

**ICSE Board**  
**Class X Chemistry**  
**Sample Paper – 7 Solution**

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**SECTION I**

**Answer 1**

**a.**

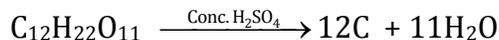
- i. Nitrogen dioxide
- ii. Alcohol
- iii. Copper oxide
- iv. Potassium iodide solution
- v. Ferric oxide and chromic oxide

**b.**

- i. Electron affinity
- ii. Ionisation potential
- iii. Octet
- iv. Required
- v. Group

**c.**

- i. Dense white fumes are seen.
- ii. On adding a little ammonium hydroxide, a white precipitate is formed which dissolves in excess of ammonium hydroxide to give a clear solution.
- iii. The sugar first turns brown, then it swells to give steam, and finally, it gets charred.



- iv. The solution becomes green.
- v. A colourless and odourless gas evolves with brisk effervescence which turns lime water milky.

**d**

- i. Hydrogen chloride is a polar covalent compound.
- ii. Ammonia turns moist red litmus blue.
- iii. Concentrated sulphuric acid is the least volatile acid.
- iv. Burning magnesium reacts with nitrogen to form magnesium nitride.
- v. Hydrogen chloride is highly soluble in water.

**e.**

- i. Calcium oxide or quick lime
- ii. Chromic oxide
- iii. Type metal
- iv. Mercury
- v. Graphite

**f.**

- i.  $\text{Al}_2\text{O}_3 + 2\text{NaOH} \rightarrow 2\text{NaAlO}_2 + \text{H}_2\text{O}$
- ii.  $\text{Zn} + \text{H}_2\text{SO}_4(\text{dil.}) \rightarrow \text{ZnSO}_4 + \text{H}_2$
- iii.  $\text{Mg}_3\text{N}_2 + 6\text{H}_2\text{O} \xrightarrow{\text{Heat}} 3\text{Mg}(\text{OH})_2 + 2\text{NH}_3$
- iv.  $\text{C}_{12}\text{H}_{22}\text{O}_{11} \xrightarrow{\text{Conc. H}_2\text{SO}_4} 12\text{C} + 11\text{H}_2\text{O}$
- v.  $\text{Cu} + 4\text{HNO}_3(\text{conc.}) \rightarrow \text{Cu}(\text{NO}_3)_2 + 2\text{NO}_2 + 2\text{H}_2\text{O}$

**g.**

- i. Less than 7
- ii. More than 7
- iii. Seven
- iv. Less than 7
- v. Less than 7

**h.**

- i. Hg
- ii. Cryolite
- iii. Roasting
- iv.  $\text{CaO} + \text{SiO}_2 \rightarrow \text{CaSiO}_3$
- v. Middle zone  
 $\text{CO}_2 + \text{C} \rightarrow 2\text{CO}$   
 $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$   
 $\text{CaO} + \text{SiO}_2 \rightarrow \text{CaSiO}_3$

**SECTION II**

**Answer 2**

**a.**

- i. Lead sulphide
- ii. Sulphur dioxide

**b.**

- i. Minerals from which metals are extracted commercially at a comparatively low cost and with minimum effort are called ores.
- ii. The earthy impurities including silica, mud etc. which are associated with the ore are called gangue.

**c.**

- i. Baeyer's process and Hall's process
- ii. Hall-Héroult process
- iii. Hoopes electrolytic process

**d.**

- i. Brass
- ii. Duralumin

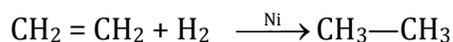
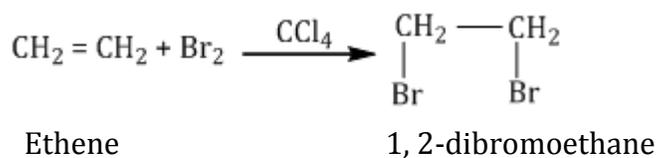
**Answer 3**

**a.**

- i. Ethene
- ii. Unsaturated
- iii.  $C_nH_{2n}$
- iv. Colourless
- v. Addition
- vi. Ethane
- vii. Nickel

**b.**

i.



Ethene Ethane

- ii. Presence of a double covalent bond.

**Answer 4**

**a.**

- i. (1) Cathode: Size of the cathode increases.  
(2) Anode: Size of the anode decreases.  
(3) Electrolyte: The colour of the electrolyte remains the same, i.e. blue.

- ii. At the cathode:  $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}$   
At the anode:  $\text{Cu} - 2\text{e}^- \rightarrow \text{Cu}^{2+}$

**b.**

- i. Atomicity  
ii. Molecular formula  
iii. Molecular mass  
iv. Relative atomic mass  
v. Hydronium ion

**Answer 5**

**a.**

- i. Haber's process  
ii.  $\text{N}_2 + 3\text{H}_2 \xrightleftharpoons[450-500^\circ\text{c}, 200-1000\text{atm}]{\text{Fe-Mo}} 2\text{NH}_3 + \text{Heat}$   
iii. Being basic, ammonia gas changes red litmus solution blue.

**b.**

- i. Gas 'A' is ammonia.  
ii.  $\text{NH}_4\text{Cl} + \text{NaOH} \xrightarrow{\text{Heat}} \text{NaCl} + \text{H}_2\text{O} + \text{NH}_3$   
iii. Ammonia is collected by the downward displacement of air, and it is dried by passing through a drying tower containing lumps of quicklime.  
iv. Gas A is basic in nature.

**c.**

- i. Decreases  
ii. Nitrogen  
iii. High

**Answer 6**

**a.**

- i. Solution A
- ii. Solution C
- iii. Solution B

**b.**

- i. An ionic bond is formed between a metal and a non-metal.

Reason: A metal can easily lose an electron, whereas a non-metal can easily gain an electron; therefore, easy transfer of electrons is possible between these elements, and thus, ionic bond formation takes place between a metal and a non-metal.

- ii. A covalent bond is formed between two non-metals.

Reason: Between two non-metals, no transfer of electrons is possible as both have a tendency of gaining electrons; therefore, bond formation between two non-metals can only take place by sharing of electrons which leads to covalent bond formation.

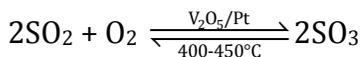
**c.**

- i. Hydrogen and helium
- ii. Copper and iron
- iii. According to the modern periodic law, the physical and chemical properties of elements are periodic functions of their atomic numbers. Group 1 elements are likely to be metallic in nature.

**Answer 7**

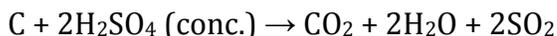
**a.**

- i. Sulphuric acid is manufactured by the contact process.



**b.**

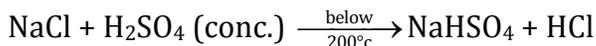
- i. Oxidising agent



- ii. Dehydrating agent



- iii. Least volatile acid



**c.**

- i.  $\text{C}_n\text{H}_{2n}$
- ii. Homologous
- iii. Unsaturated
- iv. Double
- v. Addition