Diff/IB-I Chem: Unit 5 Wkst 4: Phase changes   Name:

1. Look up the boiling points of HF, HCl, HBr, & HI in a chemistry resource book, list them and then offer an explanation as to why their boiling points are different

2. How much energy is released when 250.0 g of steam at 135°C is converted to ice at –20°C?

3. A 1.55 kg block of iron metal is placed in a calorimeter containing 2.00 L of pure water at a temperature of 20.0°C. If the iron had an initial temperature of 195.0°C, calculate the equilibrium temperature. Iron has a specific heat of 0.106 cal/gC°.

4. Butene, an important petrochemical used in the production of synthetic rubber, is composed of carbon and hydrogen. A 0.0124 g sample of this compound produces 0.0390 g of CO_2 and 0.0159 g of H_2O when burned in an oxygen atmosphere. If the volume of a 0.125 g gaseous sample of the compound at 750 torr and 45°C is 60.2 mL, what is the molecular formula of the compound?

5. Consider the phase diagram shown to the right
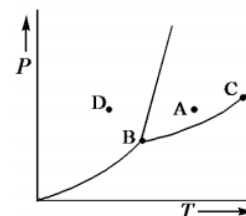
    a. What phase(s) is/are present at point A?

    b. What phase(s) is/are present at point B?

    c. Name point C and explain its why it is significant.

    d. Starting at D, if the pressure is lowered as temperature remains constant, describe what will happen.