ICSE Class 10 Chemistry Important Questions

1. Choose the most appropriate answer:
   a. Which of the following is a common characteristic of a covalent compound?
      i. High melting point
      ii. Conducts electricity when it is in the molten state
      iii. Consists of molecules
      iv. Always soluble in water
   b. Ammonium hydroxide will produce a reddish brown precipitate when added to a solution of
      i. CuSO4
      ii. Zn(NO3)2
      iii. FeSO4
      iv. FeCl3
   c. A salt which in solution gives a bluish white precipitate with NaOH solution and a white precipitate with BaCl2 solution is
      i. CuSO4
      ii. Ca(NO3)2
      iii. FeSO4
      iv. FeCl3

2. The questions below are related to the manufacture of ammonia.
   a. Name the process.
   b. In what ratio must the reactants be taken?
   c. Name the catalyst used.
   d. Give the equation for the manufacture of ammonia.
   e. Ammonia can act as a reducing agent. Write a relevant equation for such reaction.

3. Identify the following substances:
   a. An acidic gas which gives dense white fumes with NH3.
   b. An alkane whose molecular mass is 58 (H = 1; C = 12).
   c. A solid which when kept in the open forms a solution after some time.
   d. An alloy used in electrical fittings.
   e. A metal which gives hydrogen gas on reacting with both dilute acid and alkali.

4. Write equations for the following reactions:
   a. Aluminium oxide and sodium hydroxide
   b. Zinc and dilute sulphuric acid
   c. Magnesium nitride and water
   d. Concentrated sulphuric acid and sugar
e. Copper with concentrated nitric acid

5. Name the following:
   a. Second member of the alkene series
   b. First member of the alkane series
   c. Third member of the aldehyde series
   d. Second member of carboxylic acid
   e. Fourth member of the alcohol series

6. Write the IUPAC names of the following compounds:

   ![Chemical structures]

7. Answer the following accordingly
   a. What kind of particles will be present in a liquid compound which is a non-electrolyte?
   b. If HX is a weak acid, what particles will be present in its dilute solution apart from those of water?
   c. Cations are formed by -------- (loss/gain) of electrons, and anions are formed by the --
   d. -------- (loss/gain) of electrons.
   e. What ions must be present in a solution used for electroplating a particular metal?
   f. Explain how electrolysis is an example of a redox reaction.

8. The following is a sketch of an electrolytic cell used in the extraction of aluminium.

   ![Electrolytic cell sketch]

   a. What is the substance used in preparing electrodes A and B?
   b. At which electrode (A or B) is aluminium formed?
   c. Name the two aluminium compounds used as an electrolyte C.
   d. Why is it necessary for electrode B to be continuously replaced?
9. Zinc is extracted from zinc blende. The zinc blende is roasted. The solid product is mixed with coke in the blast furnace from which zinc vapours emerge.

   a. What is the zinc compound in zinc blende?
   b. Write the equation for the roasting of zinc blende.
   c. What is the purpose of using coke?
   d. What is the reducing agent used in the extraction?

10. How does ammonium hydroxide help to distinguish between

   a. Iron (II) chloride and iron (III) chloride
   b. Zinc sulphate and lead nitrate
   c. Lead hydroxide and zinc hydroxide

11. 

   a. Name the experiment illustrated below.
   b. State the colour of water which has entered the round bottom flask.

![Experiment Illustration]

12. Name the method used for the preparation of the following salts from the list given below:

   a. Sodium nitrate
   b. Iron (III) chloride
   c. Lead chloride
   d. Zinc sulphate
   e. Sodium hydrogen sulphate

   LIST:
   i. Simple displacement
   ii. Neutralisation
   iii. Decomposition by acid
   iv. Double decomposition
   v. Direct synthesis

13. Write the balanced chemical equation to support each of the statements given below (use only dilute sulphuric acid).
a. Basic oxide + acid → salt + water  
b. Metallic carbonate + acid → salt + water + carbon dioxide

14. Predict the type of bonding in the following:
   a. Ammonia  
   b. Calcium oxide  
   c. Methane

15. A group of elements in the periodic table are given below (Boron is the first member of the group and Thallium is the last):
   Boron    Aluminium  
   Gallium    Indium    Thallium

   Answer the following questions in relation to the above group of elements:
   a. Which element has the most metallic character?  
   b. Which elements would be expected to have the highest electronegativity?  
   c. If the electronic configuration of Aluminium is 2, 8, 3, how many electrons are present in the outer shell of Thallium?  
   d. The atomic number of Boron is 5. Write the chemical formula of the compound formed when Boron reacts with chlorine.  
   e. Will the elements in the group to the right of this Boron group be more metallic or less metallic in character? Justify your answer.

16. Anhydrous HCl is a poor conductor, while aq. HCl is an excellent conductor. Why?

17. Give reason:
   a. There are fumes in the air when the stopper of a bottle full of hydrogen chloride gas is opened.  
   b. Thick white fumes are formed when a glass rod dipped in NH₄OH is brought near the mouth of a bottle full of HCl gas.

18. Explain why dry hydrogen chloride gas does not affect a dry strip of blue litmus paper but it turns red in the presence of a drop of water.

19. Writer a short note on why hydrogen chloride gas is not collected over water.

20. Mr Ramu wants to electroplate his keychain with nickel to prevent rusting.  
   For this electroplating,  
   a. Name the electrolyte  
   b. Name the cathode  
   c. Name the anode  
   d. Give the reaction at the cathode  
   e. Give the reaction at the anode