an increase in temperature at constant volume.
 - A decrease in volume will lead to an increase in pressure at constant temperature.
- ___ 9. All of the following are colligative properties except
- boiling point elevation.
 - chemical solubility.
 - vapor pressure reduction.
 - freezing point depression.
- ___ 10. At equilibrium,
- the forward reaction rate is higher than the reverse reaction rate.
 - the forward reaction rate is equal to the reverse reaction rate.
 - the forward reaction rate is lower than the reverse reaction rate.
 - no reactions take place.
- ___ 11. Jasmine is conducting an experiment with hydrochloric acid and sugar to determine the result of changing surface area on the rate of a reaction. Select the hypothesis you most agree with and the appropriate procedure to test the claim in the hypothesis.
- Hypothesis:** If the surface area of reactants is larger, the reaction rate is slower.
Procedure: Measure the reaction rate with a control sample. Next, increase the surface area by measuring the reaction rate using sugar cubes.
 - Hypothesis:** If the surface area of reactants is smaller, the reaction rate is faster.
Procedure: Measure the reaction rate with a control sample. Next, increase the surface area by measuring the reaction rate using powdered sugar.
 - Hypothesis:** If the surface area of reactants is larger, the reaction rate is faster.
Procedure: Measure the reaction rate with a control sample. Next, increase the surface area by measuring the reaction rate using sugar cubes.
 - Hypothesis:** If the surface area of reactants is larger, the reaction rate is faster.
Procedure: Measure the reaction rate with a control sample. Next, increase the surface area by measuring the reaction rate using powdered sugar.

- ___ 12. When the pressure is held constant the relationship between volume and temperature is
- direct
 - unrelated
 - equal to each other
 - inverse
- ___ 13. In the balanced equation: $2 \text{H}_2 + \text{O}_2 \rightarrow 2 \text{H}_2\text{O}$,
- 2 moles of hydrogen react with 2 moles oxygen
 - 4 moles of water are produced
 - 2 moles of hydrogen react with 1 mole of oxygen
 - 4 moles of hydrogen react with 1 mole of oxygen
- ___ 14. What is the mass of 99.0 L of NO_2 at STP?
- None of the other answers
 - 48.2 g
 - 4.42 g
 - 203 g
- ___ 15. In a chemical equation, the symbol that takes the place of the word yields is a(n)
- coefficient.
 - equal sign.
 - plus sign.
 - arrow.
- ___ 16. To be effective, a collision requires
- sufficient energy.
 - a favorable orientation.
 - sufficient energy and a favorable orientation.
 - a reaction mechanism.
- ___ 17. Predict the products of the double replacement reaction between barium chloride and sodium carbonate. Then balance.
- $\text{BaCl} + 3 \text{NaCO}_3 \rightarrow \text{Na}(\text{CO}_3)_3 + \text{BaCl}$
 - $\text{BaCl}_2 + \text{Na}_2\text{CO}_3 \rightarrow \text{BaCO}_3 + 2 \text{NaCl}$
 - $4 \text{BaCl}_2 + \text{Na}_4\text{C} \rightarrow \text{Ba}_4\text{C} + 4 \text{NaCl}$
 - $2 \text{BaCl}_2 + \text{Na}_2(\text{CO}_3)_2 \rightarrow 2 \text{Ba}(\text{CO}_3) + 2 \text{NaCl}$
- ___ 18. How many moles of nitric acid, HNO_3 , can be prepared from the reaction of 138g of NO_2 with 54.0g of H_2O according to the equation below?
- $$\text{___ NO}_2 + \text{___ H}_2\text{O} \rightarrow \text{___ HNO}_3 + \text{___ NO}$$
- 3.0 moles
 - 2.0 moles
 - 126 moles
 - None of the other answers
- ___ 19. A change in the physical state of a substance always involves a change in
- temperature.
 - volume.
 - energy.
 - pressure.
- ___ 20. The ratio of the actual amount of product to the amount of product anticipated in a calculated chemical reaction is called the
- actual yield
 - expected yield
 - percent yield
 - true yield

