



CHEMISTRY

BOOKS - V PUBLICATION

PRODUCTION OF METALS

Question Bank

1. Which of the properties of metals is utilized in the following instances?

Aluminium utensils are used for cooking.

Copper is used for making vessels.

Gold wires are used in ornaments.



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2. What are the factors to be considered while selecting minerals for the extraction of metals?



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3. Write the different stages involved in metallurgy.



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4. What are the different methods for the refining of metals? Explain



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5. How is iron extracted industrially?



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6. Write the uses of the following:

Nichrome , Stainless steel , Alnico



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7. Explain the process of producing alumina from bauxite.



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8. Explain the method of obtaining pure aluminium from alumina by electrolysis. In this process the carbon rods are replaced from time to time. Why?



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9. You know that metals can be separated from molten compounds of metals by electrolysis.

Find out how metals like Na, Ca and Mg are extracted



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10. The most abundant metal in the earth crust is:



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11. An alloy of iron, chromium and nickel.



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12. Find the relation and fill up suitably.

Aluminium : Bauxite

Iron:.....



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13. From the following which chemical compound is contained in calamine .

(ZnCO_3 , CuSO_4 , CaCO_3 , SiO_2)



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14. Some metals exist in free state because of its.....



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15. Write one example for an ore separated by leaching.



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16. Non-removable impurities during ore concentration is called.....

(Gangue ,Flux , slag)



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17. Which reducing agent is used in Blast furnace?



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18. Gangue + Flux gives



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19. Aluminium is used for making utensils due to its.....



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20. Write the difference between calcination and roasting .



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21. Analyse the flow chart given below and answer the following questions.

a) Write P, Q and R

b) Explain the above process.

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22. Write down the anode, cathode, and electrolyte used in electrolytic cell used for the manufacture of copper.



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23. Clay, cryolite and Bauxite are the minerals of Aluminium.

a) Which one these is an ore of Aluminium?

Write the chemical formula

b) What should be the properties of an ore?





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24. Find the relation and fill up suitably.

a) Zinc sulphide Roasting: Calcium Carbonate:.....

b) Haematite Magnetic Separation: Bauxite:



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25. Analyse the given table and answer the following questions.

a) Write X and Y?

b) Which metals are used for this refining method.

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26. Bauxite ($Al_2O_3, 2H_2O$) and clay ($Al_2O_3 \cdot 2SiO_2 \cdot 2H_2O$) are two naturally occurring minerals of aluminium

a) Which one of them is an ore of aluminium?

b) Give two reasons for your answer.



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27. Electricity and carbon monoxide (CO) and reducing agents used to extract metals from their ores.

a) Which of these is used to extract sodium from sodium chloride. Why?

b) Which reducing agent is used to extract iron from haematite (Fe_2O_3).



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28. Froth flotation process, hydraulic washing, magnetic separation, leaching etc are some methods for concentration of ores?

Which of this methods is useful for the separation of copper pyrites?

b) Write the reason for choosing this method.



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29. Complete the table.

b) Why different methods are used for

purifying the metals Zinc and Tin?

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30. a) Name the ore of Iron?

b) Which reduces Fe^{3+} ion from iron oxide in the blast furnace?

c) Write the chemical equation for the reduction of iron.



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31. a) Write the equation of the chemical reaction taking place at anode and cathode electrolytic refining of aluminium.

b) Carbon monoxide cannot be used as reducing agent to extract aluminium from alumina. Why?

c) Anode replaced from time to time while producing aluminium. Why?



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32. Which of the properties of metals is utilized in the following instances?

Aluminium utensils are used for cooking.

Copper is used for making vessels.

Gold wires are used in ornaments.



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33. a) Which is the main ore of iron?

b) Which compound acts as the reducing agent in the production of iron

c) Name the furnace which is used for the industrial preparation of iron.



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34. Write the uses of the following.

.Pig iron , Cast Iron . , Alnico



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35. Match the following.

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36. Write the reasons of followings:

a) Aluminium is a very good reducing agent.

b) Copper is a better conductor of electricity.

But aluminium is widely used for making electric wires.

c) Alumina is dissolved in molten cryolite at the time of electrolysis.



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37. Names of some minerals are given below.

i) Haematite

ii) bauxite

iii) Dolomite

a. Identify the mineral of Iron (Fe)

b. Name the reducing agent mainly used in the extraction of iron from its ore.

c. What is the role of powdered lime stone in the extraction process of iron?



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38. a) Write down the nature of gangue in iron ore.

b) Reducing agent in blast furnace.

c) Iron formed from the blast furnace are called.....



