



## CHEMISTRY

### BOOKS - CBSE COMPLEMENTARY MATERIAL CHEMISTRY (HINGLISH)

### GENERAL PRINCIPLES AND PROCESSES OF ISOLATION OF ELEMENTS

Mcq

1. The main function of roasting is

A. oxidation

B. reduction

C. to remove volatile matter

D. to make slag

**Answer: C**



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2. Which is not a mineral of Al?

A. diaspore

B. bauxite

C. corundum

D. galena

**Answer: D**



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3. Brass contains:

A. Cu + Sn

B. Cu + Ni

C. Cu + Zn

D. Mg + Al

**Answer: C**



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4. Flux used in the smelting of copper arc is:

A. coke

B. magnesia

C. silica

D. lime stone

**Answer: C**



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5. The form of iron obtained from blast furnace is:

A. pig iron

B. cast iron

C. wrought iron

D. mild steel

**Answer: A**



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6. Which of the following metal is leached by Cyanide process

A. Cu

B. Al

C. Ag

D. Zn

**Answer: C**



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7. Which one is not a process of purification of metals:

A. chromatography

B. zone refining

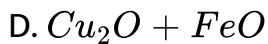
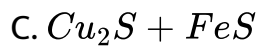
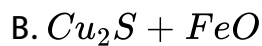
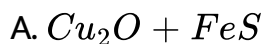
C. froth floatation

D. distillation

**Answer: C**

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8. Which is a copper matte?



**Answer: C**

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9. In metallurgical process of Al, cryolite is mixed in its molten state, because it

- A. decreases the amount of alumina
- B. oxidises the alumina
- C. increases the melting point of alumina
- D. decreases the melting point of alumina

**Answer: D**



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10. Froth floatation process is used for:

- A. cuprite
- B. zincite

C. copper pyrites

D. bauxite

**Answer: C**



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**11.** The anode mud obtained during electro refining of Cu contains:

A. Ag

B. Fe

C. Au

D. Zn

**Answer: A::C**



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12.  $SiO_2$  is a:

- A. flux
- B. gangue
- C. slag
- D. catalyst

**Answer: A::B**

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13. Cresols and aniline are used as ..... in froth floatation process:

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14. Haematite is an ore of .....



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15. Match the column

**Column 1**

- (A) cyanide process
- (B) zone refining
- (C) Froth floatation process
- (D) electrolytic refining

**Column 2**

- P. ultrapure Ge
- Q. extraction of Cu
- R. pine oil
- S. extraction of Au

A. A-S, B-P, C-R, D-Q

B. A-R, B-S, C-Q, D-P

C. A-P, B-Q, C-R, D-S

D. A-S, B-R, C-P, D-Q

**Answer: A**

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## Very Short Answer Type Questions

1. Name three metals which occur in native state in nature.

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2. Give the names and formulae of three ores which are concentrated by froth floatation process.

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3. Among Fe, Cu, Al and Pb, which metal(s) cannot be obtained by smelting ?

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4. What is the thermodynamic criteria for the feasibility of a reaction ?

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5. Why can't aluminium be reduced by carbon ?

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6. Name the most important form of iron. Mention its one use.

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7. What is the composition of 'Copper matte'?



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8. Which form of copper is called blister copper ?



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9. What are froth stabilizers ? Give two examples.



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10. A sample of galena is contaminated with zinc blende. Name one chemical which can be used to concentrate galena selectively by froth floatation method.

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**11.** One of the constituents of German silver is

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**12.** Why is froth floatation process selected for the concentration of the sulphide ore ?

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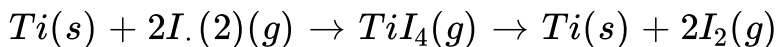
**13.** Write the reaction involved in the extraction of copper from low grade ores.

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14. Although aluminium is above hydrogen in the electrochemical series, it is stable in air and water. Why ?

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15. Which method of purification is represented by the following equation ?



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16. Zinc is used but not copper for the recovery for metallic silver from the complex  $[Ag(CN)_2]^-$ , although electrode potentials of both zinc and copper are less than that of Ag. Explain why ?

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17. Write the composition of molten mixture which is electrolysed to extract aluminium

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### Short Answer I Type Questions

1. What is hydrometallurgy ? Give one example where it is used for metal extraction.

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2. Name the process for the benefaction/concentration of (i) an ore having lighter impurities, (ii) sulphide ore.

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3. Mention the role of cryolite in the extraction of aluminium.

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4. Mention the role of following :

- (a)  $SiO_2$  in the metallurgy of Cu.
- (b)  $CaCO_3$  in the metallurgy of Fe.
- (c) CO in the metallurgy of iron.
- (d)  $I_2$  in the purification of zirconium.

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5. Extraction of copper directly from sulphide ore is less favourable than from its oxide through reduction. Explain.

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6. The graphite electrodes in the extraction of 'aluminium' by Hall-Heroult process need to be changed frequently. Why

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7. Write the chemical formulae of the following ores :

(a) Haematite (b) Magnetite

(c) Limonite (d) Siderite

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8. Give equations for the industrial extraction of zinc from calamine.

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9. Name the common elements present in the anode mud in electrolytic refining of copper. Why are they so present?

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10. How are impurities separated from bauxite ore to get pure alumina ?

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11. Why is the reduction of a metal oxide easier if metal formed is in liquid state at the temperature of reduction ?

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12. What is pyrometallurgy ? Explain with one example.



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13. Write the method to produce copper matte from copper pyrites.



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14. Copper can be extracted by hydrometallurgy but not zinc. Explain why ?



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15. Gibbs energy of formation  $\Delta G_f^G$  of MgO (s) and CO (g) at 1273 K and 2273 K are given below :

$$\Delta G_f[MgO(s)] = -941 \text{ kJ mol}^{-1} \text{ at } 1273 \text{ K}$$

$$\Delta G_f[CO(g)] = -439\text{kJ mol}^{-1} \text{ at } 1273 \text{ K}$$

$$\Delta G_f[MgO(s)] = -314\text{kJ mol}^{-1} \text{ at } 2273 \text{ K}$$

$$\Delta G_f[CO(g)] = -628\text{kJ mol}^{-1} \text{ at } 2273 \text{ K}$$

On the basis of above data, predict the temperature at which carbon can be used as a reducing agent for MgO (s).

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## Short Answer II Type Questions

1. Outline the principles of refining of metals by the following methods :

- (a) Electrolytic refining
- (b) Zone refining
- (c) Vapour phase refining.

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2. How is pure copper obtained from its principle ore ? Write the chemical reactions occurring during the extraction.

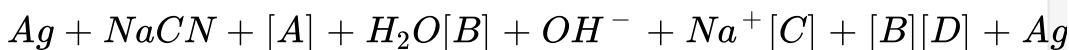
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3. Name the method of refining of the following metals :

(a) Hg (b) Sn (c) Cu (d) Ge (e) Ni (f) Zr

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4. The native silver forms a water soluble compound (B) with dilute aqueous solution of NaCN in the presence of a gas (A). The silver metal is obtained by the addition of a metal (C) to (B) and complex (D) is formed as a byproduct. Write the structures of (C) and (D) and identify (A) and (B) in the following sequence :





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5. In the cyanamide extraction process of silver ore argentite from, name the oxidizing and reducing agents. Write the chemical equations of the reactions involved.



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