- ___ 21. A characteristic that distinguishes solids from liquids is the solid's
- absence of particle movement.
 - greater diffusion of particles.
 - weaker attraction between particles.
 - fixed shape.
- ___ 22. Put this reaction in words: $\text{SiO}_2 + \text{C} \rightarrow \text{Si} + \text{CO}$
- Silver (II) oxide + carbon \rightarrow silver + carbon oxide
 - Silicon dioxide + carbon \rightarrow silicon + carbon monoxide
 - Silicon (II) oxide + carbon \rightarrow silicon + carbon monoxide
 - Silicon oxide + carbon \rightarrow silicon + carbon monoxide
- ___ 23. When oxygen is available, sulfur dioxide is produced from the burning of sulfur. Which of the following word equations best represents this reaction?
- sulfur \rightarrow sulfur dioxide + oxygen
 - sulfur dioxide \rightarrow sulfur + oxygen
 - sulfur + oxygen \rightarrow sulfur dioxide
 - sulfur dioxide + oxygen \rightarrow sulfur
- ___ 24. Specific heat capacity measures _____.
- the temperature at which a substance changes state
 - the heat required to raise the temperature of one gram of a substance by 1 degree Celsius
 - total energy in a substance
 - how much heat is in a substance
- ___ 25. How many moles of water are produced when 3.0 moles of methane CH_4 react with excess oxygen in the following combustion reaction?
- $$\text{___ CH}_4 + \text{___ O}_2 \rightarrow \text{___ CO}_2 + \text{___ H}_2\text{O}$$
- 2.0 moles
 - None of the other answers
 - 6.0 moles
 - 3.0 moles
- ___ 26. Propane is pressurized inside a tank for use in heating a home. The temperature in the tank increases, which causes the pressure to _____.
- decrease
 - remain constant
 - decrease, then increase
 - increase
- ___ 27. Which of the following pairs are a acid and conjugate base?
- $$\text{HC}_2\text{H}_3\text{O}_2(aq) + \text{H}_2\text{O}(l) \rightleftharpoons \text{H}_3\text{O}^+(aq) + \text{C}_2\text{H}_3\text{O}_2^-(aq)$$
- $\text{HC}_2\text{H}_3\text{O}_2(aq)$ and $\text{C}_2\text{H}_3\text{O}_2^-(aq)$
 - $\text{H}_3\text{O}^+(aq)$ and $\text{HC}_2\text{H}_3\text{O}_2(aq)$
 - $\text{H}_2\text{O}(l)$ and $\text{H}_3\text{O}^+(aq)$
 - $\text{C}_2\text{H}_3\text{O}_2^-(aq)$ and $\text{H}_2\text{O}(l)$
- ___ 28. Colligative properties of solutions depend on the
- number of moles of solvent.
 - physical nature of the solute.
 - concentration of solute molecules dissolved.
 - chemical nature of the solute.

- ___ 29. Because acids and bases are conductors of electricity, they are referred to as
- insulators.
 - electrolytes.
 - capacitors.
 - indicators.
- ___ 30. What quantity of heat is released when 23 mL of steam condenses to form liquid water at 100 °C?
- 51980 J
 - 7820 J
 - 7820 J
 - 59180 J
- ___ 31. The transfer of kinetic energy from a hotter object to a colder object is called
- heat.
 - potential energy.
 - temperature.
 - caloric.
- ___ 32. If litmus paper turns blue, the pH of the solution must be
- less than 7.0.
 - above 7.0.
 - acidic.
 - less than 4.0.
- ___ 33. The increase in pressure of a gas with increased temperature is the result of
- increased force of collisions with the container.
 - increased numbers of collisions with the container.
 - both of the above.
 - neither of the above.
- ___ 34. The limiting reactant in a completed chemical reaction will be the substance
- with the least mass before the reaction begins.
 - used up.
 - left over.
 - with the greatest mass before the reaction begins.
- ___ 35. A certain mass of water was heated with 6832 J, changing its temperature from 37 °C to 50 °C. Find the mass of the water, then tell if the overall reaction was endothermic or exothermic.
- 18.8 g endothermic
 - 18.8 exothermic
 - 125.6 g exothermic
 - 125.6 g endothermic
- ___ 36. Which of the following normally exists as a diatomic molecule?
- sodium
 - neon
 - chlorine
 - sulfur

