Maxprap. Chapter wise Series Class 10th – Chemistry

Class : 10th **Topic : Acid Bases and Salts**

Max. Marks : 50 **Duration : 2 Hrs**

Sections: A (MCQs), B (Short Answer-I), C (Short Answer-II), D (Long Answer), E (Case-Based).

General Instructions:

(i). All questions are compulsory.

(ii). This question paper contains 23 questions divided into five Sections A, B, C, D and E. (iii). Section A comprises of 10 MCQs of 1 mark each. Section B comprises of 5 questions of 2 marks each. Section C comprises of 4 questions of 3 marks each. Section D comprises of 2 question of 5 marks each and Section E comprises of 2 Case Study Based Questions of 4 marks each.

(iv). There is no overall choice.

Section A

Questions 1 to 10 carry 1 mark each

1. The acid produced in our stomach during digestion of food is

a) Acetic acid b) Lactic acid c) Oxalic acid d) Hydrochloric acid

2. Juice of tamarind turns blue litmus to red. It is because of the presence of an acid called:

a) methanoic acid b) oxalic acid c) tartaric acid d) acetic acid

3. An aqueous solution **A** turns phenolphthalein solution pink. On addition of an aqueous solution **B** to **A** , the pink colour disappears. The following statement is true for solution **A** and **B** .

a) A has pH greater than 7 and B has pH less than 7.

b) A is strongly basic and B is a weak base.

c) A is strongly acidic and B is a weak acid.

d) A has pH less than 7 and B has pH greater than 7.

4. Litmus is an example of

a) artificial indicator b) self indicator c) olfactory indicator d) natural indicator

5. NaCl and $Na_2 SO_4$ belongto the family of

a) neutral salts b) sulphate salts c) sodium salts d) chloride salts

6. There are four solutions A, B, C, and D with pH values as follows:

Solution	A	B	C	D
pH	2.0	7.0	8.0	12.0

Which solution(s) would liberate hydrogen gas with zinc?

a) A and D b) D only c) B and C d) A only

7. Consider the following compounds: $FeSO_4$; $CuSO_4$; $CaSO_4$; $Na_2 CO_3$

The compound having maximum number of water of crystallisation in its crystalline form in one molecule is:

a) $CuSO_4$ b) $Na_2 CO_3$ c) $FeSO_4$ d) $CaSO_4$

8. Which of the following will allow the electricity to flow through it/them?

Glucose Dry HCl gas Alcohol Dil. $H_2 SO_4$

a) (iv) only b) (ii) and (iv) only c) (ii), (iii) and (iv) d) (i) and (iii) only

Assertion(A)/Reason(R) Based (9-10): In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

9. Assertion (A): Salt of KNO_3 is formed by strong base and weak acid.

Reason (R): Salt of NH_4 Clis formed by weak base and strong acid.

10. Assertion (A): Baking soda is prepared by chlor - alkali process.

Reason (R): Brine decomposes to sodium hydroxide on passing electricity through it.

SECTION – B

Questions 11 to 15 carry 2 marks each

11. Why is tartaric acid added into baking soda to get baking powder?

12. What are strong and weak acids? In the following list of acids, separate strong acids from weak acids **:** Hydrochloric acid, citric acid, acetic acid, nitric acid, formic acid, sulphuric acid

13. Salt **P** , commonly used in bakery products, on heating gets converted into another salt **Q** which itself is used for the removal of hardness of water and a gas **R** is evolved. The gas **R** when passed through freshly prepared lime water turns milky. Identify **P**, **Q** and **R**, giving chemical equation for the justification of your answer.

14. Write the chemical formula of bleaching powder. How is bleaching powder prepared? For what purpose it is used in drinking water?

15. A chemical compound X is used in glass, soap and paper industries. On treatment with ethanoic acid, it forms salt, water and carbon dioxide.

a) Identify X.
b) How is this compound obtained from brine? Write the equations involved.
c) State the number of molecules of water of crystallization present in compound X.

SECTION – C

Questions 16 to 19 carry 3 marks each

16. A milkman adds a very small amount of baking soda to fresh milk.
   a) Why does he shift the pH of the fresh milk from 6 to slightly alkaline?
   b) Why does this milk take a long time to set as curd?
   c) What do you expect to observe when milk comes to boil?

17. With the help of a chemical equation, explain how a soda - acid fire extinguisher helps in putting out a fire.

18. A white shirt has a yellow stain of curry. When soap is rubbed on this shirt during washing, the yellow stain turns reddish - brown. On rinsing the shirt with plenty of water, the reddish - brown stain turns yellow again.
   a) Name the natural indicator present in curry stain.
   b) Explain the changes in colour of this indicator which take place during washing and rinsing the shirt.
   c) What is the nature of soap (acidic/basic) as shown by the indicator present in curry stain?

