**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Part A: Answer the following questions using your knowledge of solids, liquids, gasses and heating curves.**

1. Name one property that is similar in liquids and gasses but not in solids.

2. True or false:Solids have no kinetic energy on a molecular level.

3. If I place a drop of food coloring in a cup of water, what will eventually happen?

4. What is the only state of matter that is compressible?

For the following questions use the heating curve bellow. Assume that the substance is a solid at position 1 and that you are moving from left to right.



5. What is happening to the average kinetic energy of the molecules in the sample during section 2?

6. As a substance goes through section (2), what happens to the distance between the particles?

7. What is the name of the process happening during section (4)?

8. What would be the name of the process happening during section (4) if time were going the other way?

9. What is the melting point of this substance?

10. At what temperature would this sample finish boiling (Hint: every molecule is now a gas)?

11. When this substance is melting, the temperature of the ice-water mixture remains constant because:

a.     Heat is not being absorbed

b.     The ice is colder that the water

c.     Heat energy is being converted to potential energy

d.     Heat energy is being converted to kinetic energy

12. The temperature at which a substance in the liquid state freezes is the same as the temperature at which the substance

a.     Melts b.     Sublimes c.     Boils d.     Condenses

**Part B: Complete the following specific heat calculations.**

1. A 15.75-g piece of iron absorbs 1086.75 joules of heat energy, and its temperature changes from 25°C to 175°C. Calculate the specific heat capacity of iron.

2. 100.0 mL of 4.0°C water is heated until its temperature is 37°C. If the specific heat of water is 4.18 J/g°C, calculate the amount of heat energy needed to cause this rise in temperature.

3. 25.0 g of mercury is heated from 25°C to 155°C, and absorbs 455 joules of heat in the process. Calculate the specific heat capacity of mercury.

4. What is the specific heat capacity of silver metal if 55.00 g of the metal absorbs 197.9 joules of heat and the temperature rises 15.0°C?

5. If a sample of chloroform is initially at 25°C, what is its final temperature if 150.0 g of chloroform absorbs 1.0 **kilojoules** of heat, and the specific heat of chloroform is 0.96 J/g°C?