Chapter 17 Quiz Review

1. Draw a diagram showing an endothermic reaction, label the activation energy and enthalpy. In your diagram also include what happens when a catalyst affects the reaction.
2. If the reactants of the problem above are at 40 kJ and peak activation complex is at 130 J and the products are at 85 J, label how much activation energy is required, and the enthalpy of the reaction. Label this on your diagram.
3. If this reaction went in the reverse direction, what type of reaction would it be? For this reverse reaction, label the activation energy and enthalpy.
4. How is heat/energy transfer between a system and its surroundings related? For example, if 60 kJ of energy is absorbed by the system, how does this affect the energy of the surroundings? What Law illustrates this?
5. How does an endothermic reaction work in terms of qsys and qsurr?
6. What phase changes are endothermic? For water, what are they two enthalpies that are associated with these phase changes?
7. How does an exothermic reaction work?
8. What phase changes are exothermic? What water, what are the two enthalpies that are associated with these phase changes?
9. When you are measuring heat within a phase, which formula do you use? What does each variable represent?
10. If the specific heat of a sample of lead is 0.128 J/g x oC, what will the final temperature be when 900 J of heat is added to a 49.0 g sample of lead at 20oC?
11. How much heat will be released, in kilojoules, when a 90.0 g sample of lead is cooled from 1000 oC to 210 oC? Is this an endothermic or an exothermic reaction?
12. When you are measuring heat during a phase change, which formula do you use?
13. What is the molar heat of fusion? What is the number for water (including units)? How does this number compare to the molar heat of solidification? Why do you think this is the case?
14. What is the molar heat of vaporization? What is the number for water (including units)?
15. You have a 45.0 gram sample of liquid water at 25.oC. How much energy will be lost, in kilojoules, when that water sample is cooled to ice at -5.00oC.
16. You have a 59.0 gram sample of water at -12.0oC. How much energy will be generated, in kilojoules, when that water sample is heated to 150oC?
17. Represent the various changes of water in a phase diagram, with temperature as the Y-axis and Energy as the X-axis. Label each step/formula used on this phase diagram.