

Assignment 2020
Class: X
Subject: Chemistry
Date-18.05.2020

Shortly write the answers of the following questions: [Each answer will be regarded as one star(*)]

- When does magnesium chloride conduct electricity?
- What type of bond is formed when atoms have high difference in electronegativity?
- An atom differs from its ion in the number of _____.
- An element A has 5 electrons. Write the molecular formula of the compound formed by the element with hydrogen.
- Write the electronic configuration of phosphorous and mention the number of unpaired electrons in it.
- Mention the name of two molecules which would expect to have a non-polar covalent bond.
- What is the effect of a reaction to surroundings if the energy involved in breaking bonds is less than the energy involved in forming bonds?

Answer the questions no. 9 and 10 on the basis of the stem below:

A galvanic cell consists of two half-cells: a copper electrode in a copper nitrate

$\text{Cu}(\text{NO}_3)_2(\text{aq})$ solution, and a silver electrode in a silver nitrate $\text{AgNO}_3(\text{aq})$ solution.

- Identify the two electrodes as an anode and cathode giving the reason of your choice.
- Write the overall reaction of cell.
- Copper is a good conductor of electricity but it is a non electrolyte, why?
- Zinc can be extracted from its ore by electrolysis or by heating the ore with carbon. Give a reason why heating the ore with carbon is actually used.
- When iron oxide is heated with carbon, iron is produced. What Chemical change happens to the iron oxide during this reaction?
- Calcium phosphate forms when calcium chloride and sodium phosphate solutions react together. $x \text{CaCl}_2 + y \text{Na}_3\text{PO}_4 \rightarrow 2\text{Ca}_3(\text{PO}_4)_2 + 12\text{NaCl}$ Which values of x and y balance the equation?
- An alkane with 6 carbon atoms will have how many hydrogen atoms?
- Which substance does not use oxygen to produce heat energy among coal, hydrogen, natural gas and uranium.
- Petroleum is a mixture of different hydrocarbons. Which process is used to separate the petroleum into groups of similar hydrocarbons?
- Write the name and formula of the product of hydrogenation of propene.
- Give two reasons why it could be more important to recycle tin than to recycle aluminium. Use the information in the table below.

Metal	Metal cost of 1 kg	Amount in Earth's crust
Aluminium	£1.31	8%
Tin	£12.60	0.0002%

- In a blast furnace, iron ore is mixed with coke and limestone, and heated in hot air. Compound R is formed. Compound R then reduces the iron ore to iron. Write the equation of the formation of compound R?

20. What happens when copper is placed in a solution containing iron ions?

21. Formula of two compounds are given; CaCl_2 and CH_4

- a) What is inter-molecular force? *
- b) Show the bond formation of CaCl_2 using dot-cross diagram. **
- c) The melting point of a compound depends on its structure, on this basis explain which of the above two compounds will show higher melting point.***
- d) Solubility of compounds in water depends on the power to attract water molecules. Which of the above two compounds will be more soluble in it. ****

22. Mr. Ali wants to electroplate his key chain with nickel to prevent rusting. And Mr. Jahir wants to produce caustic soda in his factory.

- a) What is meant by electrolysis?*
- b) When a concentrated solution of hydrochloric acid is subjected to electrolysis, hydroxyl ion does not get discharged. Give reason.**
- c) Explain the cell arrangement for the mentioned electroplating with all necessary reactions. ***
- d) How is caustic soda produced by electrolysis using brine as a raw material? Explain with cell diagram. ****

23. Metals are obtained from the Earth's crust by different methods. Some metals are found uncombined but others have to be extracted from their ores. The use of extracted metal mainly depends on its structure and physical properties.

- a) Write two applications of electrolysis in which the anode diminishes in mass. *
- b) Why aluminium is a good conductor of electricity? **
- c) How aluminium is extracted in industry? Explain the process showing the diagram of cell. ***
- d) Explain, using aluminium, gold and iron as examples, how the method used to obtain the metal from ores is related to its position in the reactivity series and to the cost of the extraction process. ****