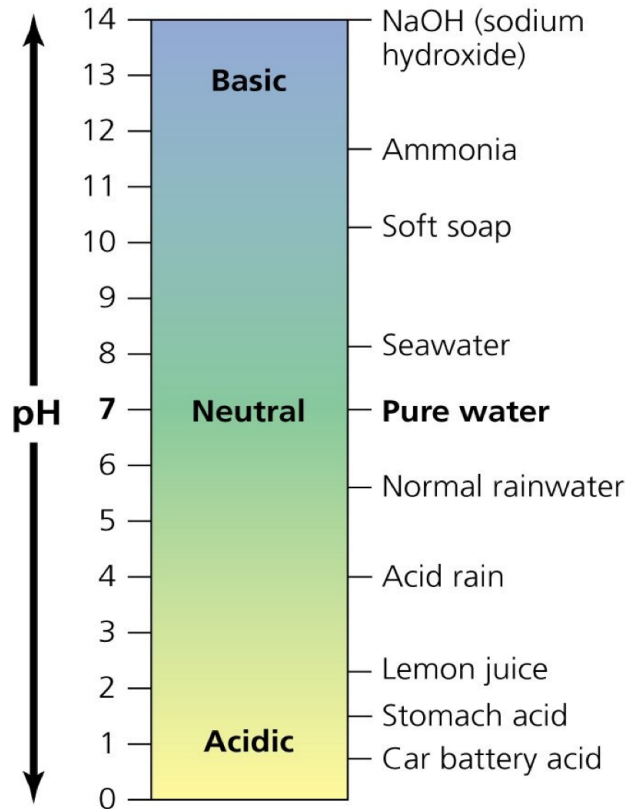


# **ENV SCI 22**

**GROUP QUIZ WEEK 2**

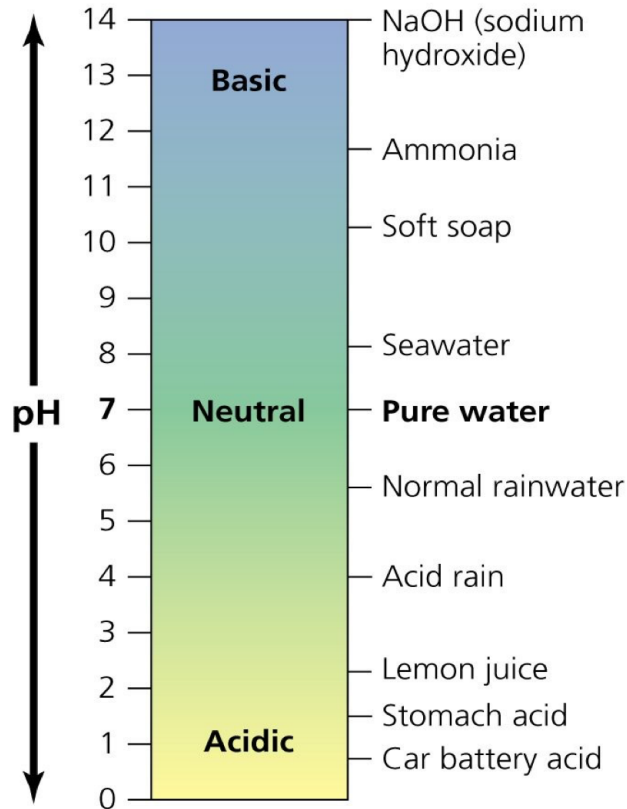
# pH OF ACIDS AND BASES



1) A decrease of one unit in the pH scale above represents a tenfold increase in the hydrogen ion concentration of a solution. For example, a solution having a pH of 4 is 10 times more acidic than a solution with a pH of 5. If acid precipitation rain changes the pH of a pond from 7.5 to 6.5, the level of hydrogen ion has changed by a factor of \_\_\_\_\_