- ___ 37. The graph below shows the energy that is required for a reaction to proceed without a catalyst and with a catalyst. Use the diagram to determine which of the following statements is true.



- The catalyst line is higher than the control line on the graph it requires more energy to do the reaction with a catalyst.
 - The catalyst line is higher than the control line on the graph because it requires less energy to do the reaction with a catalyst.
 - The catalyst line is lower than the control line on the graph because it requires more energy to do the reaction with a catalyst.
 - The catalyst line is lower than the control line on the graph because it requires less energy to do the reaction with a catalyst.
- ___ 38. The average kinetic energy of the particles in solids, liquids, and gases is most closely related to the
- volume.
 - density.
 - temperature.
 - pressure.
- ___ 39. Catalysts generally affect chemical reactions by
- increasing the temperature of the system.
 - providing an alternate pathway with a lower activation energy.
 - providing an alternate pathway with a higher activation energy.
 - increasing the surface area of the reactants.
- ___ 40. How many joules of energy are needed to warm 4.37 g of silver from 25.0°C to 27.5°C? The specific heat of silver is 0.24 J/g°C.
- 0.14 J
 - 45.5 J
 - 0.022 J
 - 2.62 J
- ___ 41. Which of the following correctly represents the word equation:
- Carbon and aluminum oxide react to form aluminum and carbon dioxide.**
- $C + Al_2O_3 \rightarrow Al + CO_2$
 - $C + Al + O_2 \rightarrow Al + C_2O$
 - $C + AlO \rightarrow Al + CO$
 - $C + Al_3O_2 \rightarrow Al + CO_2$
- ___ 42. In using balanced equations to solve mass-mass problems, the mass of each reactant is first converted to
- grams.
 - moles.
 - liters.
 - number of particles.

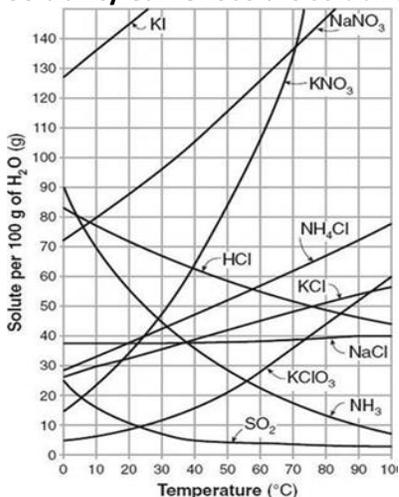
- ___ 43. A sample of gas measure 2.50L at 298 K. What will be its volume when its temperature is changed to 268 K at constant pressure?
- 75 L
 - 2.78 L
 - 31945 L
 - 2.25 L
- ___ 44. Identify the limiting reactant when 6.87g of $\text{Mg}(\text{OH})_2$ reacts with 13.89g of HCl to form magnesium chloride and water.
- $\text{Mg}(\text{OH})_2$
 - H_2O
 - MgCl_2
 - HCl
- ___ 45. Predict the products of the combustion reaction of propane. Then balance and pick the list of coefficients that are in the correct order.
- Propane will react with carbon dioxide to form oxygen gas and water. The coefficients are 2,6,9,6.
 - Propane will react with oxygen gas to form carbon dioxide and water. The coefficients are 2,9,6,6.
 - Propane will react with water vapor to form oxygen gas and carbon dioxide. The coefficients are 3,4,3,6.
 - Propane will react with oxygen gas to form carbon dioxide and water. The coefficients are 1,3,2,3.
- ___ 46. In balancing a chemical equation, which of the following are you allowed to do?
- change superscripts
 - write coefficients
 - change subscripts
 - add new substances
- ___ 47. What is the amount of heat required to raise the temperature of 200.0 g of aluminum by 10°C ? (specific heat of aluminum = $0.21 \text{ J/g}^\circ\text{C}$)
- 4200 J
 - 420 J
 - 420,000 J
 - 42,000 J
- ___ 48. Solution concentration expressed as moles of solute/kilograms of solvent is known as
- mole fraction.
 - molality.
 - millimolarity.
 - molarity.
- ___ 49. Raising the temperature of a gas in a fixed volume container will most likely change the
- density of the gas in the container.
 - pressure exerted by the gas in the container.
 - number of particles in the container.
 - size of the gas particles in the container.
- ___ 50. If 0.50 moles of sodium chloride are dissolved in 2.0L of solution, what is the molarity of the solution?
- .25 M
 - .25 mL
 - 1.0 M
 - 4.0 M

