HW12 - Liquids & Solids

This is a preview of the published version of the quiz

Started: Oct 21 at 11:23am

Quiz Instructions

Homework 12 - Liquids & Solids

Question 1 — 1 pts

Which of the following statements regarding intermolecular forces (IMF) is/are true?

1. IMF result from attractive forces between regions of positive and negative charge density in neighboring molecules.

2. The stronger the bonds within a molecule are, the stronger the intermolecular forces will be.

3. Only non-polar molecules have instantaneous dipoles.

- 1 and 2
- 2 and 3
- 3 only
- 1 and 3
- 1 only
- 1, 2, and 3
- 2 only

Question 2 — 2 pts

Put the following compounds in order of increasing melting points.

LiF, HF, F_2, NF_3

- F_2, NF_3, LiF, HF
- LiF, HF, NF_3, F_2
- LiF, HF, F_2, NF_3
- F_2, NF_3, HF, LiF

Question 3 — 1 pts

What type of intermolecular forces would you expect to find in a pure liquid sample of carbon tetrachloride?

- dipole-dipole
- hydrogen bonding

- interionic (ionic)
- London

Question 4

1 pts

A drop of liquid tends to have a spherical shape due to the property of...

- surface tension.
- close packing.
- viscosity.
- capillary action.
- vapor pressure.

Question 5

1 pts

Surface tension describes...

- capillary action.
- the forces of attraction between the surface of a liquid and the air above it.
- the inward forces that must be overcome in order to expand the surface area of a liquid.
- the resistance to flow of a liquid.
- adhesive forces between molecules.
- the forces of attraction between surface molecules of a solvent and the solute molecules.

Question 6

1 pts

Predict which of butane (C_4H_{10}) or propanone (CH_3COCH_3) has the greater viscosity. Assume that they are both at the same temperature and in their liquid form.

- They have equal viscosities.
- propanone
- butane
- It's impossible to know.

Question 7

1 pts

Which would you expect to be the most viscous?

- C_8H_{18} at 50°C
- C_4H_8 at 30°C
- C_8H_{18} at 30°C
- C_4H_8 at 50°C

Question 8

1 pts

The vapor pressure of all liquids...

- increases with temperature.
- decreases if the volume of the container increases.
- is the same at 100°C.
- is the same at their freezing points.

Question 9

2 pts

Based on the general concepts that govern intermolecular attractions, which of the following orderings of fluorocarbons is correct when going from highest to lowest boiling point?

1. CF_4
2. $F_3C\text{-}(CF_2)_4\text{-}CF_3$
3. $F_3C\text{-}(CF_2)_2\text{-}CF_3$

- 1, 3, 2
- 2, 3, 1
- 2, 1, 3
- 1, 2, 3
- 3, 1, 2
- 3, 2, 1

Question 10

2 pts

Tetrabromomethane has a higher boiling point than tetrachloromethane.

- It's impossible to know.
- False
- True

Question 11

2 pts

Which of KBr or CH_3Br is likely to have the higher normal boiling point?

- It is impossible to tell.
- CH_3Br
- They will have the same boiling point.
- KBr

Question 12

2 pts

Which of the following would you expect to boil at the lowest temperature?

- C_3H_6
- CH_4
- PCl_3
- KF
- C_8H_{18}

Question 13

1 pts

A liquid with a high vapor pressure is called...

- hot.
- volatile.
- cold.
- viscous.

Question 14

2 pts

Which would you expect to have the highest vapor pressure at a given temperature?

- C_5H_{12}
- SBr_4
- C_2H_6
- NaCl

Question 15

2 pts

Rank the following in order of increasing vapor pressure at a fixed temperature: H_2O, CH_3Cl, He, NaCl

- He < H_2O < CH_3Cl < NaCl
- He < CH_3Cl < H_2O < NaCl
- NaCl < H_2O < CH_3Cl < He
- H_2O < CH_3Cl < He < NaCl
- H_2O < NaCl < CH_3Cl < He

Question 16

1 pts

Which of the following solids is a covalent network?

- $CaCO_3(s)$
- Ni(s)
- $SiO_2(s)$
- $H_2O(s)$

Question 17

1 pts

Which of the following, in the solid state, would be an example of a covalent crystal?

- carbon dioxide
- water
- iron
- barium fluoride
- diamond

Question 18

1 pts

Diamond and graphite are two crystalline forms of carbon. In which form are the C atoms arranged in flat sheets with one C bonded to three nearby C atoms?

- diamond
- graphite
- neither of these

Question 19 2 pts

Which of the following, in the solid state, would be an example of a molecular crystal?

- iron
- calcium fluroide
- diamond
- carbon dioxide

Question 20 1 pts

Which of the following, in the solid state, would be an example of an ionic crystal?

- copper
- sodium nitrate
- carbon dioxide
- diamond

Question 21 2 pts

Metallic solids are solids composed of metal atoms that are held together by metallic bonds. They also tend to be good conductors because...

- the electrons in metallic solids are delocalized.
- metals are ductile and can be pulled into wires.
- the electrons in metallic solids are tightly bound allowing other electrons to flow freely.
- metals are malleable and can be pounded into sheets.