

**Q1 Mcq**

**1. Which of the following are present in a dilute aqueous solution of hydrochloric acid?**

- (a)  $\text{H}_3\text{O}^+ + \text{Cl}^-$
- (b)  $\text{H}_3\text{O}^+ + \text{OH}^-$
- (c)  $\text{Cl}^- + \text{OH}^-$
- (d) unionised HCl

**2. Which of the following is not a mineral acid?**

- (a) Hydrochloric acid
- (b) Citric acid
- (c) Sulphuric acid
- (d) Nitric acid

**3. Which of the following gives the correct increasing order of acidic strength ?**

- a) Water < Acetic acid < Hydrochloric acid
- b) Water < Hydrochloric acid < Acetic acid
- c) Acetic acid < Water < Hydrochloric acid
- d) Hydrochloric acid < Water < Acetic acid

**4. Lime water turns milky when carbon dioxide is passed due to the formation of \_\_\_\_.**

- a)  $\text{CaCO}_3$
- b) CaO
- c)  $\text{CO}_2$
- d)  $\text{CaSO}_4$

**5. Acids react with bases to form salt and water this reaction is known as -----**

- a) Acidification
- b) Neutralization
- c) Corrosion
- d) Saturation

**6. Acids reacts with metal carbonates to liberate \_\_\_\_\_ gas**

- a) Carbon dioxide
- b) Hydrogen
- c) Methane
- d) Steam

**7. When metals reacts with acids they form \_\_\_\_\_ and evolve \_\_\_\_\_ gas**

- a) Water, salt
- b) Salt, carbon dioxide
- c) Salt, hydrogen
- d) Salt, carbon monoxide

**8. How is the concentration of hydronium ions ( $\text{H}_3\text{O}^+$ ) affected when a solution of an acid is diluted?**

- a) Increases
- b) Decreases
- c) Remains same

d) Other

**9. Acetic acid is weak acid because**

- a) Its aqueous solution is acidic
- b) It is highly ionised
- c) It is weakly ionised
- d) It contains the COOH group.

**10. Identify the basic salt from the following.**

- a)  $\text{Na}_2\text{CO}_3$
- b)  $\text{NaNO}_3$
- c) KCl
- d)  $\text{NH}_4\text{Cl}$

**11. Which one of the following will turn red litmus blue?**

- (a) Vinegar
- (b) Baking soda solution
- (c) Lemon juice
- (d) Soft drinks

**12. Methyl orange is**

- (a) Pink in acidic medium, yellow in basic medium
- (b) Yellow in acidic medium, pink in basic medium
- (c) Colourless in acidic medium, pink in basic medium
- (d) Pink in acidic medium, colourless in basic medium.

**13. Which of the following does not form an acidic salt?**

- (a) Phosphoric acid
- (b) Carbonic acid
- (c) Hydrochloric acid
- (d) Sulphuric acid

**14. Which of the following statements is true for acids?**

- (a) Bitter and change red litmus to blue
- (b) Sour and change red litmus to blue
- (c) Sour and change blue litmus to red
- (d) Bitter and change blue litmus to red

**15. Ionic compounds do not conduct electricity in \_\_\_ state**

- a) Liquid
- b) Solid
- c) Molten
- d) Other

**16. Which of the following is not a property of ionic compounds?**

- a) They conduct electricity
- b) They are formed by sharing of electrons
- c) They consist of cations and anions
- d) They dissociate in aqueous medium

**17. Alkali are bases that are \_\_\_ in water**

- a) highly insoluble

- b) Highly soluble
- c) Sparingly soluble
- d) Immiscible

**18. When KOH combines with acetic acid it forms \_\_\_ salt**

- a) Acidic
- b) Basic
- c) Neutral
- d) Weak

**19. Basicity of phosphoric acid is \_\_\_**

- a) 1
- b) 2
- c) 3
- d) 4

**20. pH stands for \_\_\_**

- a) Purity of hydrogen
- b) Power of hydrogen ion
- c) Power of hydroxide ion
- d) Other

**Q2. Mention the colour changes observed when the following indicators are added to acids:**

- (i) Alkaline phenolphthalein solution.
- (ii) Methyl orange solution
- (iii) Neutral litmus solution

**Q3. Complete the blanks from the list given:**

(Ammonia, Ammonium, Carbonate, Carbon dioxide, Hydrogen, Hydronium, Hydroxide, Precipitate, Salt, Water.)

A solution X turns blue litmus red, so it must contain (i) ..... ions; another solution Y turns red litmus blue and therefore, must contain (ii) ..... ions. When solutions X and Y are mixed together the products will be a (iii) ..... and (iv) ..... . If a piece of magnesium were put into solution X, (v) ..... gas would be evolved.

