



CHEMISTRY

BOOKS - ARIHANT PUBLICATION

GENERAL PRINCIPLES AND PROCESSES OF ISOLATION OF ELEMENTS

Sample Question

1. Predict conditions under which Al might be expected to reduce MgO.



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Part I Extraction And Isolation Of Elements Questions For Practice Multiple Choice Type Questions

1. Which one is the ore of copper ?

A. Bauxite

B. Dolomite

C. Haematite

D. Chalcopyrite

Answer: B



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2. Which one of the following methods is used in the concentration of sulphide ore?

A. Froth-floatation

B. Smelting

C. Roasting

D. Leaching

Answer: A



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3. NaCN is sometimes added in the froth floatation process as a depressant, when ZnS and PbS mineral are extracted because

A. ZnS forms soluble complex $Na_2[Zn(CN)_4]$

while PbS forms froth.

B. $Pb(CN)_2$ is precipitated while no effect on ZnS.

C. PbS forms soluble complex $Na_2[Pb(CN)_4]$

while ZnS forms froth.

D. NaCN is never added in Froth floatation process.

Answer: A



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4. Auto-reduction process is used in the extraction of

A. Cu and Hg

B. Zn and Hg

C. Cu and Al

D. Fe and Pb

Answer: A



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Part I Extraction And Isolation Of Elements Questions For Practice Very Short Answer Type Questions 1 Mark

1. Write the principle behind the method hydraulic washing.

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2. The ore that can be concentrated by magnetic separation method, are

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3. Why is the froth floatation method selected for the concentration of sulphide ores?

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4. Which of the following ores can be concentrated by froth-floatation process ? (Fe_2O_3 , Al_2O_3 , ZnS)

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5. What is the significance of leaching in the extraction of aluminium?

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6. Which solution is used for the leaching of silver metal in the presence of air in the metallurgy of silver?

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Part I Extraction And Isolation Of Elements Questions For Practice Short Answer Type I Questions

1. Write the principle behind the froth floatation process. What is role of collectors in this process?

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2. Why is leaching of gold by metal cyanides carried out in the presence of oxygen? Give the chemical equation. Name the metal used as reducing agent.



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3. Giving examples, differentiate between roasting and calcination.

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Part I Extraction And Isolation Of Elements Questions For Practice Short Answer Type II Questions

1. How can you separate alumina from silica in a bauxite ore associated with silica? Give equations, if any.

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2. How is mercury extracted from cinnabar?

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Part I Extraction And Isolation Of Elements Questions For Practice Long Answer Type Questions

1. Give reason for the statement.

The sulphide ore is converted to oxide before reduction.

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2. Give reason for the statement.

Thermite process is used for the reduction of metal oxide.



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3. Give reason for the statement.

Gold is leached with NaCN to obtain the metal in solution as complex. Gold (Au) react with NaCN to give a complex. This complex react with Zn to give metal.



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4. Explain the term pyrometallurgy. How is it differ from hydrometallurgy?



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Part I Extraction And Isolation Of Elements Questions For Practice Multiple Choice Type Questions

1. The ore that is concentrated by froth floatation process is

A. cinnabar

B. bauxite

C. malachite

D. zincite

Answer: A



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Part I Extraction And Isolation Of Elements Questions For Assessment Multiple Choice Type Questions

1. Copper pyrites ore is concentrated by

A. electromagnetic method

B. gravity method

C. froth-floatation process

D. All of the above

Answer: C



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Part I Extraction And Isolation Of Elements Questions For Assessment Very Short Answer Type Questions

1. Write the three major steps involved in the extraction and isolation of metals.



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2. What do you mean by the word 'smelting'?



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3. What is the function of potassium ethyl xanthate in froth floatation process?



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4. Bauxite ore is made up of

$Al_2O_3 + SiO_2 + TiO_2 + Fe_2O_3$ This ore is treated

with concentrated NaOH solution at 500 K and 35 bar

pressure for few hours and filtered hot. In the filtrate, which species are present?

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5. In the leaching of Ag_2S with NaCN, why a steam of air is passed?

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Part I Extraction And Isolation Of Elements Questions For Assessment Short Answer Type I Questions

1. Write the molecular composition of the following ores:

Haematite, Kaolinite, Malachite, Calamine



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2. Explain the principle on which the magnetic separation method work.



