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. chromatrography

B. zone refining

C. froth floatation

D. distillation

Answer: C

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8. Which is a copper matte?

A. $Cu_2O + FeS$

B. $Cu_2S + FeO$

C. $Cu_2S + FeS$

D. $Cu_2O + FeO$

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	Column 2
(A) cyanide process	P. ultrapure Ge
(B) zone refining	Q. extraction of Cu
(C) Froth floatation process	R. pine oil
(D) electrolytic refining	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 consituents 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 parification is represented by the following equation ?

$Ti(s) + 2I.(2)(g) \rightarrow TiI_4(g) \rightarrow Ti(s) + 2I_2(g)$

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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 moleten 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 $\triangle G_f^G$ of MgO (s) and CO (g) at 1273 K and 2273 K are given below :

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

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

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

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

$Ag + NaCN + [A] + H_2O[B] + OH^- + Na^+[C] + [B][D] + Ag$

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5. In the cynamide 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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