**Q4. Match the following:**

Column A	Column B
1. Acid salt	A. Sodium potassium carbonate
2. Normal salt	B. Alum
	C. Sodium carbonate
	D. Sodium zincate
	E. Sodium hydrogen carbonate.

**Q5. Write the equation[s] for the reaction[s] to prepare lead sulphate from lead carbonate**

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**1. The acid which contains four hydrogen atoms —**

- a) Formic acid
- b) Sulphuric acid
- c) Nitric acid
- d) Acetic acid

**2. A weak organic acid is:**

- a) Formic acid
- b) Sulphuric acid
- c) Nitric acid
- d) Hydrochloric acid

**3. A complex salt is :**

- a) Zinc sulphate
- b) Sodium hydrogen sulphate
- c) Iron (II) ammonium sulphate
- d) Tetrammine copper (II) sulphate

**4. Which of the following hydroxides is not an alkali — [Choose from the choices A, B, C and D]**

- a) ammonium hydroxide
- b) calcium hydroxide
- c) copper hydroxide
- d) sodium hydroxide

**5. Which one of the following can be used as an acid–base indicator by a visually impaired student?**

- a) Litmus
- b) Turmeric
- c) Vanilla essence
- d) Petunia leaves

**6. Which of the following is not a mineral acid?**

- a) Hydrochloric acid
- b) Citric acid
- c) Sulphuric acid
- d) Nitric acid

**7. Which of the following statements is true for acids?**

- a) Bitter and change red litmus to blue
- b) Sour and change red litmus to blue
- c) Sour and change blue litmus to red
- d) Bitter and change blue litmus to

**Q2. Fill in the blanks**

1.  $\text{Ca}(\text{H}_2\text{PO}_4)_2$  is an example of a compound called \_\_\_\_\_ (acid salt/ basic salt/ normal salt)

2. When sodium chloride is heated with concentrated sulphuric acid below 200°C, one of the products formed is .....  
(sodium hydrogen sulphate / sodium sulphate / chlorine)

**Q3. Answer The following**

1. What do you mean by hydrolysis of salt. Explain with the help of an example
2. What do you understand by the term ionic product of water?
3. Give the pH value of pure water. Does it change if common salt is added to it?
4. What do you understand by water of crystallization? Give three substances which contain water of crystallization and write their common names.
5. Define the following
  - (a) Define efflorescence. Give examples.
  - (b) Define deliquescence. Give examples.
6. Why does common salt get wet during the rainy season?
7. Write balanced equations for the following reactions:
  - (a) Lead sulphate from lead nitrate solution and dilute sulphuric acid
  - (b) Copper sulphate from copper and concentrated sulphuric acid.
8. What is the action of dilute sulphuric acid on sodium hydroxide.  
Ammonium hydroxide is added to ferrous sulphate solution  
A small piece of zinc is added to dilute hydrochloric acid.

**Q3. Displacement — Action of dilute acid on active metals**

Iron — salt iron [II] sulphate  
 $\text{Fe} + \text{H}_2\text{SO}_4 \rightarrow \dots + \dots$  [g]  
Zinc — salt zinc sulphate  
 $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \dots + \dots$  [g]  
Magnesium — salt magnesium chloride  
 $\text{Mg} + \text{HCl} \rightarrow \dots + \dots$  [g]

**Q4. Action of dilute acid on carbonate & bicarbonate**

Carbonate — salt lead nitrate  $\text{PbCO}_3 + \text{HNO}_3 \rightarrow \dots + \dots + \dots$  [g]  
Carbonate — salt copper chloride  $\text{CuCO}_3 + \text{HCl} \rightarrow \dots + \dots + \dots$  [g]  
Bicarbonate — salt potassium sulphate  
 $\text{KHCO}_3 + \text{H}_2\text{SO}_4 \rightarrow \dots + \dots + \dots$  [g]

**Q5. Solution A is a strong acid**

- Solution B is a weak acid  
Solution C is a strong alkali
- (i) Which solution contains solute molecules in addition to water molecules?
  - (ii) Which solution will give a gelatinous white precipitate with zinc sulphate solution? The precipitate disappears when an excess of the solution is added.
  - (iii) Which solution could be glacial acetic acid solution?



(iv) Give example of a soln. of a weak alkali.

**Q6. Give a suitable chemical term for:**

- (i) A salt formed by incomplete neutralisation of an acid by a base.
- (ii) A definite number of water molecules bound to some salts.

**Q7. Choosing the substances from the list given:**

(dil. Sulphuric acid, Copper, Iron, Sodium, Copper (II) carbonate, Sodium carbonate, Sodium chloride, Zinc nitrate)

Write balanced equations for the reactions which would be used in the laboratory to obtain the following salts:

Sodium sulphate

Zinc carbonate

Copper (II) sulphate

Iron (II) sulphate.