AP TUTORS

CHEMISTRY OF LIFE

1. Ice floats on water because

   (A) of cohesion

   (B) ice has a higher density than water

   (C) water shrinks when it freezes

   (D) water expands when it freezes

2. Which of the following statements is not true?

   (A) Water is polar

   (B) Water can stabilize the temperature of nearby air

   (C) Water is essential for life

   (D) Water is the most abundant molecule in Earth's atmosphere

3. Why do hydrogen and oxygen form polar covalent bonds within water molecules?

   (A) Hydrogen is more electronegative than oxygen, generating a partial negative charge near the hydrogen atom

   (B) Hydrogen is more electronegative than oxygen, generating a partial positive charge near the hydrogen atom

   (C) Oxygen is more electronegative than hydrogen, generating a partial negative charge near the oxygen atoms

   (D) Oxygen is more electronegative than hydrogen, generating a partial positive charge near the oxygen atoms

4. What happens to the pH of a solution when acids are added?

   (A) The pH of the solution decreases

   (B) The pH of the solution increases

   (C) The pH of the solution increases and then decreases

   (D) The pH of the solution stays the same

5. Which of the following statements is true?

   (A) Acids and bases cannot mix together

   (B) Acids and bases can neutralize each other

   (C) Acids, not bases, can change the pH of a solution

   (D) Acids donate hydroxide ions (OH^-); bases donate hydrogen ions (H^+)

6. Define water's property of adhesion

   (A) A force that allows surface water molecules to escape and vaporize

   (B) The attraction between water molecules and other molecules

   (C) The intermolecular force between water molecules

   (D) The force that keeps particles dispersed in water

7. In a solution, what kind of molecule binds up excess hydrogen ions?

(A) Acid (B) Base (C) Donator (D) Isotope

8. Why can water be a good insulator within the body of endothermic (warm-blooded) animals?

(A) adhesive properties (B) surface tension

(C) heat of vaporization (D) specific heat capacity

9. Describe the pH scale and how it relates to living systems. Give an example of how drastic pH changes are prevented in living systems.

(A) The pH scale ranges from 0 to 14, where anything below 7 is acidic and above 7 is alkaline. The bicarbonate system in the human body buffers the blood

(B) The pH scale ranges from 0 to 14, where anything below 7 is alkaline and above 7 is acidic. The bicarbonate system in human body buffers the blood

(C) The pH scale ranges from 0 to 7, where anything below 7 is acidic and above 7 is alkaline. Water in the human body buffers the blood

(D) pH scale ranges from 0 to 7, where anything below 4 is acidic and above 4 is alkaline. Water in the human body k buffers the blood

10. Why can some insects walk on water?

(A) Insects can walk on water because of its high surface tension

(B) Insects can walk on water because it is a polar solvent

(C) Insects can walk on water because they are less dense than water

(D) Insects can walk on water because they are denser than water

11. A solution with a pH of 10 is how many times more basic than a solution with a pH of 8?

(A) 2 (B) 4 (C) 10 (D) 100

12. Discuss how buffers help prevent drastic swings in pH.

(A) Buffers absorb excess hydrogen ions to prevent increases of decreases in pH. An example is the bicarbonate system in the human body

(B) Buffers absorb excess hydrogen ions to prevent increases or decreases in pH. An example is the bicarbonate system in the human body

(C) Buffers absorb excess hydroxide ions to prevent increases or decreases in pH. An example of that is the bicarbonate system in the human body

(D) Buffers absorb excess hydrogen and hydroxide ions to prevent increases or decreases in pH. An example of that is bicarbonate system in human body

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CHEMISTRY OF LIFE

Answer Key

Q.No.	Key
1.	D
2.	D
3.	C
4.	A
5.	B
6.	B
7.	B
8.	C
9.	A
10.	A
11.	D
12.	D