

ICSE Board
Class X Chemistry
Sample Paper - 10 Solution

SECTION I

Answer 1

(a)

- i. (1) Silver
(2) Copper
(3) Pure silver

ii.

- A. Mercury
B. Graphite
C. Carbon monoxide

(b)

- i. (C) Ammonia
ii. (E) Chlorine water
iii. (B) Brass
iv. (A) Hydrogen sulphide
v. (D) Ethanol

(c)

- i. Zn^{2+} solution + $NH_4OH \rightarrow$ Gelatinous white ppt. soluble in excess NH_4OH
 Pb^{2+} solution + $NH_4OH \rightarrow$ White ppt. insoluble in excess NH_4OH
- ii.

Carbonate	Colour of residue on cooling
Zinc carbonate	White residue
Lead carbonate	Yellow residue
Copper carbonate	Black residue

(d)

	Anode	Electrolyte	Cathode
Silver plating of a spoon	<u>Pure silver</u>	Solution of potassium argentocyanide	<u>Spoon</u>
Purification of copper	<u>Impure block of copper</u>	<u>Copper sulphate solution</u>	<u>Pure strip of copper</u>

(e)

- i. Hydronium, positive
- ii. Electricity, chemical
- iii. Element, physical
- iv. Acid, metal
- v. Molecule, atomicity

(f)

- i. A white precipitate of calcium hydroxide is formed.
- ii. A dirty green precipitate of ferrous hydroxide is formed.
- iii. A pale blue precipitate of copper hydroxide is formed.
- iv. White colour changes to unsteady yellow.
- v. Dense white fumes of ammonium chloride are evolved.

(g)

- i. Ferric oxide and chromium oxide
- ii. Sulphur dioxide
- iii. Hydrogen chloride gas
- iv. Chlorine
- v. Mercury

(h)

- i. Molecules
- ii. H^+ , X^- , HX
- iii. Loss, gain
- iv. Metals of the ions
- v. Reduction at the cathode, oxidation at the anode

SECTION II

Answer 2

(a)

- i. The metal anode continuously dissolves as ions in solution, and hence, it needs to be replaced periodically.
- ii. The electrolyte dissociates into ions of the metal which migrate towards the cathode and are deposited as neutral metallic atoms on the cathode (article).
- iii. Low current for a longer time initiates a smooth, firm, uniform and long-lasting deposition.
- iv. AC causes discharge and ionisation to alternate at the cathode, thus giving no effective coating.

(b)

- i. Washing soda
- ii. Copper (II) chloride
- iii. Anhydrous calcium chloride
- iv. Conc. sulphuric acid
- v. Conc. sulphuric acid

Answer 3

(a)

Alloy	Composition	Properties	Uses
Brass	60–70% Cu + 40–30% Zn	Malleable and ductile	Decorative hardware, utensils
Bronze	80% Cu + 18% Sn + 2% Zn	Hard and easily cast	Medals
German silver	50% Cu + 30% Zn + 20% Ni	White and silver	Decorative articles
Bell metal	78% Cu + 22% Sn	Sonorous	Bells, gongs

(b)

- i. Combination of monomer to form long chain molecule.
 $n(\text{CH}_2=\text{CH}_2) \rightarrow [\text{CH}_2-\text{CH}_2]_n$
- ii. The number of replaceable hydrogen atoms per molecule of an acid which can be replaced by base.
- iii. Unsaturated compounds add elements to get saturated.
 $\text{CH}_2=\text{CH}_2 + \text{H}_2 \rightarrow \text{CH}_3-\text{CH}_3$
- iv. Removal of water from a compound either by its presence or by elements.
 e.g. $\text{C}_2\text{H}_5\text{OH} \rightarrow \text{CH}_2=\text{CH}_2 + \text{H}_2\text{O}$
 $\text{CuSO}_4 \cdot 5\text{H}_2\text{O} \rightarrow \text{CuSO}_4 + 5\text{H}_2\text{O}$
- v. The volume occupied by 1 mole of a gas at STP is 22.4 dm^3 .

Answer 4

(a)

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

(b)

- i. It decreases as we move down the group.
- ii. It increases as we move from left to right.

(d)

- i. Second period
- ii. Nitrogen. It is placed between carbon and oxygen.
- iii. Fluorine

Answer 7

(a)

- i. $\text{NaOH} + \text{H}_2\text{SO}_4 \longrightarrow \text{NaHSO}_4 + \text{H}_2\text{O}$
- ii. $\text{MgO} + \text{H}_2\text{SO}_4 \rightarrow \text{MgSO}_4 + \text{H}_2\text{O}$
- iii. $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$
- iv. $\text{K}_2\text{CO}_3 + \text{H}_2\text{SO}_4 \rightarrow \text{K}_2\text{SO}_4 + \text{H}_2\text{O} + \text{CO}_2$
- v. $\text{FeS} + \text{H}_2\text{SO}_4 \rightarrow \text{FeSO}_4 + \text{H}_2\text{S}$

(b)

- i. Uses of bleaching powder:
 - For bleaching cotton and linen in the textile industry and for bleaching wood pulp in the paper industry
 - Used as an oxidising agent in many chemical industries
 - Used in the manufacture of chloroform
 - Used for disinfecting drinking water to make it free of germs
- ii. Uses of acetylene gas:
 - As an illuminant in the oxy-acetylene lamp
 - For artificial ripening and preservation of fruits
 - In the manufacture of important organic compounds such as acetaldehyde, acetic acid, plastic and rubber
 - For oxy-acetylene welding at very high temperatures (these temperatures are obtained when ethyne burns in oxygen)

(c)

- i. $8\text{NH}_3 + 3\text{Cl}_2 \rightarrow 6\text{NH}_4\text{Cl} + \text{N}_2$
- ii. $\text{Fe}(\text{OH})_3 + 3\text{HNO}_3 \rightarrow \text{Fe}(\text{NO}_3)_3 + 3\text{H}_2\text{O}$