- ___ 51. How many atoms of oxygen are represented in $2 \text{Ca}(\text{NO}_3)_2$?
- 12
 - 10
 - 6
 - 4
- ___ 52. In a chemical reaction, what is the relationship between the total mass of the reactants and the total mass of the products?
- The mass of the reactants must be greater.
 - They must be equal.
 - There is no general relationship between the two.
 - The mass of the products must be greater.
- ___ 53. In the Brønsted-Lowry definition, an acid is a substance that
- accepts protons.
 - neutralizes hydronium ions.
 - forms a salt.
 - donates protons.
- ___ 54. Pick the conjugate base in the following reaction:
- $$\text{HF}_{(aq)} + \text{HSO}_3^{-(aq)} \rightleftharpoons \text{F}^{-(aq)} + \text{H}_2\text{SO}_{3(aq)}$$
- $\text{F}^{-(aq)}$
 - $\text{H}_2\text{SO}_{3(aq)}$
 - $\text{HSO}_3^{-(aq)}$
 - $\text{HF}_{(aq)}$
- ___ 55. What kind of reaction is represented by the equation $2 \text{KI} + \text{Pb}(\text{NO}_3)_2 \rightarrow 2 \text{KNO}_3 + \text{PbI}_2$?
- combustion
 - double replacement
 - single replacement
 - direct combination
- ___ 56. An alloy is an example of a
- liquid solution.
 - solid mixture but not a solution.
 - gaseous solution.
 - solid solution.
- ___ 57. Which of the following does not happen when the temperature rises?
- molecules move more randomly
 - molecules move faster
 - molecules have more kinetic energy
 - attractive forces between molecules increase
- ___ 58. The higher the pH of a solution,
- the more acidic it is
 - the less basic it is
 - the greater the concentration of hydroxide ions
 - answers a and c are correct
- ___ 59. The characteristic taste of bases is best described as
- sour.
 - bitter.
 - salty.
 - sweet.

- ___ 60. Calculate the mass of hydrogen formed when 27 g of aluminum reacts with excess hydrochloric acid according to the balanced equation below.
- $$\text{___ Al} + \text{___ HCl} \rightarrow \text{___ Al}_2\text{Cl}_3 + \text{___ H}_2$$
- a. 6.0 g
b. None of the other answers
c. 2.0g
d. 1.5g
- ___ 61. In an internal combustion engine, platinum speeds up the oxidation of carbon monoxide to carbon dioxide. Platinum is needed for the reaction, but is not used up in the reaction. How does platinum increase the rate of the reaction?
- a. Platinum acts as a catalyst.
b. Platinum increases the pressure.
c. Platinum increases the temperature.
d. Platinum agitates the gas.
- ___ 62. Determine the percent yield for the reaction between 23.25g of ZnS and 6.825g of oxygen if 9.25g of ZnO is recovered ? Write and balance the equation first.
- a. 29.8 %
b. 82.5%
c. 16.2%
d. 79.9%
- ___ 63. The definition of pH is
- a. the parts per million of hydronium ions.
b. $-\log [\text{H}_3\text{O}^+]$.
c. the percent of hydronium ions.
d. $\log [\text{OH}^-]$.
- ___ 64. Because acids and bases are conductors of electricity, they are referred to as
- a. indicators
b. capacitors
c. electrolytes
d. insulators
- ___ 65. In what kind of reaction does a single compound break down into two or more smaller compounds or elements?
- a. double replacement
b. decomposition
c. single replacement
d. direct combination
- ___ 66. Which of the following symbols means a substance is in water solution?
- a. (l)
b. (w)
c. (aq)
d. (s)
- ___ 67. Which of the following is a base?
- a. water
b. shampoo
c. lemon juice
d. vinegar
- ___ 68. How much heat must be removed to freeze 89 g of water at 0 °?
- a. 30260 J
b. -30260 J
c. -201140 J
d. 201140 J