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3. Explain the major role played by collectors and froth stabilisers.

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4. Give an example of an auto reduction method.

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Part I Extraction And Isolation Of Elements Questions For Assessment Short Answer Type Ii Questions

1. Predict the mode of occurrence of the following three types of metals.

(i) Highly reactive

(ii) Moderately reactive

(iii) Least reactive



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2. Explain the three methods that are used for the reduction of metal oxide to metal.



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Part I Extraction And Isolation Of Elements Questions For Assessment Long Answer Type Questions

1. Answer the question:

Name the process in which no external reducing agent is used.



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2. Answer the question:

Name the process which is used for highly electropositive metal.

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3. Answer the question:

Name the process which is based upon the differences in gravities of ores.

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4. Write the equation involved in the thermite process.



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Part II Thermodynamic And Electrochemical Principles Of Metallurgy Questions For Practice Multiple Choice Type Questions

1. Carbon cannot reduce Fe_2O_3 to Fe at a temperature below 983 K because

- A. free energy change for the formation of CO is more negative than that of Fe_2O_3
- B. CO is thermodynamically more stable than FeO_3

C. carbon has higher affinity towards oxygen than iron

D. iron has higher affinity towards oxygen than carbon

Answer: D



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2. Bessemer converter is used for preparation of

A. steel

B. wrought iron

C. pig iron

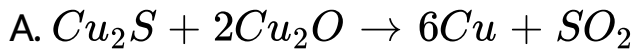
D. cast iron

Answer: A

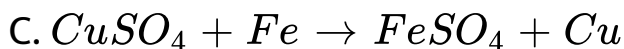


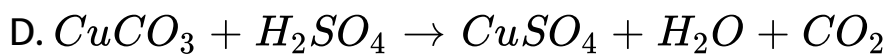
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3. Which step is not involved in hydrometallurgical process?



B.



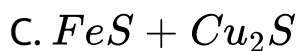
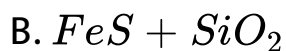


Answer: A



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4. What is composition of copper matte ?



Answer: C

5. Electrolytic reduction of alumina to aluminium by

Hall-Heroult process is carried out

A. in the presence of NaCl

B. in the presence of fluorite

C. in the presence of cryolite which forms a melt
with lower melting temperature

D. in the presence of cryolite which forms a melt
with higher melting temperature

Answer: C



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Part II Thermodynamic And Electrochemical Principles Of Metallurgy Questions For Practice Very Short Answer Type Questions

1. Out of C and CO, which is a better reducing agent at 673 K?



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2. Out of C and CO, which is a better reducing agent in the lower temperature range in the blast furnace to extract iron from the oxide ore?

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3. For a spontaneous reaction Gibb's free energy change is always.....

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4. How is wrought iron different from steel?

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5. What is the role of silica in the metallurgy of copper?



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6. Describe the role of the following:

SiO_2 in the extraction of copper from copper matte.

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7. Why is the extraction of copper from pyrites more difficult than that from its oxide ore through reduction?

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8. Give reason for the following:

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

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9. How is leaching carried out in case of low grade copper ores?

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1. The choice of a reducing agent in a particular case depends on the thermodynamic factor. How far do you agree with statement? Support your opinion with two examples.

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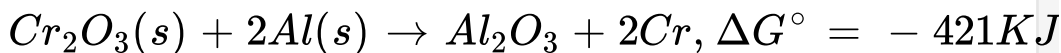
2. The value of $\Delta_f G^\circ$ for the formation of Cr_2O_3 is -540 kJ mol^{-1} and that of Al_2O_3 is -827 kJ mol^{-1} . Is the reduction of Cr_2O_3 possible with Al?

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

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4. The reaction,



is thermodynamically feasible as is apparent from the Gibbs energy value. Why does it not take place at room temperature?

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5. What is coupling of reaction? How is it useful in metallurgy?



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6. Wrought iron is the purest form of iron. Write a reaction used for the preparation of wrought iron from cast iron. How can the impurities of sulphur, silicon and phosphorus be removed from cast iron?



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7. At temperature above 1073 K, coke can be used to reduce FeO to Fe. How can you justify this reduction with Ellingham diagram?

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8. Why copper matte is put in silica lined converter?

