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| STUDENT'S NAME | | TOTAL MARKS OBTAINED |
| CLASS | SUBJECT | |
| ROLL NO. | DATE | |

pH DETERMINATION.

1) pH Paper - Colorimetric method.

pH paper is a strip of special paper that is prepared by dipping the strip in different chemical compounds and drying it. It can be used to find the approximate pH of any solution. These paper changes colour when immersed in acidic or basic solutions.

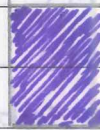
To determine the pH, the pH paper is dipped in given sample solution and the colour developed in the paper, is then compared with the colour chart and the approximate pH of the solution can be identified.



Red
(ACIDIC)



Yellow
(NEUTRAL)



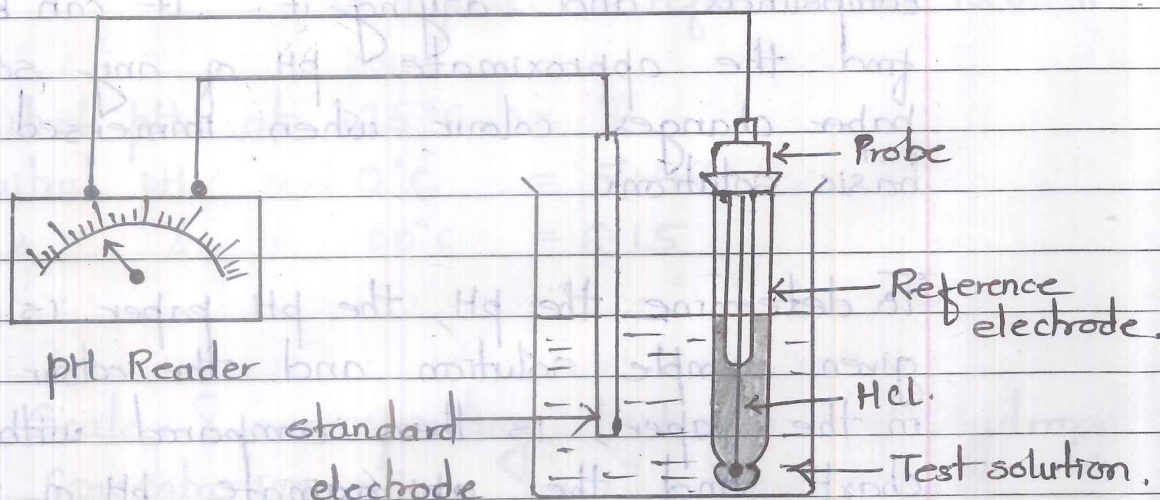
Purple/Blue.
(ALKALINE)

2) pH Meter - Electrometric method

pH Meter is an electronic instrument consisting of special bulb that is sensitive to hydrogen ion that are present in the test solution.

It consists of

- standard electrode with known potential
- Reference " enclosed in glass membrane containing HCl filled in it.



Method:-

The reference and standard electrodes are dipped in the test solution. When electric current is allowed to pass H^+ ions from reference electrode move out into test solution. This develops potential difference between standard and reference electrode. This difference in potential is recorded by the inbuilt potentiometer placed in between the pH meter. Once the value of pH is recorded, one can find (out the) concentration of H^+ ion.

Applications:-

- To find out the concentration of H^+ ion,
- " " " " " " " OH^- ions,
- To " " " " " " " buffers to be added
- To improve the stability, solubility & purity of given solution.

Precautions in handling pH meter:-

- For very precise measurement, the pH meter should be calibrated before each measurement.
- The calibration should be performed with at least 2 buffer solutions with known pH. eg pH 4 and pH 10 are used.
- After measurement, the bulb should be rinsed with distilled water to remove any traces of solution. & then dry the bulb with blotting paper.
- When not in use, the bulb must be dipped in distilled water to avoid dehydration of the pH sensing membrane.

BUFFERS

Buffers are compounds or mixtures of compounds that, by their presence in solution, resist changes in pH even after the addition of small quantities of acids or alkali.

- The resistance to change in pH is known as Buffer action.

Buffers are classified as:-

a) Acidic Buffer:- - one with pH less than 7
- combination of weak acid and one of its salts - often sodium salt.

eg:- CH_3COOH & CH_3COONa .

b) Basic Buffer:- - one with pH more than 7
eg:- NH_4OH & NH_4Cl .