- ___ 69. If the amount and temperature of a gas are kept constant, the pressure and volume of the gas are
- inversely proportional.
 - independent of one another
 - also unchanging.
 - directly proportional.
- ___ 70. The reaction of 7.8 g benzene, C_6H_6 , with excess HNO_3 resulted in 0.90 g of H_2O . What is the percentage yield?
- $$\text{___ } C_6H_6 + \text{___ } HNO_3 \rightarrow \text{___ } C_6H_5NO_2 + \text{___ } H_2O$$
- None of the other answers
 - 50%
 - 12%
 - 90%
- ___ 71. Which serves as the unit of heat?
- degree Fahrenheit
 - degree Celsius
 - joule
 - kelvin

Solubility Curve: Use the solubility curve below to answer the next three questions.

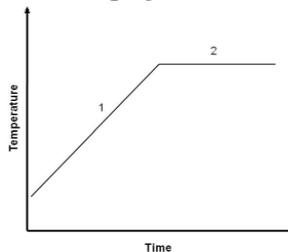


- ___ 72. If you dissolve 100 grams of sodium nitrate in 100 grams of water at 40°C, what type of solution do you have?
- unsaturated
 - unstable
 - saturated
 - supersaturated
- ___ 73. If you dissolve 60 grams of potassium chloride at 80°C, how many grams will remain undissolved?
- 50 grams
 - 100 grams
 - 10 grams
 - 60 grams
- ___ 74. How many joules of heat are required to heat 75 g of water from 4 °C to 85 °C?
- 25500 J
 - 25417.8 J
 - 27928.2 J
 - None of the other answers

- ___ 75. The amount of products formed in a chemical reaction is determined by the amount of the
- excess reactant.
 - last reactant listed in the equation.
 - first reactant listed in the equation.
 - limiting reactant.
- ___ 76. The mass of a reactant or product can be determined by multiplying the number of moles of the substance by the
- molar mass of the substance.
 - molar ratio of reactants to products.
 - density of the substance.
 - volume of the substance.
- ___ 77. If the system $2\text{CO}(g) + \text{O}_2(g) \rightleftharpoons 2\text{CO}_2(g)$ has come to equilibrium and then more $\text{CO}(g)$ is added,
- both $[\text{CO}_2]$ and $[\text{O}_2]$ remain the same.
 - $[\text{CO}_2]$ decreases and $[\text{O}_2]$ decreases.
 - $[\text{CO}_2]$ increases and $[\text{O}_2]$ decreases.
 - $[\text{CO}_2]$ increases and $[\text{O}_2]$ increases.
- ___ 78. If the phases of matter are arranged in order of increasing disorder, the arrangement would be
- liquid, solid, gas.
 - solid, liquid, gas.
 - gas, liquid, solid.
 - gas, solid, liquid.
- ___ 79. The ideal gas law describes the behavior of real gases under
- most ordinary conditions of temperature and pressure.
 - all conditions of temperature and pressure.
 - any specified temperature and pressure conditions.
 - low temperatures and high-pressure conditions.
- ___ 80. A weather balloon is inflated with 1580 L of helium at a location where the pressure is 1.06 atm and the temperature is 32°C . What will be the volume of the balloon at an altitude where the pressure is 0.092 atm and the temperature is 35°C ?
- None of the other answers
 - 7.29 L
 - 168.5 L
 - 140.9 L
- ___ 81. Pick the answer choice that shows the correct coefficients in the correct order for the formula:
- $$\text{___ H}_3\text{AsO}_4 \rightarrow \text{___ As}_2\text{O}_5 + \text{___ H}_2\text{O}$$
- 3, 2, 1
 - 1, 2, 2
 - 1, 2, 3
 - 2, 1, 3
- ___ 82. The state in which a substance exists at room temperature depends on the
- number of particles.
 - size of the particles.
 - number of collisions between particles.
 - strength of the attractive forces between particles.
- ___ 83. What is the molarity of the solution produced when 168g of NaCl is dissolved in sufficient H_2O to prepare 1.96L of solution ?
- 5.63 M
 - 2.85 M
 - 1.47 M
 - 1.93×10^4 M

