CHEMISTRY

BOOKS - A N EXCEL PUBLICATION

GENERAL PRINCIPLES AND PROCESSES OF ISOLATION OF ELEMENTS

Question Bank

1. Which of the following equations can't be obtained by the dimensional method? (k is a

constant)

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

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3. Metallrgical process can be explained in terms of thermodynamic principles. Reduction of Cr_2O_3 by Aluminium metal is accompained

by negative ΔG° value and is thermodynamically feasible. Why does this reaction fail at room temperature?

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

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5. Is it ture under certain conditions Mg can reduce Al_2O_3 and Al can reduce MgO? What are the conditions?

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6. Analyses the table given below:

Metal	Ore
Copper	Copper pyrites, copper glance, cuprite
Zinc	Zinc blende, calamine, zincite
Aluminium	Bauxite, diaspore
Iron	Haematite, magnetite, iron pyrites

Which of the ores mentioned in the above table can

be concentrated by magnetic separation method? Justify your answer.

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7. Identify the ores that can be concentrated by leaching.

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8. What do you mean by leaching?

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9. You are provided with samples of some impure metals such as titanium and nickel. Which method would you recommend for the purification of each of these metals?

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10. What is the name of the method that is used in manufacturing of sodium hydroxide?

Explain the method.Write the equations of the reactions involved in this process

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11. The concept of ΔG° of coupled reaction are used explain reductions in metallurgy. Explain the above statement.

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12. In the blast furnace for manufacturing iron, most of the reduction is carried out by CO rather than C (coke). How can you account for this?

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13. Bauxite, $Al_2O_3 . xH_2O$ is an important ore of aluminium. It is concentrated by leaching. Explain the method.

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14. All ores are minerals, but all minerals are not ores. Why?

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15. Carbonate ores are usually subjected to calcination, while sulphide ores are subjected to roasting. Comment on the statement.

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16. Match the items of Column I with items of Column II

Column I	*Column II*
(i) Aluminium	(a) Malachite
(ii) Iron	(b) Bauxite
(iii) Copper	(c) Limestone
(iv) Zinc	(d) Haematite
	(e) Calamine

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

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18. The scientific and technological process used for isolation of the metal from its ores is known as metallurgy. Name the method used for removing gangue from sulphide ores.

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19. The concept of ΔG° of coupled reaction are used explain reductions in metallurgy. Explain the above statement.

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20. Give two examples for alloy

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21. Calcination and raosting are treatments in metallurgy before metal extraction. Differentiate calcination and roasting.

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22. Match the items of Column I with items of Column II

Column I	*Column II*
(i) Distillation	(a) *Ge*
(ii) Liquation	(b) *Ni*
(iii) Zone refining	(c) *Cu*
(iv) Vapour phase refining	(d) *Zn*
	(e) *Sn*

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23. Sulphide ores are concentrated by froth floatation process. Write the name or formulae of any two sulphide ores of copper.

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24. Explain the 'froth' floatation process'

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25. Name two metals which can be refined by van-Arkel Method.

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26. Match the items of Column I with items of Column II

Column I	*Column II*
(i) Aluminium	(a) Malachite
(ii) Iron	(b) Bauxite
(iii) Copper	(c) Limestone
(iv) Zinc	(d) Haematite
	(e) Calamine

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27. Explain the 'froth' floatation process'

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28. What is the role of limestone `(CaCo_3) in the extraction of iron?

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29. Monds process is used for refining of Ni and Van Arkel method is used for refining Zr (Zirconium). Write one similarity between these processes.

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30. Which of the following is the ore of zinc?

A. Bauxite

B. Magnetite

C. Malachite

D. Calamine

Answer: D

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31. There are servral methods for refining metals. Explain a method for refining Zirconium.

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32. Metals are extracted from their ores. Among the following which metal is extracted from bauxite: Zinc,Iron,Aluminium,Copper

A. Zinc

B. Iron

C. Aluminium

D. Copper

Answer: B

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33. Carbonate ores are usually subjected to calcination, while sulphide ores are subjected to roasting. Comment on the statement.

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34. Leaching is a process of concentration of ores. Explain the leaching of alumina from bauxite.

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35. Which of the following is not an Ore of Iron? Haematite,Magnetite,Malachite,Siderite

A. Haematite

B. Magnetite

C. Malachite

D. Siderite

Answer: C

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36. Explain froth floatation process for the concentration of Ore.

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37. During metallurgy, the metal extracted may still contain impurities. Different methods are used to obtain pure metal from the cude sample based on the nature of the impurities present. Suggest a method for refining crude tin metal. Justify your answer.

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38. Name two metals that are refined by distillation.

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39. How would you convert crude germanium into ultrapure germanium? Explain the process briefly.

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40. What is the role of limestone `(CaCo_3) in the extraction of iron?

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41. Alumina is mixed with cryolite and subjected to electrolysis to extract aluminium. Write the equation of the reduction reaction taking place at negative electrode.

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42. What is pig iron?

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43. What is hydrometallurgy?

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44. Explain the method of preparation of copper by hydrometallurgy.

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45. Explain the method of refining copper.

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46. Copper is a useful metal and is generally extracted from copper pyrites. What is copper pyrites?

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47. How is blister copper obtained from copper matte?

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48. Why is blister coper called so?

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49. Give any two uses of copper.

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