PRINT

Qn No. 1 *Chapter Name:Production of Metals*

Qn.
Copper is refined electrolytically.The reaction occuring at the two electrodes are given.

***Electrode* 1 : $Cu \rightarrow Cu^{2+} + 2e$**

Electrode 2 : $Cu^{2+} + 2e \rightarrow Cu$

Write whether *Electrode* 1 is anode or cathode.

Hint.
Anode

Marks :(1)

Hide Answer

Qn No. 2 *Chapter Name:Production of Metals*

Qn.
Metals like copper and silver are refined by using electrolytic method .

(a) Which is the anode used in refining of copper ?

(b) Write the equation of reaction occuring at anode and cathode during the refining of copper.

Hint.
(a) Impure copper is used as anode.

(b) Anode : $Cu \rightarrow Cu^{2+} + 2e$

Cathode : $Cu^{2+} + 2e \rightarrow Cu$

Marks :(3)

Hide Answer

Qn No. 3 *Chapter Name:Production of Metals*

Qn.
Which is the method used to refine tin?Why?

Hint.
Liquation, Melting point of tin is less than that of the impurities

Marks :(2)

Hide Answer

Qn No. 4 *Chapter Name:Production of Metals*

.

Qn.
Different methods are used to convert the ores **$ZnCO_3$,Cu_2S in to oxides.Write the appropriate methods to convert these ores.**

Hint.
$ZnCO_3$ - Calcination

Cu_2S - Roasting

Marks :(2)

Hide Answer

Qn No. 5 ***Chapter Name:Production of Metals***

Qn.
Leaching is a process in aluminium production.To which of the following

class does it belong ?

(a) Concentration of ore

(b) Extraction of metal

(c) Refining of metal

(d) Alloying

Hint.
(a) Concentration of ore

Marks :(1)

Hide Answer

Qn No. 6 ***Chapter Name:Production of Metals***

Qn.
(a) Which is the method used to concentrate copper pyrites?

(b) What property of the ore is utilised here ?

Hint.
(a) Froth floataton

(b)Density of ore is lighter than that of impurities.

Marks :(2)

Hide Answer

Qn No. 7 ***Chapter Name:Production of Metals***

Qn.
Which is an ore of iron ?

(Bauxite , Cryolite,Haematite ,Clay)

Hint.
Haematite

Marks :(1)

Hide Answer

Qn No. 8 ***Chapter Name:Production of Metals***

Qn.
Which is not a basic metallurgical process ?

(a) Alloying

(b) Refining

(c) Concentration of ore

(d) Extraction of metal

Hint.
(a) Alloying

Marks :(1)

Hide Answer

Qn No. 9 ***Chapter Name:Production of Metals***

Qn.
The method used to prepare a metal from an ore is known as .....

Hint.
Extraction of metal

Marks :(1)

Hide Answer

Qn No. 10 ***Chapter Name:Production of Metals***

Qn.
Minerals from which metals can be extracted easily are known as.....

Hint.
Ore

Marks :(1)

Hide Answer

.

Qn No. 11 *Chapter Name:Production of Metals*

Qn.
Which is not a mineral of aluminium ?

(Bauxite, Cryolite , Sand, Clay)

Hint.
Sand

Marks :(1)

Hide Answer

Qn No. 12 *Chapter Name:Production of Metals*

Qn.
Which among the following metals exists in the elemental state in nature?

(Magnesium , Sodium ,Gold ,Aluminium)

Hint.
Gold

Marks :(1)

Hide Answer

Qn No. 13 *Chapter Name:Production of Metals*

Qn.
The main gangue in iron ore is SiO_2

(a) Name the important ore of iron ?

(hamatite/ Bauxite/Calamine/Tinstone)

(b) Name the substances used to remove gangue from an ore ? Which is the substance used to remove SiO_2 from iron ore?

Hint.
(a) Hamatite

(b)Flux, $CaO/CaCO_3$

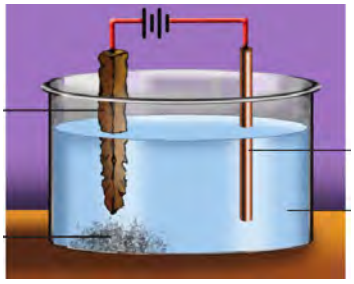
Marks :(3)

Hide Answer

Qn No. 14 *Chapter Name:Production of Metals*

Qn.
The figure showing the electrolytic refining of copper is shown .

.



What are the anode,cathode and electrolyte of this cell ?

Hint.
Anode - Impure copper

Cathode - Pure copper

Electrolyte - Copper sulphate solution with H_2SO_4 .

Marks :(3)

Hide Answer

Qn No. 15 ***Chapter Name:Production of Metals***

Qn.
Figure of electrolysis of alumina is shown

(a) What are the anode and cathode ?

