Discuss the following with your group to come up with a consensus definition or explanation.

1) What are London dispersion forces? What factors influence dispersion functions?

_____

_____

2) What physical phenomena results from hydrogen bonding?

_____

_____

3) How can you determine whether or not a molecule possesses dipole–dipole forces?

_____

4) Why does the temperature of a substance stay constant during a phase change such as vaporization?

_____

_____

5) Define boiling point of a liquid.

_____

6) Define the "normal" boiling point of a liquid.

_____

7) Define viscosity.

_____

8) Define volatile.

_____

9) What is the dominant intermolecular force present in H_2? Explain below.

A) dispersion B) ion-dipole C) hydrogen bonding D) dipole-dipole

_____

10) What is the dominant intermolecular force present in CHF_3? Explain below.

A) dispersion B) ion-dipole C) hydrogen bonding D) dipole-dipole

_____

11) What is the dominant intermolecular force present in CH_3OH? Explain below.

A) dispersion B) ion-dipole C) hydrogen bonding D) dipole-dipole

_____

12) What type of intermolecular force causes the dissolution of NaCl in water? Explain below.

A) dispersion B) ion-dipole C) hydrogen bonding D) dipole-dipole

_____

13) Choose the molecule or compound that exhibits dispersion forces as its strongest intermolecular force. Explain below.

A) CO B) HF C) Cl_2 D) NaCl

_____

14) Place the following compounds in order of **<u>decreasing</u>** strength of intermolecular forces. HF, O_2, CO_2

_____ < _____ < _____

Explain your ranking: _____

_____

15) Choose the substance with the highest vapor pressure at a given temperature.

A) RbCl B) CH_3SCH_3 C) BF_3 D) SbH_3 E) SiS_2

Explain your choice: _____

_____

16) Choose the substance with the highest boiling point.

A) CH_4 B) I_2 C) KI D) HF E) CS_2

Explain your choice: _____

17) Which of the following substances would you predict to have the highest ΔH_{vap}?

A) CH_4 B) C_2H_6 C) C_3H_8 D) C_4H_{10} E) CH_3Cl

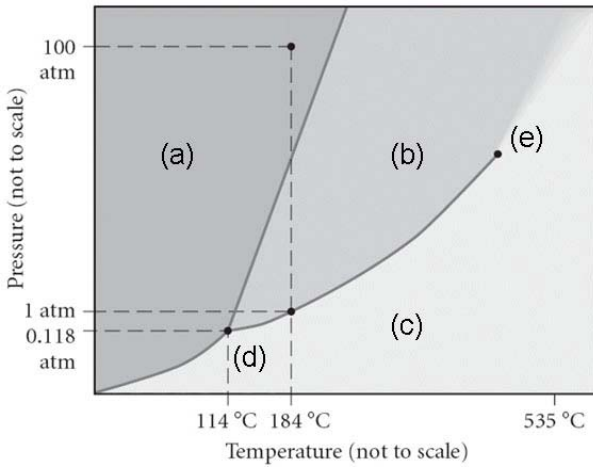
Explain your choice: _____

_____

18) Place the following substances in order of **<u>decreasing</u>** boiling point. N_2 O_2 H_2

Explain your choice: _____

Refer to the phase diagram to the right for the following questions:



1. Which phase is represented by the letters (a), (b) & (c)?

(a) _____ (b) _____ (c) _____

2. The boundary between (a) and (b) represents the…

_____

(3) The point represented by (d) corresponds to the…

_____

(4) The point represented by (e) corresponds to the…

_____

5. Describe the phase changes associated with moving from point (a) to (b): _____

6. Describe the phase changes associated with moving from point (c) to (b): _____

7. How much heat is released when 105 g of steam at 100.0°C is cooled to ice at −15.0°C? The enthalpy of vaporization of water is 40.67 kJ/mol, the enthalpy of fusion for water is 6.01 kJ/mol, the specific heat capacity of liquid water is 4.18 J/(g · °C), and 2.02 J/(g · °C) of ice. ($q_{heating} = m \times C \times \Delta T$, $q_{phase\ change} = \Delta H_{vap} \times n$)