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39. a) Which ores are for calcination and roasting?

b) Give examples for reducing agents for

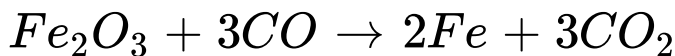
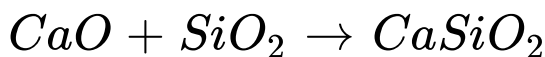
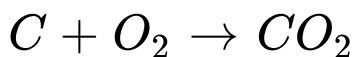
reducing iron ores.

c) Which is the strongest reducing agent.



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40. Given below the equation for the reactions taking place inside the blast furnace.



a) Name the ore of iron?

b) Which is the gangue in iron ore.

c) Name the flux used in blast furnace?

d) *Gangue + flux* \rightarrow



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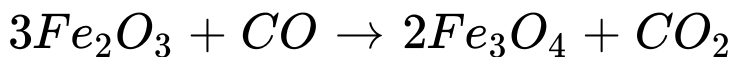
41. Alloys containing iron are given. Find out a, b, c and d.

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42. Reactions of blast furnace are given below:



a. Which is reducing agent of these equations

b. Which equation represent sing production.

Which equation is represent reduction of iron.



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43. Nature of some ores are given. Pick out the method of concentration from the bracket

(Magnetic separation, Froth floatation, Levigation, Leaching).

i) Ores are lighter and impurities are heavier.

ii) Ore is magnetic. But impurities are non-magnetic

iii) Uses a solution which dissolves the ore

iv) Ore is heavier and impurities are lighter.



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44. Aluminium is prepared industrially by Hall-Heroult process. Various steps in the concentration of ore are given below. Write them in the correct order.

i) The precipitate formed is separated, washed and strongly heated to get alumina.

ii) Crushed bauxite is leached with hot sodium hydroxide solution.

iii) Impurities are removed from the sodium aluminate solution by filtration.

iv) Solution is diluted after adding a little aluminium hydroxide, to precipitate aluminium hydroxide .



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45. The order of reactivity of some metals are given. Answer the following questions by analysing it.

Al > Zn > Cu > Au

- Which metal is produced by the electrolysis of its molten salt?
- Which metal occurs in free state in nature?
- Which metal is produced by the self-oxidation-reduction reaction?
- Which metal is reduced by carbon?



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46. Complete the table.

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47. Fill up the columns by choosing the appropriate one from those given below.

(Distillation, oupe, Elictrolytic refining. Dauxite,

Calamine, Liqutation)

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48. a) Complete the given below chart related with the concentration of aluminium ore?

'(##VPU_TTT_CHE_X_P01_C04_E06_009_Q09##)'



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49. Complete the table given below.

'(##VPU_TTT_CHE_X_P01_C04_E06_010_Q10##)'



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50. The impurities present in the ore have high density and the ore has low density. Which method is used to separate this ore.



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51. An aluminium alloy which is used for making magnets is.....



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52. Low denser ore: Froth floatation. Magnetic ore:



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53. Write two advantage of steel compared to iron?



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54. Solvent is used in the concentration of bauxite.



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55. Find suitable relation and fill in the blanks.

a) Copper pyrites: Froth floatation

Bauxite...

b) Tin: Liquation

Zinc:.



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56. Give reason

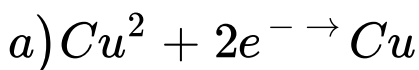
a) Cryolite is added during the electrolysis of alumina.

b) Carbon rod is replaced from time to time while producing aluminium,



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57. Based on the refining of copper two chemical equations are given below.



Write the chemical reaction taking place at anode?

ii) in which electrode pure copper is precipitated?



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58. The components of stainless steel, Nichrome are same but they show different properties. What is the reason?



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59. The symbols of some metals are given below.

Pb, Fe, Sn, Na, Au

a) Which metal is produced by using electricity as reducing agent?

b) Which metal exist in the free state?

c) Which compounds of these metals are more stable?



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60. Some alloys are given below.

Alnico, stainless steel, Nichrome

a) Which alloy is used for making heating coil?

b) Which alloy is used for making permanent magnet?

c) What is the similarity between stainless steel and nichrome?



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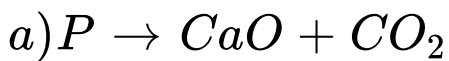
61. Some metal and their refining methods are given below. Match them suitably.

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62. Equations of some reactions that takes place in the fumace are given below.



i) Identify P and Q

i)-Identify the ganue present in b.

Here basic flux are used what is the reason?



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