(b) Write the equation of cathode reaction.

(c) The anode blocks are to be replaced occasionally; Why?

Hint.
(a)Anode - Carbon rods

Cathode - Carbon lining

(b) $Al^{3+} + 3e \rightarrow Al$

(c) The anode (carbon) is oxidised to CO_2 by the oxygen produced at the anode

Marks :(4)

Hide Answer

Qn No. 16 ***Chapter Name:Production of Metals***

Qn.
The figure of electrolytic production of aluminium is given

(a)Name the process of production of aluminium ?

(b) What are the anode and cathode of the cell ?

(c) What is the role of cryolite in the electrolysis?

Hint.
(a) Hall-Heroult process

(b) Anode - Carbon rods

Cathode - Carbon lining

(c) To dissolve alumina /to reduce melting point of alumina / to increase electrical conductivity

Marks :(4)

Hide Answer

Qn No. 17 ***Chapter Name:Production of Metals***

Qn.
(a) Name the ore of aluminium ?

(b) Which is the method used to concentrate the ore of aluminium?

(c) Name the process used to produce aluminium ?

Hint.
(a) Bauxite

(b) Leaching

(c) Hall-Heroult

Marks :(3)

Hide Answer

Qn No. 18 ***Chapter Name:Production of Metals***

Qn.
Names of some alloy steels are given in the box .

Alnico	**Stainless steel**	**Nichrome**

(a) What is the common component in all these steels ?

(b) Which steel is used to make heating coils?

(c) Which is the steel is used to make permanent magnets ?

(d) What is the similarity between stainless steel and nichrome ?

.

Hint.
(a) Iron

(b) Nichrome

(c) Alnico

(d) Both of them contain same components.

Marks :(4)

Hide Answer

Qn No. 19 ***Chapter Name:Production of Metals***

Qn.
Equation of reaction occuring in blast furnace during the production of iron are given.

$CaCO_3 \rightarrow CaO + CO_2$

$Fe_2O_3 + 3\ CO \rightarrow 2\ Fe + 3\ CO_2$

$CaO + SiO_2 \rightarrow CaSiO_3$

(a) Which of these represent slag formation reaction ?

(b) Which is the substance acting as reducing agent in blast furnace?

Hint.
(a) $CaO + SiO_2 \rightarrow CaSiO_3$

(b) Coke/CO

Marks :(2)

Hide Answer

Qn No. 20 ***Chapter Name:Production of Metals***

Qn.
Iron produced in blast furnace

(a) Name the ore used here ?

(b) Why coke is added along with the ore to the blast furnace ?

(c) What is the role of limestone in blast furnace?

Hint.
(a)Haematite .

(b)For the reduction of ore/For the formation of CO.

(c)To remove the gangue

Marks :(3)

Hide Answer

Qn No. 21 ***Chapter Name:Production of Metals***

.

Qn.

Ag , Fe, Sn, Na, Au

(a) Arrange the above metals in the decreasing order of their reactivity?

(b) Which metal is produced by reduction using electricity ?

(c) Which of the above occur free in nature ?

(d) Name the metal for which the compounds are highly stable ?

Hint.
(a) Na > Fe>Sn>Ag>Au

(b) Na

(c) Au

(d) Na

Marks :(4)

Hide Answer

Qn No. 22 ***Chapter Name:Production of Metals***

Qn.
a)Complete the table.

Metal	Method of refining
Tin	(x)
Zinc	(y)

(a) identify x and y

(b) Which property of metals is made use of in the above process ?

Hint.
(a)

x - Liquation

y - distillation

(b) Melting point of tin is lower than impurities.

Boiling point of zinc is lower than impurities .

Marks :(3)

Hide Answer

Qn No. 23 ***Chapter Name:Production of Metals***

Qn.
Equation related with the concentration of two ores of Zn are given.

.

i. $ZnCO_3$ + Heat ⟶ ZnO + CO_2

ii. ZnS +O_2 + Heat ⟶ ZnO + SO_2

a .Which of these equation represent roasting?

b . How does roasting differ from calcination ?

Hint.
(a)second (ii)

(b)Calcination is carried out in the absence /limited supply of air .Where as roasting is carried out with the presence of excess air.

Marks :(3)

Hide Answer

Qn No. 24 *Chapter Name:Production of Metals*

Qn.
Match suitably

Ore	Nature of the ore	The method of concentration
Copper pyrites	Density of the ore is heavier than gangue	Leaching
Magnetite	Ore and gangue do not dissolve in same solvent	Hydraulic washing
Ore of gold	Density of the ore is lighter than gangue	Magnetic separation
Bauxite	Magnetic natured ore	Froth floatation

Hint.

