

Girls' High School & College, Prayagraj

Session: 2020-21

Class: X A, B, C, D, E, F

Subject: Chemistry Practical

Instructions: Students are advised to write the following chemistry practicals (Exp. No. 9 to 12) in chemistry practical file (D. N. Publication or Nova Publication). These experiments are to be written neatly. The same pattern of writing is to be followed as given. Write each experiment on a fresh page.

Experiment No. 9

You are given a solution. Determine whether it is acidic or basic in nature by giving three tests.

(1) Observation:

- (a) When the solution is tested with red litmus paper, it remains unchanged and when it is tested with blue litmus paper, it is turned red.
- (b) When the given solution is tested with phenolphthalein solution, it remains colourless i.e. the colour of the phenolphthalein solution does not change.
- (c) It turns methyl orange solution (orange in colour) pink.

(2) **Deduction:** As the given solution turns blue litmus paper red, phenolphthalein solution remains unchanged and methyl orange solution is turned pink, it proves that the given solution is acidic in nature.

Experiment No. 10

You are given a solution. Determine whether it is acidic or basic in nature by giving three tests.

(1) Observation:

- (a) When the solution is tested with blue litmus paper, it remains unchanged and when it is tested with red litmus paper, it is turned blue.
- (b) When the given solution is tested with phenolphthalein solution, it turns pink.
- (c) It turns methyl orange solution (orange in colour) yellow.

(2) **Deduction:** As the given solution turns red litmus paper blue, phenolphthalein solution pink and methyl orange solution is turned yellow, it proves that the given solution is basic in nature.

Experiment No. 11

Take the given substance in a clean, dry, hard test tube, add conc. HCl and warm it. Make your observation, identify the product and give deduction.

(1) Observation:

- (a) The given substance is black in colour.
- (b) On adding conc. HCl to the given substance a greenish yellow gas having a sharp pungent choking odour evolves.
- (c) It turns a moist blue litmus paper red and finally bleaches.
- (d) It turns moist starch iodide paper blue black.
- (e) When the gas is passed through silver nitrate solution, a white ppt. is formed.

(2) Identification of the gas evolved: The gas evolved is chlorine.

(3) Deduction:

- (a) The given substance is manganese dioxide (MnO_2).
- (b) MnO_2 acts as an oxidizing agent and oxidizes conc. HCl into chlorine.

Experiment No. 12

Take the given substance in a clean, dry, hard test tube and add conc. HCl. Make your observation, identify the product and give deduction.

(1) Observation:

- (a) The given substance is black in colour.
- (b) On adding few drops of conc. HCl to the given substance, a blue coloured solution is obtained.
- (c) On adding ammonium hydroxide to the above solution the pale blue precipitate is formed, which is soluble in excess of NH_4OH , forming deep blue solution.
- (d) No gas evolves on adding conc. HCl.

(2) Identification of the product formed:

- (a) A blue coloured solution formed on adding conc. HCl is of copper (II) chloride.
- (b) On adding NH_4OH to this solution pale blue precipitate of copper hydroxide is formed.
- (c) On adding excess NH_4OH , tetraamminecopper hydroxide is formed which is soluble and deep blue in colour.

(3) Deduction:

- (a) The given substance is copper (II) oxide.
- (b) On adding hydrochloric acid to copper (II) oxide, neutralization reaction takes place.
- (c) The products formed are copper (II) chloride and water.

END