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9. Copper can be extracted by hydrometallurgy but not zinc. Explain.

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10. Why is zinc not extracted from zinc oxide through reduction using CO?

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11. Which of the following metals cannot be extracted by the smelting process: Al, Zn, Fe and Pb. Give reason.

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12. What should be the considerations during the extraction of metals by electrochemical method?

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13. What is the role of graphite rods in the electrometallurgy of aluminium?

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Part II Thermodynamic And Electrochemical Principles Of Metallurgy Questions For Practice Short Answer Type II Questions

1. Write down the reactions taking place in different zones in the blast furnace during the extraction of iron.



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2. Copper pyrite is an ore of copper. Describe all the steps with equations to convert the concentrated ore to blister copper.



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3. Write chemical reactions taking place in the extraction of zinc from zinc blende.



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4. Describe how the change are brought about?

Pig into steel

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5. Describe how the change are brought about?

Zinc oxide into matallic zinc

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6. Describe how the change are brought about?

Alumina into aluminium

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7. Describe the role of

NaCN in the extraction of gold from gold ore.

Write the chemical equations for the involved reactions.



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8. Describe the role of

SiO_2 in the extraction of copper from copper matte.

Write the chemical equations for the involved reactions.



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9. Describe the role of

cryolite in the metallurgy of aluminium.

Write the chemical equations for the involved reactions.



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Part II Thermodynamic And Electrochemical Principles Of Metallurgy Questions For Assessment Multiple Choice Type Questions

1. Which of the following element is present as the impurity to the maximum extent in the pig iron?

A. Phosphorus

B. Manganese

C. Carbon

D. Silicon

Answer:



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2. Impurities present in the ore react to form a fusible substance known as

A. flux

B. gangue

C. megget

D. mineral

Answer:



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Part II Thermodynamic And Electrochemical Principles Of Metallurgy Questions For Assessment Very Short Answer Type Questions

1. What is the essential criteria for understanding the theory of metallurgical transformation?



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2. Predict the feasibility of thermal reduction of the ore.

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3. What is the temperature at which carbon can be used as a reducing agent for FeO ?

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4. Impurities present in the ore react to form a fusible substance known as

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5. Hall's process is used for the extraction of which metal.



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6. How does Gibbs energy explain the spontaneity of a chemical reaction at higher temperature?



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1. When ΔG is positive, the reaction is not spontaneous. Then to make such reaction spontaneous, which method is followed?

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2. Write the applications of Ellingham diagram.

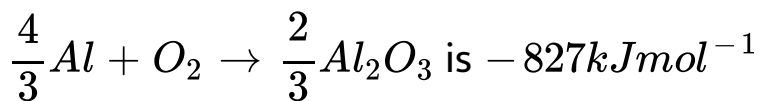
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3. Give chemical equation of a non-exothermic reaction taking place in the blast furnace during the extraction

of iron.

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4. Calculate the minimum emf required to carry out the electrolysis of Al_2O_3 Given that, ΔG for the reaction



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Part II Thermodynamic And Electrochemical Principles Of Metallurgy Questions For Assessment Short Answer Type II Questions

1. Write the three forms of iron and give reason, why they are different from each other?

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2. Answer the question

A type of iron which has 4% carbon content.

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3. Answer the question

A type of iron which has 3% carbon content.

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4. Answer the question

A substance is formed when 0.5% of carbon is added to wrought iron,

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5. Using the principle of thermodynamics, discuss the extraction of iron from its oxide. Explain each step involved in blast furnace.

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6. Explain the term 'Bessemerisation' in the extraction of copper from cuprous oxide.

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7. How does the copper is extracted from low grade ore?

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Part Iii Refining And Uses Of Metals Questions For Practice Multiple Choice Type Questions

1. Which among the following metals is refined by electrolytic method?

A. Aluminium

B. Bismuth

C. Tin

D. Lead

Answer: A



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2. Zone-refining is based on the principle that

A. Impurities of low boiling metals can be separated by distillation.

B. Impurities are more soluble in molten metal than in solid metal.

C. Different components of a mixture are differently adsorbed on an absorbent.

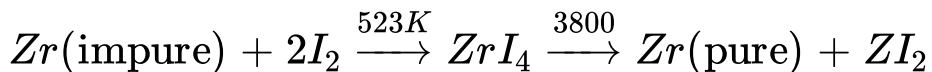
D. Vapour of volatic compound can be decomposed in pure metal.

