I-Base your answers on the Phase Diagram for a typical substance shown above: (15 points)

Identify the following by letter on the diagram: 1-The triple point____ 2-The critical point____

What change in phase (if any) will occur when going from G to F?___________________

What change in phase (if any) will occur when going from F to E?____________________

What change in phase (if any) will occur when going from H to I?____________________

II-The diagram shows the Vapor Pressure of several liquids at various temperatures. .

1-Which liquid has the weakest intermolecular forces? (9 points)

2-What is boiling point of Ether at an external pressure of 700 torr?

3-The numbers printed in parentheses for each liquid are normal boiling points. What will happen to the boiling points if the external pressure is raised to 800 torr? They will... 1) increase 2) decrease 3) not change
III- The Diagram Shows The Heating Curve for **18.0g (1.00 mole)** of Ice

1-List the values of the molar heats of fusion and vaporization in that order. (3pts.)

2-Using the formula $q = mc\Delta t$ and graph data, calculate the value of the specific heat of ice in $J/g (^\circ C)$ (3pts.)

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Multiple Choice questions (3 points each--circle correct choice)

1) The solubility of oxygen gas in water at 25 $^\circ$C and 1.0 atm pressure of oxygen is 0.041 g/L The solubility of oxygen in water at 3.0 atm and 25 $^\circ$C is __________ g/L.   
A) 0.041     B) 0.014    C) 0.31      D) 0.12       E) 3.0

2) The process of solute particles being surrounded by solvent particles is known as __________.
A) saturation   B) unsaturation  C) solvation  D) agglutination  E) dehydration

3) During the dissolving of solid sugar in water the entropy of the sample...
   a) increases     b) doesn’t change     c) decreases

4) The concentration of urea in a solution prepared by dissolving 16 g of urea in 39 g of $H_2O$ is __________% urea by mass.   
A) 29     B) 41     C) 0.29     D) 0.41     E) 0.48

5) The mole fraction of urea (MW = 60.0 g/mol) in a solution prepared by dissolving 16 g of urea in 39 g of $H_2O$ (MW = 18.0 g/mol) is __________.   
A) 0.58     B) 0.37     C) 0.13     D) 0.11     E) 9.1