



CHEMISTRY

BOOKS - VIKRAM PUBLICATION (ANDHRA PUBLICATION)

GENERAL PRINCIPLES OF MMETALLURGY

Textual Examples

1. Suggest a condition under which magnesium could reduce alumina.



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2. Although thermodynamically feasible, in practice, magnesium metal is not used for the reduction of alumina in the metallurgy of aluminium. Why?



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



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4. At a site, low grade copper ores are available and Zinc and iron scraps are also available . Which of the two scraps would be more suitable for reducing the leached copper ore and why?



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Very Short Answer Questions

1. What is the role of depressant in froth floatation?



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2. Between C and CO, which is a better reducing agent at 673K.



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3. Name the common elements present in the anode mud in the eletrolytic refining of copper.



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4. State the role of silica in the metallurgy of copper.



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5. Explain "Poling".



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6. Describe a method for the refining of nickel.



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7. How is cast iron different from pig iron?



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8. What is the difference between a mineral and an ore?



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



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10. What is the role of cryolite in the metallurgy of aluminium?



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



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



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13. Give the composition of the following alloys.

(a) Brass

(b) Bronze

(c) German Silver



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14. Explain the terms gangue and slag.

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15. How is Ag or Au obtained by leaching from the respective ores?

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16. What are the limitations of Ellingham diagram?

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17. Write any two ores with formulae of the following metals:

(a) Aluminium (b) Zinc (c) Iron (d) copper

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18. What is matte? Give its Composition.

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19. What is blister copper? Why is it so called?

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20. Explain magnetic separation of impurities from an ore.



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21. What is flux ? Give an example.



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22. Give two uses each of the following metals:

(a) Zinc (b) copper (c) Iron (d) Aluminium



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23. Between C and CO, Which is a better reducing agent for ZnO?



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24. Give the uses of

a) cast iron b) wrought iron c) Nickel steel d) Stainless steel



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25. How is aluminium useful in the extraction of chromium and manganese from their oxides?

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Short Answer Questions

1. Copper can be extracted by hydrometallurgy but not Zinc -explain.

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



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3. Explain Zone refining.



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

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

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6. How is alumina separated from silica in the bauxite ore associated with silica? Give equations?

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7. Give examples to differentiate roasting and calcination.

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8. The Value of ΔG° for the formation of Cr_2O_3 is -540KJ mol^{-1} and that of Al_2O_3 is -827KJ mol^{-1} . Is the reduction of Cr_2O_3 possible with Al ?

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9. What is the role of graphite rod in the electromellurgy of aluminium?

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10. Outline the principles of refining of metals by the following methods.

(a) Zone refining (b) Electrolytic refining (c) poling
(d) Vapour phase refining.

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

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12. Explain the purification of sulphide ore by Froth Floatation Method.

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13. Explain the process of leaching of alumina from bauxite.

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14. What is Ellingham diagram ? What information can be known from this in the reduction of oxides?

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15. How is copper extracted from copper pyrites ?

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16. Explain the extraction of Zinc form Zinc blende.



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17. Explain smelting process in the extraction of copper.



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18. Explain electrometallurgy with an example.



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19. Explain the process of leaching of alumina from bauxite.

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Long Answer Questions

1. The choice of a reducing agent in the extraction of a particular case depends on thermodynamic factor. Explain.

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



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



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4. Discuss the extraction of copper from copper pyrites.



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5. Explain the process of leaching of alumina from bauxite.



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Intext Questions

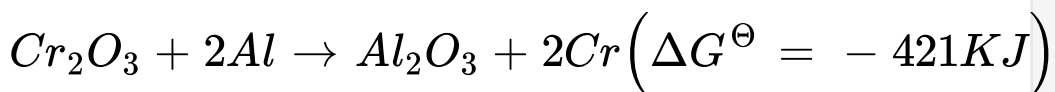
1. Which of the ores mentioned in Table can be concentrated by magnetic separation method ?

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

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3. The reaction,



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



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4. Is it true that under certain conditions Mg can reduce Al_2O_3 and Al can reduce MgO ? What are those conditions?



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1. What is a mineral ?



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2. What is an ore?



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3. What is an ore . Give the of Al, Zn, Fe, Cu.



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4. State the role of silica in the metallurgy of copper.

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1. Give examples to differentiate roasting and calcination.

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