Answer: B



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3. The following set of reactions are used in refining zirconium



This method is known as

- A. Distillation
- B. Liquation
- C. Hall-Heroult method
- D. van-Arkel method

Answer: D



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Part Iii Refining And Uses Of Metals Questions For Practice Very Short Answer Type Questions

1. Name the method used for the refining of copper metal.

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2. Indicate the principle behind the method used for the refining of zinc.

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3.method is useful for producing semiconductors.

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4. Name the method of refining to obtain silicon of high purity.

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5. Name the methods used for the vapour phase refining of impure titanium and nickel metals.

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6. How will you convert impure titanium into pure titanium?

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7. What is meant by the term chromatography?

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8. Outline the principle behind the refining of metals by the chromatographic method.

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9. Give example of stationary and mobile phase used in chromatography.

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Part Iii Refining And Uses Of Metals Questions For Practice Short Answer Type I Questions

1. Explain the principle of the method of electrolytic refining of metals. Give one example.

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

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3. Give two requirements for vapour phase refining.

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Part Iii Refining And Uses Of Metals Questions For Practice Short Answer Type Ii Questions

1. Outline the principles of refining metals by the method:

Zone refining

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2. Outline the principles of refining metals by the method:

Electrolytic refining

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3. Outline the principles of refining metals by the method:

Vapour phase refining



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4. Explain

Zone-refining



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5. Explain

Column chromatography

Part Iii Refining And Uses Of Metals Questions For Assessment Multiple Choice Type Questions

1. The method not used in metallurgy to refine the impure metal is

- A. Mond's process
- B. van-Arkel process
- C. amalgamation process
- D. liquation

Answer: C



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2. Magnalium is an alloy of

A. Al and Mg

B. Cu and Mg

C. Cu and Mn

D. Al and Cu

Answer: A



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Part Iii Refining And Uses Of Metals Questions For Assessment Very Short Answer Type Questions

1. Why there is a need to refine the extracted metal?

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2.method is used for refining low volatile boiling metals.

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3. A crude metal is heated with iodine to form metal tetraiodide which is decomposed on tungsten filament

at. 1800 K to liberate pure metal. Give the name of this method

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4. Name the method which is very useful for producing semiconductors.

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5. Write down the composition of German silver.

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Part Iii Refining And Uses Of Metals Questions For Assessment Short Answer Type I Questions

1. Write the different methods employed for refining of metals.



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2. You are provided with samples of some impure metals such as zinc, germanium. Which method would you recommend for the purification of each of these metals?



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3. Which metal is used as a reducing agent in the manufacture of the dye-stuffs, extraction of gold and silver by the cyanide process?

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4. What is the difference between eluate and eluant?

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Part Iii Refining And Uses Of Metals Questions For
Assessment Short Answer Type Ii Questions

1. Explain

The element which is used as a reducing agent in thermite welding.



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2. Explain

The element which is used in the extraction of gold and silver by cyanide process.



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3. Explain

The element which is used in casting stoves, railways, toys, etc.



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4. Answer the question

Explain the principle of refining by liquation method



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5. Answer the question

Explain the process in which the metal is converted

into its volatile compound.

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6. What are the uses of chromatographic method?

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7. Describe the whole procedure of metallurgy through a flow chart.

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Odisha Bureau S Textbook Solutions Fill In The Blanks Type Questions

1. The impurities associated with the ore after mixing are collectively called

A. flux

B. slag

C. minerals

D. gangue

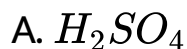
Answer: D



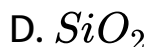
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Odisha Bureau S Textbook Solutions Multiple Choice Type Questions

1. An ore after levigation is found to have acidic impurities. Which of the following can be used as flux during smelting operation?



C. Both (a) and (b)



Answer: B



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2. The process in which metal oxide is reduced to metal is called

A. smelting

B. aluminothermy

C. hydrothermy

D. None of these

Answer: B



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3. Extraction of silver from Ag_2S by the use of sodium cyanide is an example of

A. roasting

B. hydrometallurgy

C. electrometallurgy

D. smelting

Answer: B



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4. Which of the following metals can be extracted by smelting?

