

# ESSENCE TEST-9

DATE : 25-08-19

10TH CLASS

CBSE(B2)

ACID BASES AND SALTS

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IIT-JEE/ NEET/ KVPY/ OLYMPIAD

**Q.1. [ 1 Mark each Questions ]****[1×10=10]**

- A. Write the correct representation of reaction occurring during chloralkali process
- B. 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) unionized HCl
- C. Which of the following is not mineral acid?  
 (a) Hydrochloric acid (b) Citric acid  
 (c) Sulphuric acid (d)  $\text{HNO}_3$
- D. Which of the following is acidic in nature?  
 (a) Lime juice (b) Human blood (c) lime water (d) Ant acid
- E. Sodium carbonate solution is basic Euploin
- F. Calcium phosphate is present in tooth enamel, its nature is  
 (a) Basic (b) Neutral (c) Acidic (d) Amphoteric
- G. Equal pies of zinc granules are dropped in your test tubes. Following substances are poured in all the your test-tubes the reaction will be vigorous with  
 (a)  $\text{CH}_3\text{COOH}$  (b) HCl  
 (c) Sodium bicarbonate solution (d) Lemon juice
- H. What is 'Chlor-alkali' process?
- I. How does acetic acid help in the preservation of food?
- J. Arrange the following in an increasing order of their  $\text{p}^{\text{H}}$  volumes : NaOH solution, blood, lemon juice.

**Q. 2. Short Answer type Questions:****[2×10=20]**

- A. Match the acids given in Column (A) with their correct source given in Column (B)
- | Column (A)      | Column (B)    |
|-----------------|---------------|
| (a) Lactic acid | (i) Tomato    |
| (b) Acetic acid | (ii) Lemon    |
| (c) Citric acid | (iii) Vinegar |
| (d) Oxalic acid | (iv) Curd     |
- B. Match the important chemicals given in Column (A) with the chemical formulae given in Column (B)
- | Column (A)           | Column (B)                                       |
|----------------------|--|
| (a) Plaster of Paris | (i) $\text{Ca}(\text{OH})_2$                     |
| (b) Gypsum           | (ii) $\text{CaSO}_4 \cdot 1/2\text{H}_2\text{O}$ |
| (c) Bleaching Powder | (iii) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  |
| (d) Slaked Lime      | (iv) $\text{CaOC1}_2$                            |

- C. What will be the action of the following substances on litmus paper? Dry HCl gas, Moistened NH<sub>3</sub> gas, Lemon juice, Carbonated soft drink, Curd, Soap solution.
- D. Name the acid present in ant sting and give its chemical formula. Also give the common method to get relief from the discomfort caused by the ant sting.
- E. What happens when nitric acid is added to egg shell?
- F. A student prepared solutions of (i) an acid and (ii) a base in two separate beakers. She forget to label the solutions and litmus paper is not available in the laboratory. Since both the solution are colourless, how will she distinguish between the two?
- G. How would you distinguish between baking powder and washing soda by heating?
- H. Salt A commonly used in bakery products on heating gets converted into another salt B which itself is used for removal of hardness of water and a gas C is evolved. The gas C when passed through lime water, turns it milky. Identify A, B and C.
- I. In one of the industrial processes used for manufacture of sodium hydroxide, a gas X is formed as by product. The gas X reacts with lime water to give a compound Y which is used as a bleaching agent in chemical industry. Identify X and Y giving the chemical equation of the reactions involved.
- J. Fill in the missing data in the following table

Name of the salt	Formulae	Salt obtained from	
		Base	Acid
(i) Ammonium chloride	NH <sub>4</sub> Cl	NH <sub>4</sub> OH	-
(ii) Copper sulphate	-	-	H <sub>2</sub> SO <sub>4</sub>
(iii) Sodium chloride	NaCl	NaOH	-
(iv) Magnesium nitrate	Mg(NO <sub>3</sub> ) <sub>2</sub>	-	HNO <sub>3</sub>
(v) Potassium sulphate	K <sub>2</sub> SO <sub>4</sub>	-	-
(vi) Calcium nitrate	Ca(NO <sub>3</sub> ) <sub>2</sub>	Ca(OH) <sub>2</sub>	-

