

For help with these problems

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Be sure to mention the filename:  
**Chemistry\_Questions\_0022**

Question 1

The rubbing alcohol sold in drug stores often is composed of 70% isopropyl alcohol and 30% water. In this solution

**isopropyl alcohol is the solvent**

water is the solvent

both water and isopropyl alcohol are solvents

neither water nor isopropyl alcohol is a solvent

Question 2

Molecules of a liquid can pass into the vapor phase only if the

liquid has little surface tension

**molecules have sufficient kinetic energy to overcome the intermolecular forces in the liquid**

temperature of the liquid is near its boiling point

vapor pressure of the liquid is high

Question 3

For a liquid solution made by dissolving a solid or a gas in a liquid, the

liquid is the solute

**liquid is the solvent**

solute is the component present in the greatest amount

solvent is the component present in the greatest amount

Question 4

Which covalent bond is the most polar?

N-F

**C-F**

Cl-F

F-F

Question 5

The wavelength of light used to observe an object must be \_\_\_\_\_ than the object itself.

Larger

**Smaller**

of higher energy

of lower energy

Question 6

Which transition could occur if a solid is heated at a pressure above the triple point pressure?

Condensation

Deposition

**Melting**

Sublimation

Question 7

When a liquid is heated at its boiling point, the

covalent bonds are broken, allowing vaporization to occur

temperature of the liquid increases

**temperature of the liquid remains the same as long as any liquid is present**

temperature of the vapor phase increases

Question 8 **(This is same question as #7)**

When a liquid is heated at its boiling point, the covalent bonds are broken, allowing vaporization to occur  
temperature of the liquid increases

**temperature of the liquid remains the same as long as any liquid is present**

temperature of the vapor phase increases

Question 9

Which type of bonding does Ba form upon solidification?

covalent network

ionic

**metallic**

Molecular

Question 10

Which of the following forms a molecular solid?

CaO

C<sub>10</sub>H<sub>22</sub>

**C(graphite)**

gold

Question 11

Which of the following solutions will have the lowest freezing point?

0.010 m Rb I

0.010 m K<sub>2</sub>SeO<sub>4</sub>

0.035 m CH<sub>3</sub>OH

**0.015 m SrBr<sub>2</sub>**

Question 12

How many liters of SO<sub>3</sub>(g) are produced at 25°C and 1.00 atm from the combustion of 1.00 kg of coal which is 1.00% S by weight? Assume all the sulfur in the coal ends up as SO<sub>3</sub>.

0.640 L

5.08 L

**7.63 L**

11.4 L

Question 13

If the Earth's ozone (O<sub>3</sub>) layer has a total volume of 1.00 × 10<sup>20</sup> km<sup>3</sup>, a partial pressure of 1.6 × 10<sup>-9</sup> atm, and a average temperature of 230K, how many ozone molecules are in the Earth's ozone layer?

2.3 × 10<sup>35</sup> molecules

5.1 × 10<sup>35</sup> molecules

2.3 × 10<sup>45</sup> molecules

**5.1 × 10<sup>45</sup> molecules**

Question 14

An unknown gas contains 83% C and 17% H by mass. It effuses at 0.87 times the rate of CO<sub>2</sub> gas under the same conditions. What is the molecular formula of the unknown gas?

C<sub>2</sub>H<sub>5</sub>

C<sub>3</sub>H<sub>3</sub>

**C<sub>4</sub>H<sub>10</sub>**

C<sub>7</sub>H<sub>17</sub>

Question 15

A saturated solution is defined as

a concentrated solution

a solution that is in equilibrium with pure solvent

**a solution that is in equilibrium with undissolved solute**

a solution that is in equilibrium with both pure solvent and undissolved solute

Question 16

A 75.0 L steel tank at 20.0°C contains acetylene gas, C<sub>2</sub>H<sub>2</sub>, at a pressure of 1.39 atm. Assuming ideal behavior, how many grams of acetylene are in the tank?

4.33 g

6.01 g

**113 g**

1650 g

Question 17

According to the kinetic molecular theory, the pressure of a gas in a container will decrease if the number of collisions with the container wall increases

number of moles of the gas increases

**temperature of the gas decreases**

volume of the container decreases

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