A. Aluminium

B. magnesium

C. iron

D. None of these

Answer: C



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5. The most abundant element in earth's crust is

A. Nitrogen

B. oxygen

C. iron

D. magnesium

Answer: B



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6. Which of the following barium salts is soluble in water?

A. Barium sulphate

B. Barium carbonate

C. Barium nitrate

D. Barium phosphate

Answer: C



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7. The most abundant metal in the earth's crust is

A. Fe

B. Cu

C. Al

D. As

Answer: C



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8. Copper is extracted from

A. cuprite

B. copper glance

C. malachite

D. copper pyrite

Answer: D



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9. The salt which least likely to be found in minerals is

A. sulphides

B. chlorides

C. nitrates

D. sulphates

Answer: C



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**Odisha Bureau S Textbook Solutions Fill In The Blanks
Type Questions**

1. Sulphide ores are generally concentrated by ____



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2. The process of heating ore in the absence or limited supply of air, is called



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3. Roasting is heating of ore in presence of of air.



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4. Minerals, from which metal can be extracted economically, are called

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5. The art of extracting metals from their ores is called

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6. The process of removal of gangue or matrix from the ore is known as

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7. Coke used during smelting of iron acts as fuel as well as agent.

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8. Substance used during smelting to remove gangue in the form of slag, is called

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9. The flux combines with the gangue to form fusible mass, called.....

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10. The process of purification of metals to get extra-pure metals is known as

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11. Highly electropositive metals such as alkaline earth's are extracted by

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12. In electrolytic refining, the crude metal is made.....

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13. Reduction of metal oxides by aluminium metal is called.....

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14. During carbon reduction process, an additional substance added to get rid of the impurities is called

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15. The flux combines with the gangue to form fusible mass, called.....

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16. Calcination helps to remove And

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17. Na / Hg is prepared in order to decrease the.....

It is also used as a

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Odisha Bureau S Textbook Solutions Very Short Answer Type Questions

1. What is calcination?



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2. What is roasting?



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3. What is the difference between flux and slag?



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4. Which ore is suitable for carbon reduction? Explain with one example.

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5. What is slag ?

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6. Name an important ore of copper.

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7. What method is employed to concentrate a sulphide ore?

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8. Name one substance, which acts as a flux.

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9. For a transition metal oxide, name one effective reducing agent.

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10. Name a metal which can be extracted by electrolytic reduction. (Na, Cu, Ag, Zn)

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11. What is formed when a flux reacts with a gangue material?

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12. Can a mineral be termed as an ore?

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13. The oxides of the metals are...

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14. What is slag ? Give an example of it.

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15. Distinguish between mineral and ore.

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16. What happens to the ore during roasting?



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17. What is difference between calcination and roasting ?



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18. What do you understand by 'carbon-reduction' in metallurgy? Give an example.



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19. What type of metals are extracted electrolytically?



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20. What is the compound formed from the reaction of calcium oxide and silicon dioxides ?



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21. Metal are ductile. The statement means that metal can be

A. hammered

B. drawn into wire

C. made to withstand high pressure

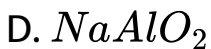
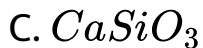
D. magnetised

Answer:



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22. Which of the following is a constituent of slag ?



Answer:

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23. The impurity in a mineral is called

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24. Name two elements that occur in the nature in the native state.

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25. What is the method of concentrating iron pyrite ore?

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26. Froth floatation process is generally used for the metallurgy of(oxide ore, chloride ore, sulphide ore, carbonate ore)

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27. What is the role of lime stone in the extraction of iron ?

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28. What is formed when a flux reacts with a gangue material?

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29. What are the reducing agents inside a blast furnace?

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30. Name two metals purified by electrolytic refining process.

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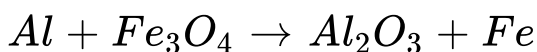
31. What is the name of the main constituent of slag in the blast furnace during the extraction of iron ?

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32. In which type of ores, froth floatation process is generally used for metallurgy?

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33. Balance the following equation :



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34. Name the process by which sulphide ore is concentrated ?

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35. Give an example of acidic flux.

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1. What is the difference between flux and slag?

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2. What is the role of limestone in the extraction of iron from red haematite?

