

**Girls' High School & College, Prayagraj**

**Assignment No. : 2**

**Session : 2020-21**

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

**Subject : Chemistry**

**INSTRUCTIONS:**

The parents to ensure that their ward watches the video instructions for this assignment by clicking on the given link:- Part 1- <https://youtu.be/LHNv3XMA5Fk>

Part 2- [https://youtu.be/3d\\_wNdDXAIU](https://youtu.be/3d_wNdDXAIU)

She should revise the lesson given in the book and then work on the assignment. The completed assignment is to be downloaded and filed/pasted in the subject file/copy and kept ready for submission. The day, date and procedure of submission shall be notified later.

**Note: Chapter - Acids ,Bases and Salts**

**Book: Concise Chemistry by Dr. S. P. Singh (Selina Publication)**

**Answer the following questions:**

1. Choose the correct answer:

(a) The acid which contains four hydrogen atoms is:

- (i) Formic acid
- (ii) Nitric acid
- (iii) Sulphuric acid
- (iv) Acetic acid

(b) A weak organic acid is:

- (i) Formic acid
- (ii) Nitric acid
- (iii) Sulphuric acid

(iv) Hydrochloric acid

(c) The basicity of acetic acid is:

(i) 3

(ii) 2

(iii) 1

(iv) 4

(d) Ferric hydroxide is:

(i) Monoacidic base

(ii) Diacidic base

(iii) Triacidic base

(iv) Dibasic acid

(e) Which of the following is an alkali:

(i)  $\text{Cu}(\text{OH})_2$

(ii)  $\text{Al}(\text{OH})_3$

(iii)  $\text{Fe}(\text{OH})_3$

(iv)  $\text{NaOH}$

2. What do you understand by an alkali ? Give two examples of:

(a) Strong alkalis.

(b) Weak alkalis.

3. What is the difference between:

(a) an alkali and a base?

(b) the chemical nature of an aqueous solution of  $\text{HCl}$  and an aqueous solution of  $\text{NH}_3$ ?

4. Name the ions furnished by:

(a) bases (in solution).

(b) an acid (in solution).

5. Give one example in each case:

(a) A hydroxide which is highly soluble in water.

(b) A hydroxide which is insoluble in water.

(c) A weak mineral acid.

- (d) A base which is not an alkali.
- (e) An oxide which is a base.
- (f) A hydrogen containing compound which is not an acid.
- (g) A base which does not contain a metal ion.

6. Explain why:

- (a) Dry HCl gas does not change the colour of dry litmus paper?
- (b)  $\text{PbO}_2$  is not a base ?

7. Write balanced chemical equations to satisfy each statement.

- (a) Acid + Active metal  $\rightarrow$  Salt + Hydrogen
- (b) Acid + Base  $\rightarrow$  Salt + Water
- (c) Acid + Metallic carbonate or bicarbonate  $\rightarrow$  Salt + Water + Carbon dioxide
- (d) Acid + Metallic sulphite or bisulphite  $\rightarrow$  Salt + Water + Sulphur dioxide
- (e) Acid + Metallic sulphide  $\rightarrow$  Salt + Hydrogen sulphide

8. Two solutions X and Y have pH values of 4 and 10, respectively. Which one of these two will give a pink colour with phenolphthalein indicator?

9. You are supplied with five solutions: A, B, C, D and E with pH values as follows:

A = 1.8, B = 7, C = 8.5, D = 13, E = 5

(a) Which of these solutions is:

- (i) Neutral
- (ii) slightly acidic
- (iii) strongly acidic
- (iv) slightly alkaline
- (v) strongly alkaline

(b) Which solution would be most likely to liberate hydrogen gas with powdered zinc metal?

10. Distinguish between acidity of bases and basicity of acids.

11.

(a) If a solution changes the colour of litmus from red to blue, what can you say about

its pH?

- (b) What can you say about the pH of a solution, that liberates carbon dioxide from sodium carbonate?

12. Solution P has a pH of 13, solution Q has a pH of 6 and solution R has a pH of 2.

Which solution:

- (a) will liberate ammonia from ammonium sulphate on heating?  
(b) is a strong acid?  
(c) contains molecules as well as ions?

13. Fill in the blanks with suitable words:

An acid is a compound which when dissolved in water forms hydronium ions as the only ..... ions. An alkali is a compound which is soluble in water and contains ..... ions. A base reacts with an acid to form a ..... and water only. This type of reaction is known as .....

14. What would you observe when:

- (a) Blue litmus is introduced into a solution of hydrogen chloride?  
(b) Red litmus paper is introduced into a solution of ammonia in water?

15. M is an element in the form of a powder. M burns in oxygen and the product obtained is soluble in water. The solution is tested with blue and red litmus paper. Write down only the word which will correctly complete each of the following sentences.

- (a) If M is a metal, then the \_\_\_\_\_ litmus will turn \_\_\_\_\_.  
(b) If M is a non-metal, then the \_\_\_\_\_ litmus will turn \_\_\_\_\_.  
(c) If M is a reactive metal, then \_\_\_\_\_ will be evolved, when M reacts with dilute sulphuric acid.  
(d) If M is a metal, it will form \_\_\_\_\_ oxide, which will form \_\_\_\_\_ solution with water.

16. Give the basicity of:

- (a) Nitric acid

- (b) Sulphuric acid
- (c) Phosphoric acid

17. Give a balanced chemical equation when conc.  $\text{H}_2\text{SO}_4$  reacts with :

- (a) Sodium chloride (below  $200^\circ\text{C}$ )
- (b) Sodium nitrate (below  $200^\circ\text{C}$ )

18. Write the ionization of sulphuric acid showing the formation of hydronium ion.

19. Name the positive ion formed when an acid is dissolved in water. Draw the structure of this ion.

20. A solution of hydrogen chloride in water is prepared. The following substances are added to separate portions of the solution. Complete the table by writing the gas evolved in each case.

S.No.	Substances added	Gas evolved
1.	Calcium carbonate	
2.	Magnesium ribbon	
3.	Sodium sulphide	
4.	Calcium bicarbonate	
5.	Sodium bisulphite	

END