- A) 2.0
- B) 10
- C) 13.0
- D) 100
- E) 0.01

# pH OF ACIDS AND BASES

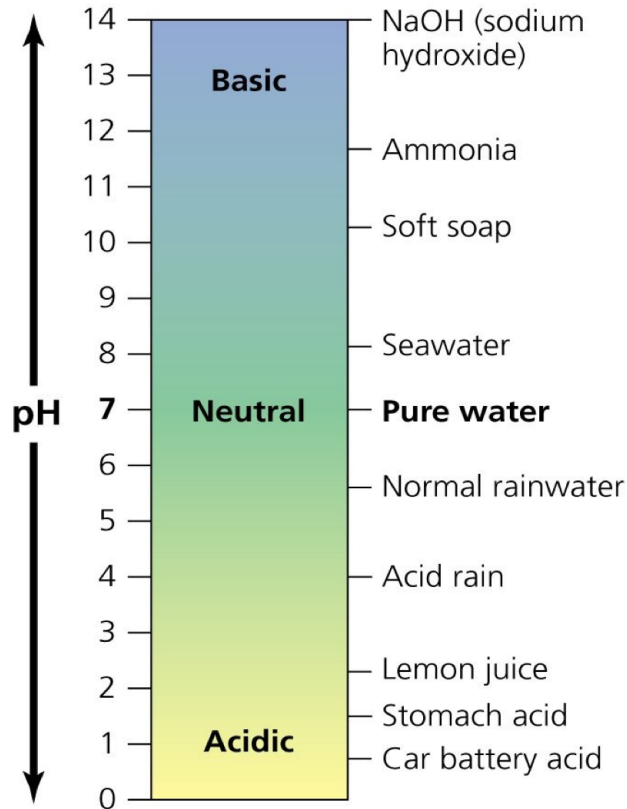


1) A decrease of one unit in the pH scale above represents a tenfold increase in the hydrogen ion concentration of a solution. For example, a solution having a pH of 4 is 10 times more acidic than a solution with a pH of 5. If acid precipitation rain changes the pH of a pond from 7.5 to 6.5, the level of hydrogen ion has changed by a factor of \_\_\_\_\_

- A) 2.0
- B) 10
- C) 13.0
- D) 100
- E) 0.01

Answer: B

# pH OF ACIDS AND BASES



2) If the pond above is chemically treated to raise the pH to 7.0 \_\_\_\_\_.

A) the water of the pond is now slightly acid

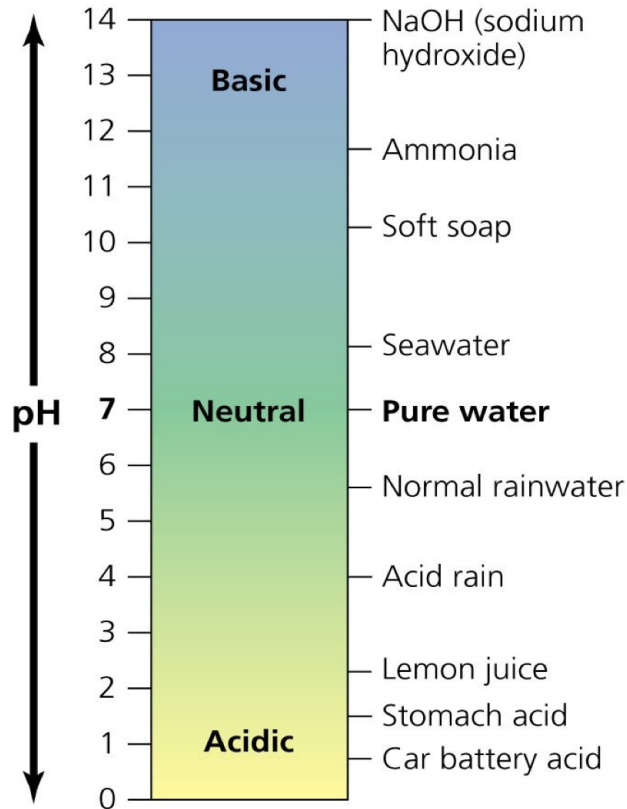
B) the water of the pond is now slightly alkaline

C) the concentration of hydrogen ion is now lower than at pH 7.5

D) there will be no measurable levels of hydrogen ion in the pond

E) the pond is now pH neutral and it has more hydrogen ions than at pH 7.5

# pH OF ACIDS AND BASES



2) If the pond above is chemically treated to raise the pH to 7.0 \_\_\_\_\_

A) the water of the pond is now slightly acid

B) the water of the pond is now slightly alkaline

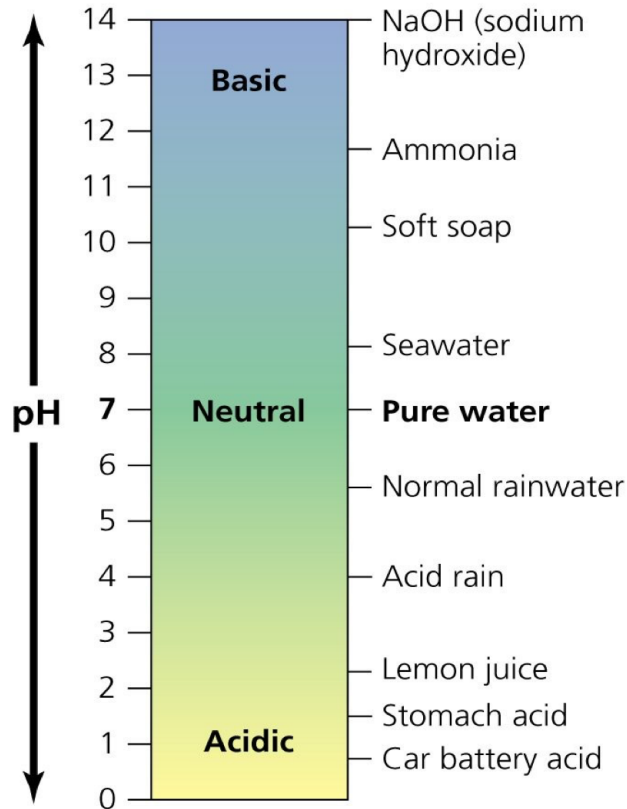
C) the concentration of hydrogen ion is now lower than at pH 7.5