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3. How does roasting differ from calcination?,

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4. Explain with a suitable example the term cathodic reduction.

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5. Name a flux which is used for removing acidic impurities.

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6. Name three types of refining process.

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7. Liquation is a refining process. Explain with an example.

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8. Name a metal which is commonly used as a reducing agent in metallurgical operations.

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9. Name two characteristic features of transition elements.

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10. Name various methods commonly employed for the concentration of an ore.

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11. What is self-reduction in metallurgy? Give example.

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12. What is meant by smelting in metallurgy?

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13. Which ore is suitable for carbon reduction? Explain with one example.

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14. What do you understand by 'carbon-reduction' in metallurgy? Give an example.

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15. What happens to the ore during roasting?

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16. What is flux? Give an example.

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17. What is the function of limestone the extraction of iron? Give equation to explain its action.

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**Odisha Bureau S Textbook Solutions Short Answer Type li
Questions**

1. What is the significance of leaching in the extraction of aluminium?

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2. When a metal is formed in the liquid state, then the process of reduction is easier. Comment on this statement.

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3. Which one out of Zn and Cu, can be extracted by hydrometallurgy? Explain.

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4. What is the role of (i) depressant (ii) froth stabilisers in 'froth floatation process'?

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5. What is the role of silica in the metallurgy of copper?

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6. What is Mond's process? Describe in detail.

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7. What is leaching ? Glve an example.

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8. How noble metals like Au and Ag are extracted from their ore?

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9. Write short notes on

Zone refining

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10. Explain

Column chromatography

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11. What is the role of silica in the metallurgy of copper?

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12. What is meant by the term chromatography?

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Odisha Bureau S Textbook Solutions Long Answer Type Questions

1. What do you understand by the terms 'alloys and amalgams'

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2. Give a brief account of the terms as used in the extraction of metals.

Calcination



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3. Give a brief account of the terms as used in the extraction of metals.

Roasting

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4. Give a brief account of the terms as used in the extraction of metals.

Smelting

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5. Give a brief account of the terms as used in the extraction of metals.

Refining

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6. Give a brief account of the terms as used in the extraction of metals.

Magnetic separation

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7. What is difference between mineral and ore ?

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8. Differentiate between alloy and amalgam

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9. What is difference between calcination and roasting ?

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10. What do you understand by electrochemical series?

Discuss the importance of electrochemical series.

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11. What is difference between mineral and ore ?

 [Watch Video Solution](#)

12. What is the difference between
an alloy and amalgam

 [Watch Video Solution](#)

13. What is the difference between flux and slag?

 [Watch Video Solution](#)

14. What is the difference between
smelting and roasting

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15. What do you understand by concentration of ores?

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16. What is meant by carbon reduction and electrolytic reduction with examples? What is the role of flux in the metallurgical operation? Name one mineral that can be used as a flux and describe its working.

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17. Fill in the blank and rewrite the whole statement.

A metal, which can be obtained as powder

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18. Fill in the blank and rewrite the whole statement.

A non-metal which shines like a metal and good conductor of electricity is

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19. Fill in the blank and rewrite the whole statement.

Two metals used in alloy formation

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20. Fill in the blank and rewrite the whole statement.

Two non-metals used in alloy formation

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21. Fill in the blank and rewrite the whole statement.

Two metals which occur in native state

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22. Fill in the blank and rewrite the whole statement.

A metal which gives acidic oxide

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23. Name various methods commonly employed for the concentration of an ore.

 [Watch Video Solution](#)

24. What do you understand by the term?

Metallurgy

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25. What do you understand by the term?

ore

 [Watch Video Solution](#)

26. What do you understand by the term?

Mineral

 [Watch Video Solution](#)

27. What do you understand by the term?

Gangue

 [Watch Video Solution](#)

28. How do metals occur in nature?

 [Watch Video Solution](#)

29. Write notes on

aluminothermic process



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30. Write notes on

electrolytic reduction



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31. What are the different methods of extracting a metal from its ore? Explain each method with one

example.



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32. Give the meaning with example

ore



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33. Give the meaning with example

minerals



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34. Give the meaning with example

refining



Watch Video Solution

35. Give the meaning with example

smelting



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36. Write notes on

aluminothermic process



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37. Write notes on

carbon reduction process



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38. Write down the reactions taking place in different zones in the blast furnace during the extraction of iron.



