

EXPERIMENT-I

AIM: To find the pH of the following samples by using pH paper / universal indicator:

- (a) Dilute hydrochloric acid solution (A)
- (b) Dilute sodium hydroxide solution (B)
- (c) Dilute ethanoic acid solution (C)
- (d) Lemon juice (D)
- (e) Water (E)
- (f) Dilute sodium carbonate solution (F)

APPARATUS:

Test tubes, test tube stand, glass tube or glass rod, dropper, white tile, pH paper or universal indicator, standard pH colour chart, distilled water, given samples.

BASIC PRINCIPLES INVOLVED:

pH is a measure of the hydrogen ion concentration $[H^+]$ of a solution.

The pH of an acidic solution is less than 7 (eg. Hydrochloric acid, ethanoic acid, lemon juice).

The pH of a basic solution is more than 7 (eg. dilute sodium hydroxide).

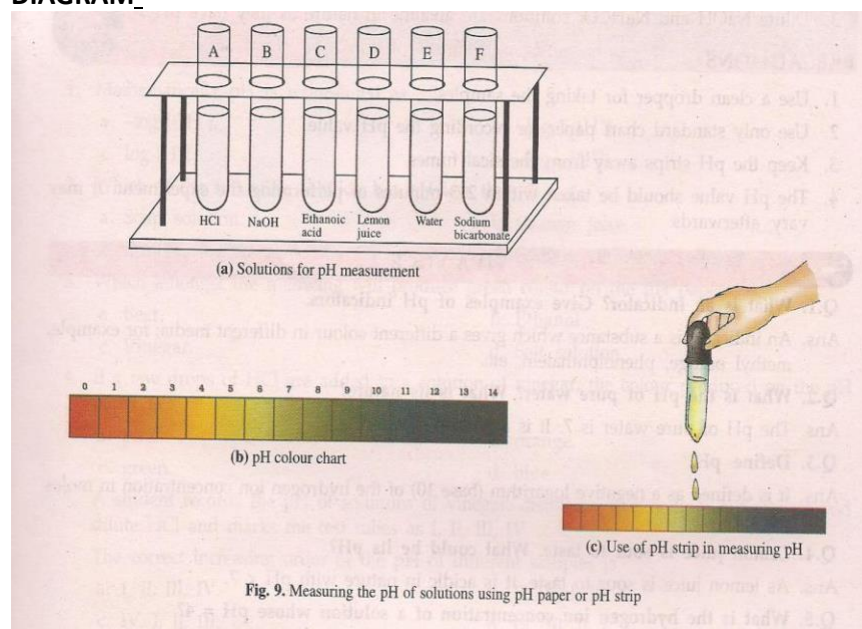
The pH of a neutral solution is equal to 7 (eg. pure water).

The pH of a sample can be measured by the use of pH paper or by the use of the universal indicator.

PROCEDURE:

- 1) 6 clean, dry test tubes are placed in a test tube stand. 10 ml of each sample (A, B, C, D, E, F) whose pH is to be determined, is taken in each test tube.
- 2) A strip of pH paper is taken and placed on a clean white tile.
- 3) A drop of each sample A, B, C, D, E & F is put on the pH paper with the help of a dropper, one by one from the given samples.
- 4) The colour change is observed and matched with the colour of the standard pH colour chart.
- 5) The pH value corresponding to the colour is recorded in the given table.

DIAGRAM-



S.N.	Name of Sample	Colour developed on pH paper	pH value (from the chart)	Nature of the sample
A	Dilute hydrochloric acid Solution			
B	Dilute sodium hydroxide solution			
C	Dilute ethanoic acid solution			
D	Lemon juice			
E	Water			
F	Dilute sodium carbonate solution			

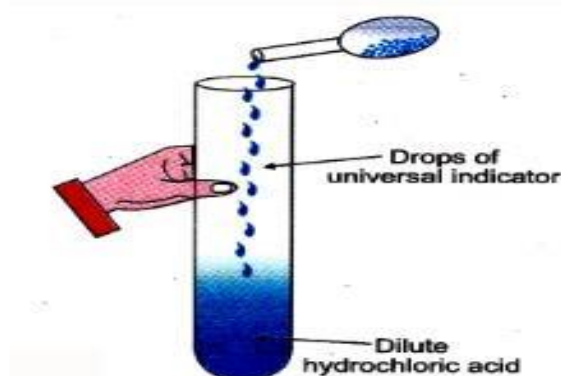
RESULT:

In the given samples we have observed that:

- 1) Acidic samples with a pH of less than 7 are:
- 2) Basic samples with a pH of more than 7 are:
- 3) A neutral sample with PH.

PRACTICAL BASED QUESTIONS

1. Solid sodium bicarbonate was placed on a strip of pH paper. What was the change in colour?
2. A student adds a few drops of the universal indicator to a solution of dilute hydrochloric acid in the way shown here. What change will he observe?



3. A student dips pH papers in solutions A and B and observes that the pH paper turns blue and orange respectively in them. What does he infer?
4. How is the presence of an acid tested with the strip of red litmus paper?