

**10<sup>th</sup> ICSE Chemistry Mock Test**  
**Topic- Periodic table, Acid bases and Salt, Chemical Bonding,**  
**Salt Analysis, Mole concept, Electrolysis.**

**Time Allowed: 1.5 Hr.**

**MM: 50**

- Fill in the blanks.
  - Powdered sodium chloride (common salt) does not conduct an electric current, but it does so when \_\_\_\_\_ or when \_\_\_\_\_ .
  - Molten lead bromide conducts electricity. It is called an \_\_\_\_\_. It is composed of lead \_\_\_\_\_.
  - Substances which conduct electricity in the solid state are generally \_\_\_\_\_
  - The electron releasing tendency of zinc is \_\_\_\_\_ than that of copper.
  - A solution of HCl gas in water conducts electricity because \_\_\_\_\_, but a solution of HCl gas in toluene does not conduct an electric current because \_\_\_\_\_
  - Pure water consists entirely of \_\_\_\_\_ (ions/molecules).
  - We can expect that pure water \_\_\_\_\_ (will/will not) normally conduct electricity.
  - Electrolysis is the passage of \_\_\_\_\_ (electricity/electrons) through a liquid or a solution accompanied by \_\_\_\_\_ (physical/chemical) change. (8)
- Arrange: (a) Mg, Cl, Na, S, Si (increasing order of atomic size)  
Na, K, Cl, S, Si (increasing ionisation potential) (3)  
Or  
Explain the electrolysis of molten  $\text{CuSO}_4$  solution.
- Differentiate between metallic conductors and electrolytic conductors. (3)
- Classify the following substances under three headings:
  - strong electrolytes
  - weak electrolytes
  - non-electrolytes.Acetic acid, ammonium chloride, ammonium hydroxide, carbon tetrachloride, dilute hydrochloric acid, sodium acetate, dilute sulphuric acid, Ether. (4)
- Give two examples of each reducing agent and oxidising agent. (2)

6. Give reasons :  
(a) electron affinity of halogens is comparatively high  
(b) electronegativity of chlorine is higher than sulphur (3)

Or

Explain the industrial method of preparation of  $\text{NH}_3$ .

7. Urea is a very important nitrogenous fertilizer. Its formula is  $\text{CON}_2\text{H}_4$ . Calculate the percentage of nitrogen in urea (C=12, O=16, N=14 and H=1) (3)

Or

Write three uses of  $\text{NH}_3$ .

8. (A) Give the trend in metallic character  
(a) across the period (b) down the group  
(B) why are noble gases placed in separate group? (3)

Or

Explain:

- (i) Why thick white fumes are formed when a glass rod dipped in  $\text{NH}_4\text{OH}$  solution is brought near the mouth of a bottle full of HCl.  
(ii) Why HCl gas don't conduct electricity in the gaseous state.  
(iii) Name the drying agent used to dry HCl gas.
9. (a) Fresh milk has a pH of 6. When it changes into curd (yogurt), will its pH value increase or decrease? Why ?  
(b) Which one of these has a higher concentration of  $\text{H}^+$  ions?  
1 M HCl or 1 M  $\text{CH}_3\text{COOH}$  (3)  
Explain the electrolytic refining of Cu.

10. An atom X has 2,8,5 electrons in its shell. It combines with Y having 1 electron in its outermost shell.  
(a) What type of bond will be formed between X and Y?  
(b) Write the formula of the compound formed. (2)

Or

Explain that in the electrolysis of  $\text{H}_2\text{O}$ , the ratio of  $\text{H}_2$  and  $\text{O}_2$  is 2 : 1.

11. Which type of bond formation involves redox reaction and Why? (2)

Or

Complete the following reactions:

- (i)  $\text{Pb}_3\text{O}_4 + \text{HCl} \rightarrow$   
(ii)  $\text{MnO}_2 + \text{HCl} \rightarrow$

12. How will you distinguish between the solution of zinc nitrate and lead nitrate with one chemical test? Give relevant equations for the chemical reactions. (2)

Or

Write two test for the identification of HCl gas.

13. State your observations and write chemical equations, when iron (II) chloride solution is first treated with small amount and then excess of ammonium hydroxide. (2)

Or

- (i) Why conc.  $\text{HNO}_3$  is not used in the preparation of HCl?  
(ii) How back suction is avoided while preparing Hydrochloric acid?

14. A solution contains magnesium ions ( $\text{Mg}^{2+}$ ), iron (II) ions ( $\text{Fe}^{2+}$ ) and copper ions ( $\text{Cu}^{2+}$ ). On passing an electric current through this solution which ions will be the first to be discharged at the cathode. Write the equation for the cathode reaction. (2)

15. An electrode 'A' is connected to the positive terminal of a battery and electrode 'B' to the negative terminal.

- (i) Give the names of the electrodes A & B.  
(ii) Which electrode is the oxidizing electrode. (2)

16. (i) Name a solid which undergoes electrolysis when molten.  
(ii) What should be the physical state of lead bromide if it is to conduct electricity?  
(iii) What particles are present in pure lead bromide? Write the equations for the reactions which take place at the electrodes during the electrolysis of lead bromide. (3)

17. (a) Why is methane molecule regarded as a non-polar covalent compound?  
(b) Why is hydrogen chloride molecule called a polar covalent compound?

18. By drawing the dot diagram, show the lone pair effect leading to the formation of hydronium ion from water and hydrogen ion. (3)