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39. Write chemical reactions taking place in the extraction of zinc from zinc blende.

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40. What is Ellingham diagram? With reference to this diagram explain

Mg is more reducing than Zn.

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41. What is Ellingham diagram? With reference to this diagram explain

Al acts as a better reducing agent than Fe.

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42. What is Ellingham diagram? With reference to this diagram explain

Extraction of metals like Ag and Hg from their oxides take place high temperature.

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Chapter Practice Multiple Choice Type Questions

1. The metal which cannot be extracted by smelting process?

A. Zn

B. Al

C. Pb

D. Fe

Answer: B



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2. Thermite is a mixture of iron oxide and

A. aluminium powder

B. zinc powder

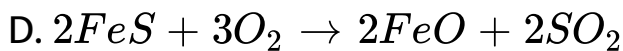
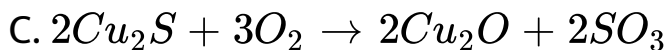
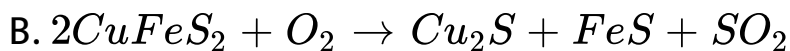
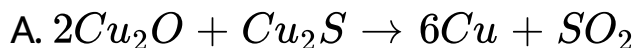
C. potassium metal

D. sodium metal

Answer: A

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3. In the extraction of Cu, the reaction in Bessemer converter is



Answer: A

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4. Tempering of steel

- A. is the heating the steel to appropriate temperature and then cooling it rapidly.
- B. increases mechanical strength
- C. changes ratio of carbon in cementite
- D. follows all of the above

Answer: D



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Chapter Practice Very Short Answer Type Questions

1. Name the process of isolation of metals by dissolving the ore in a suitable chemical reagent followed by precipitation of the metal by a more electropositive metal.

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2. Why does auto-reduction process is not employed during the metallurgy of iron?

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3. Two different sulphide ores can be separated by process.

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Chapter Practice Short Answer Type I Questions

1. The roasting of an ore of a metal usually results in conversion of the metal ore to the oxide. Why does the roasting of cinnabar, (HgS) produce metallic mercury rather than an oxide of mercury?

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2. Explain the following: Al_2O_3 cannot be reduced by carbon to get Al metal.

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3. Which methods are usually employed for purifying the metal?

Tin

Mention the principle behind each one of them.

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4. Which methods are usually employed for purifying the metal?

Germanium

Mention the principle behind each one of them.

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5. How is chemical reduction different from electrolytic reduction? Name a metal of each which is obtained by electrolytic reduction.

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6. How is chemical reduction different from electrolytic reduction? Name a metal of each which is obtained by electrolytic reduction.

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7. The value of $\Delta_f G^\circ$ for the formation of Cr_2O_3 is -540 kJ mol^{-1} and that of Al_2O_3 is -827 kJ mol^{-1} . Is the reduction of Cr_2O_3 possible with Al?

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8. Although the reduction of Cr_2O_3 with Al is thermodynamically feasible, yet it does not occur at room temperature. Why?

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Chapter Practice Short Answer Type II Questions

1. Write down the reactions taking place in different zones in the blast furnace during the extraction of iron.

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2. Outline the principle behind the refining of metals by the chromatographic method.

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3. Describe how the change are brought about?

Pig into steel

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4. Describe how the change are brought about?

Zinc oxide into matallic zinc

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5. Describe how the change are brought about impure titanium into pure titanium?

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6. Write the reactions involved in the following processes.

Leaching of bauxite ore to prepare pure alumina.

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7. Write the composition property and use of the alloy.

Bronze



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8. Write the composition property and use of the alloy.

Brass



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9. Write the composition property and use of the alloy.

Stainless steel



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Chapter Practice Long Answer Type Questions

1. Name two metal sulphides which get converted into the corresponding metals during roasting. When does it happen so?

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2. The choice of reducing agent in a particular case depends on thermodynamic factor. How do you agree with this statement?

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3. Name the chief form of occurrence of the following in the earth's crust.

(a) Copper (b) Zinc (c) Iron

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4. How is the concept of coupling reactions useful in explaining the occurrence of non-spontaneous thermochemical equations? Explain giving one example.

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