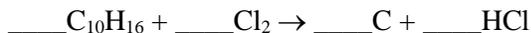
84. When Coca Cola goes into the can, it has a temperature of 4 degrees Celsius and an internal pressure of 117 atm when sealed. Suppose you let the Coke sit on the counter and raise to 21 degrees Celsius. Describe the relationship between the variables in this scenario and make a prediction about what would happen inside of the can.
- Pressure and temperature are indirectly proportional. The pressure inside the can would decrease.
 - Pressure and temperature are directly proportional. The pressure inside the can would decrease.
 - Pressure and temperature are indirectly proportional. The pressure inside the can would increase.
 - Pressure and temperature are directly proportional. The pressure inside the can would increase.

85. Doug placed a small beaker of cold water on a hot plate and heated it for 10 minutes. He took the temperature of the water several times during those 10 minutes and recorded his data. Doug claims the graph below shows the relationship between temperature and time when the water was heated. Which statement best explains why the temperature leveled off in section 2 of the graph?



- The water reached the boiling point, so the temperature no longer increased.
 - Doug turned the hot plate off so the water did not get any warmer.
 - An experimental error caused the graph to level off, because the water temperature should keep increasing over time.
 - Cold water heats faster than warm water, so once the cold water was room temperature, it took more than 10 minutes to make it hot.
86. Solutions with water as the solvent are called
- miscible solutions.
 - aqueous solutions.
 - liquids.
 - electrolytic.

87. Pick the answer choice that shows the correct coefficients in the correct order for the formula below:



- 1, 8, 10, 16
 - 2, 8, 10, 8
 - 1, 6, 8, 10
 - 1, 8, 10, 16
88. What is the specific heat of a substance if 1560 J are required to raise the temperature of a 312-g sample by 15 °C?
- 0.033 J/g°C
 - 1.33 J/g°C
 - 0.33 J/g°C
 - 0.99 J/g°C
89. A gas occupies a volume of 2.45 L at a pressure of 1.03 atm and a temperature of 293K. What volume will the gas occupy if the pressure changes to 0.980 atm and the temperature remains the same?
- 0.420 L
 - 3.62 L
 - 2.58 L
 - 2.52 L

