



pH SCALE QUIZ –Answer Key

1. What is a pH scale?

A scale with values 0-14 indicating a measure of hydrogen ion H⁺ concentration

2. What is an acid-base indicator?

Substances that give certain colors when mixed with acids and other colors when mixed with bases.

3. Complete the table below that shows the colors of the listed common-acid-base indicators in acidic, neutral, and alkaline solutions.

Acid-base indicator	Acidic solution	Neutral solution	Alkaline solution
Litmus solution	Red	Purple	Blue
Phenolphthalein	Colorless	Colorless	pink
Methyl Orange	Pink	Orange	Yellow

4. State two advantages that commercial base indicators such as litmus solutions have over plant extracts used as acid-base indicators.

- **Colors of acids and bases are well known. However, colors of plant extracts in acids and bases have to be determined first.**
- **Litmus solution can be stored for longer time than plant extracts without getting spoilt.**

5. An alkaline solution with phenolphthalein indicator added is left exposed to air. The color of the indicator eventually disappears. Explain this observation.

The solution absorbs carbon (IV) oxide from air. The oxide dissolves in the solution forming an acid. Phenolphthalein is colorless in acids.

6. Use the information in the table below to answer the questions below.

Solution of the compound in water	pH value of the solution
A	1.6
B	5.6
C	12.7
D	3.6
E	9.4

a. How were the pH values obtained?

Using a pH meter

b. Which solutions are acidic?

A, B, and D

c. Which solutions are basic?

C and E

d. Which solutions can neutralize solution A?

C and E

e. What would be the color of the following indicators when put in solution C?

- I. Litmus solution: **Blue**
- II. Methyl orange: **Yellow**
- III. Phenolphthalein: **Pink**
- IV. Bromothymol blue: **Blue**