19. A chemical compound X is prepared using sodium chloride as starting material. The compound X is used for faster cooking. It also finds use as an ingredient in medicine to treat indigestion.
   a) Identify the compound X.
   b) Give an equation for the chemical reaction which takes place upon heating X during cooking.
   c) Which quality of compound X makes it suitable for treating indigestion?

SECTION – D

Questions 20 to 21 carry 5 marks each

20.
   a) Define a universal indicator. Mention its one use.
   b) Solution A gives pink color when a drop of phenolphthalein indicator is added to it. Solution B gives red color when a drop of methyl orange is added to it. What type of solutions are A and B and which one of the solutions A and B will have higher pH value?
   c) Name one salt whose solution has pH less than 7 and one salt whose solution has pH more than 7.

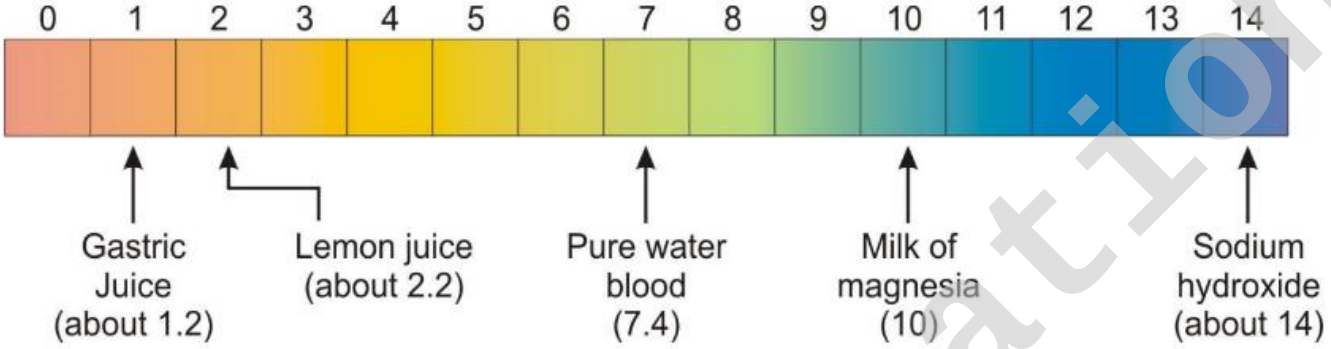
21. Write the main difference between an acid and a base. With the help of suitable examples explain the term neutralization and the formation of -
   a) acidic,
   b) basic and
   c) neutral salts.

SECTION – E (Case Study Based Questions)

Questions 22 & 23 carry 4 marks each

22. Read the following text carefully and answer the questions that follow:

The strength of acid and base depends on the number of H^+ and the number of OH^- respectively. If we take hydrochloric acid and acetic acid of the same concentration, say one molar, then these produce different amounts of hydrogen ions. Acids that give rise to more H^+ ions are said to be strong acids, and acids that give less H^+ ions are said to be weak acids. Can you now say what weak and strong bases are?



a) Fresh milk has a pH of 6. How do you think the pH will change as it turns into curd? (1)

b) Is Gastric juice a weak acid? (1)

c) Milk of magnesia is an acid or base? For what purpose it can be used? (2)

OR

What is the pH value of saliva after the meal? (2)

23. Read the following text carefully and answer the questions that follow:

Salts play a very important role in our daily life. Sodium chloride which is known as common salt is used almost in every kitchen. Baking soda is also a salt used in faster cooking as well as in baking industry. The family of salts is classified on the basis of cations and anions present in them.

a) Identify the acid and base from which Sodium chloride is formed. (1)

b) Find the cation and the anion present in Calcium sulphate. (1)

c) "Sodium chloride and washing soda both belong to the same family of salts." Justify this statement. (2)

OR

Define the term pH scale. Name the salt obtained by the reaction of Potassium hydroxide and Sulphuric acid and give the pH value of its aqueous solution. (2)

Acid Bases and Salts Paper Details – Analysis		
Objective Questions		
MCQ	1 marks x 8 question = 8	
Assertion Reason	1 marks x 2 question = 2	
Subjective		
Short type I	2 marks x 5 question = 10	
Short type II	3 marks x 4 question = 12	
Long Type	5 marks x 2 question = 10	
Case Studies Based		
Case 1	4 marks	
Case 2	4 marks	

Total = 50 marks Your Score =