D) there will be no measurable levels of hydrogen ion in the pond

E) the pond is now pH neutral and it has more hydrogen ions than at pH 7.5

Answer: E

# pH OF ACIDS AND BASES

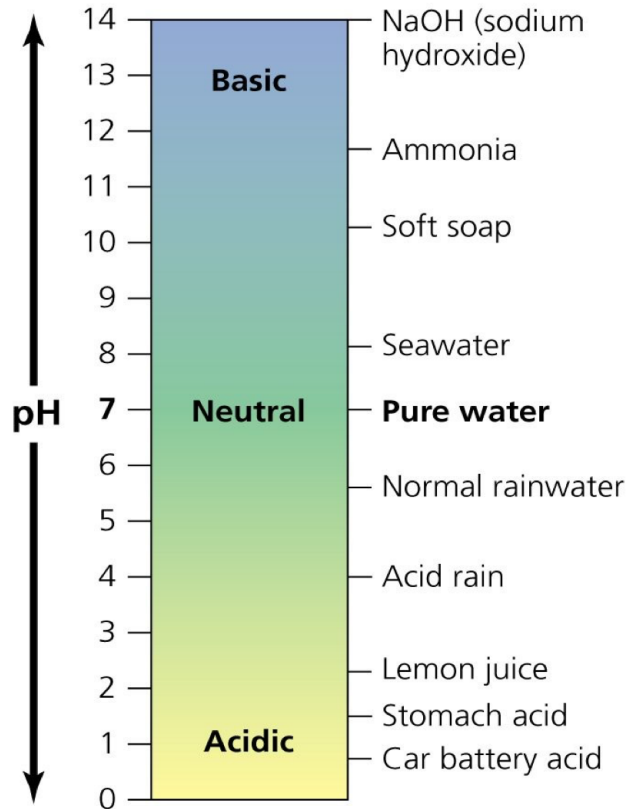


3) The figure suggests that the biological pH values displayed in the graph (are) \_\_\_\_\_.

- A) in the extremely acid range
- B) in the extremely alkaline range
- C) range from 1.5 to 8
- D) indicate an absence of hydrogen ions
- E) indicate an absence of hydroxide ions

Answer:

# pH OF ACIDS AND BASES

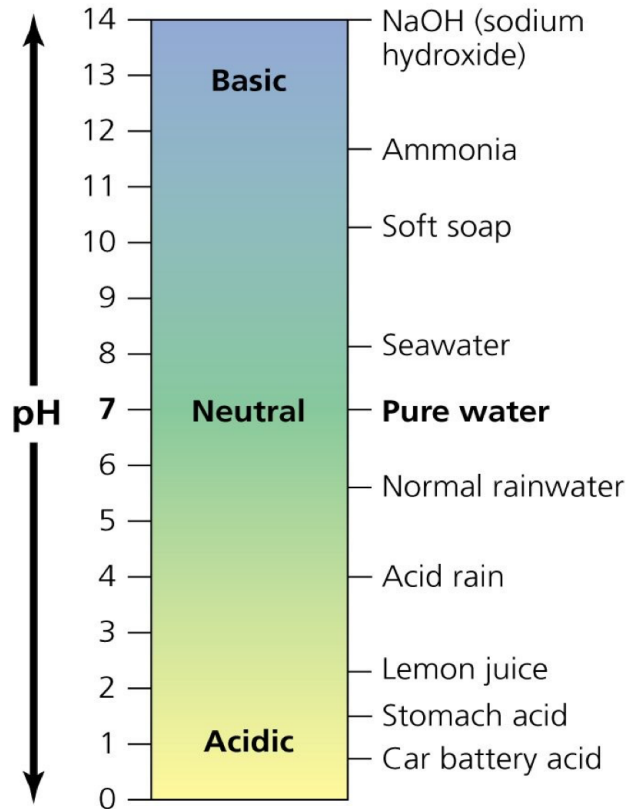


3) The figure suggests that the biological pH values displayed in the graph (are) \_\_\_\_\_.