**Q. 3. Short Answer type Questions:**

**[3×4=12]**

- A. How the following substances will dissociate to produce ions in their solutions?
- (i) Hydrochloric (ii) Nitric  
 (iii) Sulphuric acid (iv) Sodium hydroxide  
 (v) Potassium (vi) Magnesium hydroxide
- B. (i) Explain how anhydrous sulphate can be used to detect the presence of moisture in a liquid.  
 (ii) What is meant by amphoteric oxide?  
 (iii) Give the chemical and formulae of chloride of lime

- C. What are strong and weak acids? In the following list of acids, separate strong acids from weak acids. Hydrochloric acid, citric acid, acetic acid, formic acid, Sulphuric acid.
- D. When zinc metal is treated with a dilute solution of a strong acid, a gas is evolved, which is utilized in the hydrogenation of oil. Name the gas evolved. Write the chemical equation of the reaction involved and also write a test to detect the gas formed.

**Q. 4. Long answer type Questions (i):**

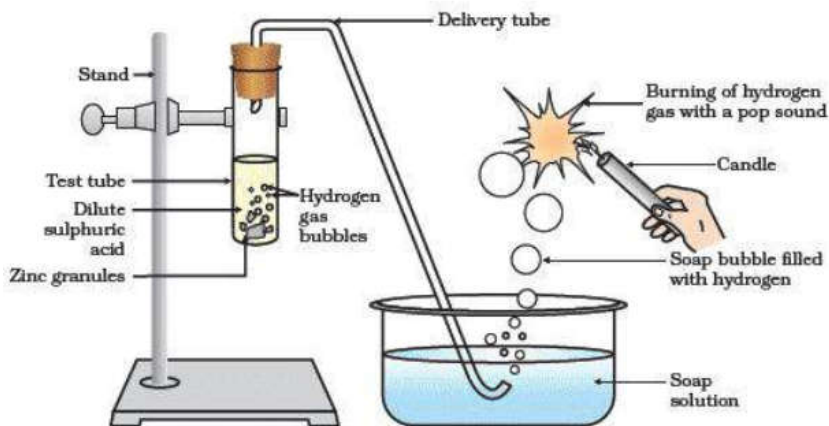
[4×2=8]

- A. What is water of crystallization? Write the common name and chemical formula of a commercially important compound which has ten water molecules as water of crystallisation. How is this compound obtained? Write the chemical equation also. List any two uses of this compound.
- B. Account for the following:  
(i) Antacid tablets are used by a person suffering from acidity.  
(ii) Toothpaste is used for cleaning teeth.

**Q.5. Long answer type Questions (ii):**

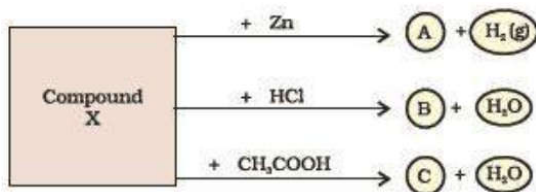
[5×6=30]

- A. In the following schematic diagram for the preparation of hydrogen gas as shown in Figure, what would happen if following changes are made?



- (a) In place of zinc granules, same amount of zinc dust is taken in the test tube  
(b) Instead of dilute Sulphuric acid, hydrochloric acid is taken  
(c) In place of zinc, copper turnings are taken.  
(d) Sodium hydroxide is taken in place of dilute Sulphuric acid and the tube is heated.

- B. For making cake, baking powder is taken. If at home your mother uses baking soda instead of baking powder in cake,
- how will it affect the taste of the cake and why?
  - how can baking soda be converted into baking powder?
  - what is the role of tartaric acid added to baking soda?
- C. A metal carbonate X on reacting with an acid a gas which when passes through a solution Y gives the carbonate back. On the other hand, a gas G that is obtained at anode during electrolysis of brine is passed on dry Y, it gives a compound Z, used for disinfecting drinking water. Identify X, Y, G and Z.
- D. A dry pellet of a common base B, when kept in open absorbs moisture and turns sticky. The compound is also a by-product of chloralkali process. Identify B. What type of reaction occurs when B is treated with an acidic oxide? Write a balanced chemical equation for one such solution.
- E. A sulphate of Group 2 element of the Periodic Table is a white, soft substance, can be moulded into different shapes by making its dough. When this compound is left in open for some time, it becomes a solid mass and cannot be used for molding purposes. Identify the sulphate salt and why does it show such a behaviour? Give the reaction involved.
- F. Identify the compound X on the basis of the reaction given below. Also, write the name and chemical formulae of A, B and C.





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**Best<sup>SM</sup> solution**  
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