- ___ 90. An exothermic reaction
- needs no activation energy
 - has a positive enthalpy change
 - takes on heat from the surroundings
 - gives off heat to the surroundings
- ___ 91. Calculate the value of ΔH in the following reaction using the reference numbers listed.
- $$\text{CO}_{(g)} = -110.5 \text{ kJ} \qquad \text{PbS}_{(s)} = -98.3 \text{ kJ} \qquad \text{SO}_{2(g)} = -296.1 \text{ kJ}$$
- $$2 \text{ PbS}_{(s)} + 3 \text{ O}_{2(g)} + 2 \text{ C}_{(s)} \rightarrow 2 \text{ Pb}_{(s)} + 2 \text{ CO}_{(g)} + 2 \text{ SO}_{2(g)}$$
- 616.6 kJ
 - 616.6 kJ
 - 504.9 kJ
 - 504.9 kJ
- ___ 92. A solution that contains as much solute as can possibly be dissolved under the existing conditions is said to be
- supersaturated.
 - soluble.
 - saturated.
 - concentrated.
- ___ 93. The best definition of an acid is a compound that
- accepts a proton in a solution
 - donates a hydroxide to a solution
 - is a soap
 - donates a proton to a solution
- ___ 94. Which of the following is true of a chemical reaction?
- New substances must form.
 - Chemical properties remain the same.
 - Only physical changes occur.
 - Only changes of state occur.
- ___ 95. Why does a higher temperature cause a reaction to go faster?
- Collision occur with greater energy.
 - There are more collisions per second.
 - Both a and b are correct.
 - Neither a nor b are correct.
- ___ 96. A substance that enters into a chemical reaction is called a
- coefficient.
 - mole.
 - reactant.
 - product.
- ___ 97. Why does a higher concentration make a reaction faster?
- There are more collisions per second.
 - Collisions occur with greater energy.
 - Both a and b are correct.
 - Neither a nor b are correct.
- ___ 98. Molarity is expressed as
- moles of solvent/liters of solute.
 - moles of solute/moles of solvent.
 - moles of solute/liters of solution.
 - moles of solute/liters of solvent.

- ___ 99. The rate at which a solid solute can be dissolved in a liquid solvent can be increased by
- lowering the temperature of the solvent.
 - lowering the temperature of the solute.
 - grinding the solute into small pieces.
 - increasing the air pressure on the liquid.
- ___ 100. Substances that change color when added to acids or bases are called:
- insulators
 - capacitors
 - electrolytes
 - indicators

Chemistry Spring Final Study Guide
Answer Section MULTIPLE CHOICE

1. ANS: B
2. ANS: D
3. ANS: D
4. ANS: A
5. ANS: B
6. ANS: D
7. ANS: B
8. ANS: D
9. ANS: B
10. ANS: B
11. ANS: D
12. ANS: D
13. ANS: C
14. ANS: D
15. ANS: D
16. ANS: C
17. ANS: B
18. ANS: B
19. ANS: C
20. ANS: C
21. ANS: D
22. ANS: B
23. ANS: C
24. ANS: B
25. ANS: C
26. ANS: A
27. ANS: A
28. ANS: C
29. ANS: B
30. ANS: A
31. ANS: A
32. ANS: B
33. ANS: C
34. ANS: B
35. ANS: D
36. ANS: C
37. ANS: D
38. ANS: C
39. ANS: B
40. ANS: D
41. ANS: A
42. ANS: B
43. ANS: C
44. ANS: A
45. ANS: B
46. ANS: B
47. ANS: B
48. ANS: B
49. ANS: B
50. ANS: A
51. ANS: A
52. ANS: B
53. ANS: D
54. ANS: A
55. ANS: B
56. ANS: D
57. ANS: D
58. ANS: C
59. ANS: B
60. ANS: B
61. ANS: A
62. ANS: D
63. ANS: B
64. ANS: C
65. ANS: B
66. ANS: C
67. ANS: B
68. ANS: B
69. ANS: A
70. ANS: B
71. ANS: C
72. ANS: A
73. ANS: C
74. ANS: B
75. ANS: D
76. ANS: A
77. ANS: C
78. ANS: B
79. ANS: A
80. ANS: A
81. ANS: D
82. ANS: D
83. ANS: C
84. ANS: D
85. ANS: A
86. ANS: B
87. ANS: A
88. ANS: C
89. ANS: C
90. ANS: D
91. ANS: B
92. ANS: C
93. ANS: D
94. ANS: A
95. ANS: C
96. ANS: C
97. ANS: A
98. ANS: C
99. ANS: C
100. ANS: D