Chapter 12-14 Review

1. What is the difference between a critical point, and triple point of a substance?
2. How can you change a liquid to a gas without a change in state?
3. What substance in a phase diagram has no surface tension?
4. In the Clausius–Clapeyron equation, what terms represent the gradient? Y-intercept?
5. How is viscosity affected as the molecule's chain length increases?
6. What type of meniscus is present when your cohesive forces = adhesive forces?
7. What allotrope of carbon can conduct electricity? Why?
8. What orbitals constitute the valence, and conduction band?
9. What is the structure/ bonding network of gold? How can this justify why metals are malleable, and ductile?
10. What physical properties of diamonds make them a very strong substance?
11. What group element from the periodic table can you dope into Germanium/ Silicon to make a p-type semi conductor? What about an n-type semi conductor?
12. List out all the formulas you know from Solutions (Chapter 14). Compare it with the 'Equations and Relationships' section at the end of this chapter. To go the extra mile, determine the units for each constituent in the formulas.
13. An aqueous salt solution of 1 L has a molality of 1.98 *m*. It has 112 g of salt X dissolved into it. What is the identity of salt X from the following: KBr, NaCl, $CaSO_4$? (solution density: 1.08 g/mL) Hint: determine molar mass
14. Which solution, NaCl (aq) or $MgCl_2$ (aq), exerts greater osmotic pressure? Why?
15. Soda contains both glucose and carbon dioxide gas at room temperature. What happens when it is warmed?
    A) CO_2 bubbles out of the drink
    B) Glucose precipitates out of the solution
    C) All of these answers
    D) Nothing, you choose not to think about chemistry while drinking soda can.
16. What is the vapor pressure of an aqueous glucose ($C_6H_{12}O_6$) solution that is 15.7% $C_6H_{12}O_6$ by mass? The vapor pressure of pure water at 25 °C is 23.8 torr.

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