MC

What is a solution?

A mixture of oil and water

\*A homogeneous mixture of two or more substances

A heterogeneous mixture of two or more substances

A mixture that separates over time

MC

What is the solvent in a solution of sugar dissolved in water?

Sucrose

Salt

\*Water

Sugar

MC

What is the primary solvent in Earth's atmosphere?

Carbon dioxide

Argon

\*Nitrogen

Oxygen

MC

Which of the following is a property of a solution?

The physical states of the components are different

The solvent will settle out over time

\*The components are dispersed at the molecular scale

The components are not uniformly mixed

MC  
What happens to the internal energy and entropy during the formation of a solution?

Both internal energy and entropy decrease

\*Internal energy decreases and entropy increases

Both internal energy and entropy increase

Internal energy increases and entropy decreases

MC  
What is an electrolyte?

A substance that remains in solid form in a solution

A non-conductive substance

\*A substance that becomes ionized when dissolved in a solution

A substance that does not ionize in solution

MC

What is the characteristic of a weak electrolyte?

It is 100% ionized in solution

It does not ionize at all

\*It is less than 100% ionized in solution

It is a non-conductive substance

MC

What type of molecule is water?

Non-polar

\*Polar

Covalent

Ionic

MC

What happens when potassium chloride is dissolved in water?

It remains as whole molecules

\*It dissociates into potassium and chloride ions

It forms a non-conductive solution

It precipitates out of the solution

MC

What is the primary ion formed when hydrochloric acid is added to water?

Sodium ion

\*Hydronium ion

Chlorine ion

Hydroxide ion

MC

What is the main difference between strong and weak electrolytes?

\*Strong electrolytes are almost completely ionized

Strong electrolytes do not ionize

Weak electrolytes are non-conductive

Weak electrolytes are 100% ionized

MC

What is the maximum concentration of a solute in a solvent under specific conditions called?

Saturation point

\*Solubility

Dissolution rate

Concentration limit

MC

What happens when a solution is saturated?

\*No more solute can be dissolved

More solute can be dissolved

The solvent evaporates

The solute precipitates out

MC  
How does the solubility of gases in liquids generally change with temperature?

Varies unpredictably

Increases with temperature

\*Decreases with temperature

Remains constant

MC

What does Henry's Law relate?

Solubility of a gas to its temperature

Solubility of a solid to its pressure

\*Solubility of a gas to the pressure of the gas

Solubility of a liquid to its temperature

MC  
In Henry's Law, what does the constant 'k' represent?

Temperature of the solution

Partial pressure of the gas

Solubility of the gas

\*Ratio of solubility to pressure

MC

What happens to fish in water with insufficient dissolved oxygen due to high temperatures?

They reproduce more

\*They die

They migrate

They thrive

MC

What are liquids called that can mix together in any proportion?

Immiscible

Partially miscible

\*Miscible

Insoluble

MC

How does the solubility of most solids in liquids change with temperature?

Remains constant

Decreases

\*Increases

Varies unpredictably

MC

What is a supersaturated solution?

A solution at equilibrium

A solution with less solute than it can hold

A solution with no solute

\*A solution with more solute than it can hold

MC  
What can trigger the crystallization in a supersaturated solution?

\*Adding a seed crystal

Cooling

Heating

Nothing

MC

What is a neutral solution characterized by?

More hydronium ions than hydroxide ions.

More hydroxide ions than hydronium ions.

\*Equal concentrations of hydronium and hydroxide ions.

No hydronium or hydroxide ions.

MC

How is pH defined?

Minus the logarithm of the concentration of hydroxide ions.

\*Minus the logarithm of the concentration of hydronium ions.

The molar concentration of hydronium ions.

The molar concentration of hydroxide ions.

MC

What is the pH of a neutral solution?

0

\*7

10

14

MC

If a solution has a pH of 3, what can be said about its acidity?

\*It is acidic.

It is neutral.

It is basic.

It has equal concentrations of hydronium and hydroxide ions.

MC  
How do you calculate the hydronium ion concentration from pH?

10 to the power of the pH.

\*10 to the negative power of the pH.

Negative log of the pH.

Log of the pH.

MC  
How do you find the pH if you know the pOH?

Add the pOH to 14.

\*Subtract the pOH from 14.

Multiply the pOH by 14.

Divide the pOH by 14.

MC  
What is the pH of pure water at 25 degrees Celsius?

\*7

0

14

10

MC

What is the relationship between pH and pOH?

They subtract to 14.

\*They add up to 14.

They divide to 14.

They multiply to 14.

MC  
What is the pH of a solution with a pOH of 1.903?

\*12.097

1.903

14

7

MC

How do you calculate the percent ionization of a weak acid?

Divide the molarity of the acid by the concentration of the hydronium ion and multiply by 100.

\*Divide the concentration of the hydronium ion by the molarity of the acid and multiply by 100.

Subtract the concentration of the hydronium ion from the molarity of the acid and multiply by 100.

Add the concentration of the hydronium ion to the molarity of the acid and multiply by 100.

MC  
Which of the following statements is true about the periodic table and acid strength?

\*Acid strength increases as you move to the right and down the periodic table.

Acid strength decreases as you move to the right and down the periodic table.

Acid strength increases as you move to the left and up the periodic table.

Acid strength decreases as you move to the left and up the periodic table.

MC  
What is the primary characteristic of an acid?

\*It donates a hydrogen ion.

It accepts a hydroxide ion.

It accepts a hydrogen ion.

It donates a hydroxide ion.

MC  
What is the key difference between a strong acid and a weak acid?

Weak acids do not ionize in water.

Strong acids do not ionize in water.

Weak acids are completely ionized in water.

\*Strong acids are completely ionized in water.