- A) in the extremely acid range
- B) in the extremely alkaline range
- C) range from 1.5 to 8
- D) indicate an absence of hydrogen ions
- E) indicate an absence of hydroxide ions

Answer: C

# pH OF ACIDS AND BASES



4) The pH of stomach acid suggests that it

A) would be harmful to living organisms ingested with food

B) has a very high concentration of hydroxide ions

C) is inside the biological range of pH values

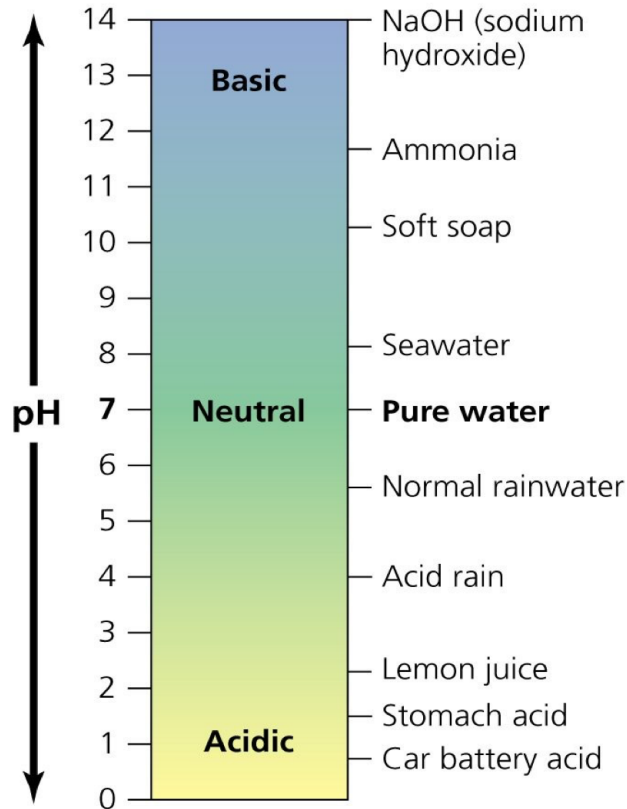
D) is an excellent environment for bacteria and fungi to multiply

E) must be very close to the pH of other body fluids

Answer:



# pH OF ACIDS AND BASES



4) The pH of stomach acid suggests that it

A) would be harmful to living organisms ingested with food

B) has a very high concentration of hydroxide ions

C) is inside the biological range of pH values

D) is an excellent environment for bacteria and fungi to multiply

E) must be very close to the pH of other body fluids

Answer: C

5. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

The smallest components of elements that still maintain the chemical properties of the element.

5. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

Answer: B

The smallest components of elements that still maintain the chemical properties of the element.

6. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

Answer:

Negatively charged particles

6. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

Answer: D

Negatively charged particles

7. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

Answer:

Elements with the same atomic number but with different atomic masses

7. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

Answer: G

Elements with the same atomic number but with different atomic masses

8. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

Answer:

Elements or molecules with a charge



8. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

Answer: A

Elements or molecules with a charge

8. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

Answer:

Charged particles located in the nucleus

8. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

Answer: C

Charged particles located in the nucleus

9. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

Answer:

Combinations of elements  
held together with bonds

9. Match the following:

- A) ions
- B) atoms
- C) protons
- D) electrons
- E) molecules
- F) neutrons
- G) isotopes

Answer: E

Combinations of elements  
held together with bonds

## **How do organic compounds differ from inorganic compounds?**

Organic compounds consist of carbon atoms joined by covalent bonds and may contain other elements, such as nitrogen, oxygen, sulfur, and phosphorus. Inorganic compounds lack carbon-carbon bonds.

**10: In what ways are macromolecules essential to life? Describe the structures of three and describe their major role(s) in organisms.**

**In what ways are macromolecules essential to life? Describe the structures of three and describe their major role(s) in organisms.**

**Answer:** Macromolecules provide critical components of organismal structure, energy storage and mobilization and genetic coding to name just a few of their many roles.



**In what ways are macromolecules essential to life? Describe the structures of three and describe their major role(s) in organisms.**

**Answer:** Carbohydrates are made of carbon, hydrogen, and oxygen and have the general formula  $CH_2O$ . Carbon and water exist in a 1:1 ratio. They are the primary components of plant cell walls and are the preferred energy source for many organisms.

**In what ways are macromolecules essential to life? Describe the structures of three and describe their major role(s) in organisms.**

**Answer:** Proteins are chains of amino acids (amine group + carboxyl or acid group + central carbon). They are primarily structural molecules. They are blood transporters, aid in the function of the immune system, and promote metabolic reactions. Most enzymes are proteins.

**In what ways are macromolecules essential to life? Describe the structures of three and describe their major role(s) in organisms.**

**Answer:** Nucleic acids are made of chains of nucleotides (phosphate + sugar + nitrogenous bases). They carry genetic information (genes) that coordinates all organismal functions and passes traits from generation to generation.