CLASS X - PRACTICAL WORKSHEET

DETERMINATION OF pH

Experiment No: …3… **Date: ……..**

Objective: To find the pH of Dil HCl, Dil. NaOH, Dil. Acetic Acid, Lemon Juice, Water and Dil. $NaHCO_3$ solution, using pH paper (or Universal Indicator).

Requirements: strips of pH paper, test tubes, standard pH reference chart, and various samples

Procedure: Take 1 ml of the given sample in a test tube. Dip a piece of pH paper into it. Note the colour change and compare the same with the colour chart given to find the pH of the solution. Record your observations in the table given below.

Repeat the experiment with other samples also and record your observations.

Sl No	Sample	Colour change noticed	pH	Nature of the sample
Ex:	Dil.H_2SO_4	Red/pink	01	Strongly acidic
1	Dil. HCl			
2	Dil. NaOH			
3	Dil. Acetic Acid			
4	Lemon Juice			
5	Distilled Water			
6	Dil. $NaHCO_3$ solution			

pH/Universal Indicator Colour Reference Table

pH	1	2	3 - 4	5 - 6	7	8 - 9	10 - 11	12 - 14
Colour	Red/pink	Reddish orange	Yellow / Yellowish orange	Yellowish green	Green	Greenish blue	Blue	Deep blue / Violet
Nature	Strongly acidic	Acidic	Moderately acidic	Weakly acidic	Neutral	Weakly basic	Basic	Strongly basic

Precautions:

1. Use good quality pH paper
2. Rinse the test tubes and dropper with distilled water only.

3. Compare the pH of the given sample with distilled water.

Questions:

1. What do you understand by the term pH of a solution?
2. If some amount of HCl acid is added to pure water, what happens to:
    a. Concentration of H^+ ions?
    b. pH of the solution?
    c. Ionic product
3. If some NaOH flakes are added to pure water, what happens to:
    a. Concentration of H^+ ions?
    b. pH of the solution?
    c. Ionic product
4. The pH of solutions A, B and C are 3, 7 and 10 respectively. Which solution is (a) acidic, (b) basic and (c) neutral?
5. What colour change to pH paper you would observe when it is dipped in highly acidic solution, highly alkaline solution, distilled water and weakly acidic and alkaline solutions
6. What is the importance of pH in agriculture?
7. Identify the colour of a strip of pH paper dipped in:
    a. Lemon juice: (Reddish, yellowish or greenish)
    b. Ammonia solution: (Reddish, yellowish or greenish)
    c. Distilled water: (Reddish, yellowish or greenish)

Multiple choice questions

1.	Which one of the following is not needed to find the pH of a solution? a) pH paper b) Litmus paper c) Universal indicator d) Standard pH value chart
2.	A drop of a liquid sample was put on the pH paper. The colour of the paper turned blue. The liquid sample could be that of a) Lemon juice b) HCl c) $NaHCO_3$ d) Acetic acid
3.	A few drops of liquid X were added to distilled water. It was observed that pH of the water decreased. The liquid X is a) Lemon juice b) Sugar solution c) Common salt solution d) Baking soda solution
4.	A student was provided with a pH chart by the teacher and asked to observe the colours corresponding to pH 1 and 14 respectively. The correct answer would be a) Yellow, green b) Violet, orange c) Red , blue d) Blue, orange
5.	What is the correct strategy to measure the pH of a colourless solution in the lab? a) Use a red litmus paper b) Use a blue litmus paper c) Use universal indicator d) Use methyl orange