Ore	Nature of the ore	The method of concentration
Copper pyrites	Density of the ore is lighter than gangue	Froth floatation
Magnetite	Magnetic natured ore	Magnetic separation
Ore of gold	Density of the ore is heavier than gangue	Hydraulic washing
Bauxite	Ore and gangue do not dissolve in same solvent	Leaching

Marks :(3)

Hide Answer

Qn No. 25 *Chapter Name:Production of Metals*

Qn.
Match the following

Metal	Ore

Copper	**Bauxite**
Zinc	**Haematite**
Iron	**Calamine**
Aluminium	**Cuprite**

Hint.

Metal	**ore**
Copper	**Cuprite**
Zinc	**Calamine**
Iron	**Haematite**
Aluminium	**Bauxite**

Marks :(4)

Hide Answer

Qn No. 26 ***Chapter Name:Production of Metals***

Qn.
***Clay,bauxite and precious stone are some minerals of aluminium*.**

a . Which among these is the ore of aluminium.

b . Write any two charecteristics of an ore

Hint.
(a) Bauxite

(b) Abundance / Easily separable / High metal content .

Marks :(3)

Hide Answer

Qn No. 27 ***Chapter Name:Production of Metals***

Qn.
Which is the reducing agent used in the extraction of reactive metals like sodium and potassium

Hint.
Electricity

Marks :(1)

Hide Answer

Qn No. 28 ***Chapter Name:Production of Metals***

Qn.
***Name the method used to concentrate* bauxite.**

.

(Leaching , Hydraulic washing , Magnetic separation)

Hint.
Leaching

Marks :(1)

Hide Answer

Qn No. 29 ***Chapter Name:Production of Metals***

Qn.
Which method is used to remove tin stone from iron tungstate?

(Froth floatation ,Magnetic separation , Levigation, Leaching)

Hint.
Magnetic separation

Marks :(1)

Hide Answer

Qn No. 30 ***Chapter Name:Production of Metals***

Qn.
Name the process used to concentrate the ore,Copper Pyrites

($CuFeS_2$) ?

Hint.
Froth floatation

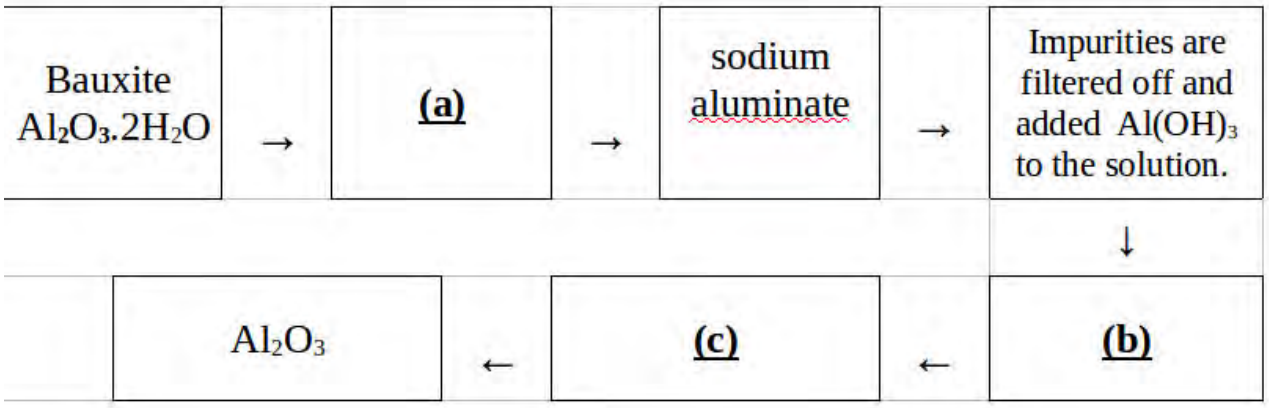
Marks :(1)

Hide Answer

Qn No. 31 ***Chapter Name:Production of Metals***

Qn.
Complete the flow chart related with the production of alumina.

.



Hint.

(a) Hot NaOH solution

(b) $Al(OH)_3$ precipitate

(c) Precipitate is seperated and heated strongly

Marks :(3)

Hide Answer

Qn No. 32 ***Chapter Name:Production of Metals***

Qn.

a) Which is the reducing agent used to extract aluminium

b) complete the equation of the ionisation of alumina during electrolysis.

I_2 $O_3 \longrightarrow$ ----- + -----

Hint.

a) electricity

b) $Al_2O_3 \longrightarrow 2Al^{3+} + 3O^{2-}$

Marks :(2)

Hide Answer

Qn No. 33 ***Chapter Name:Production of Metals***

Qn.

)Which of those given below is an alloy steel

Bronze ,aluminium Bronze ,Nichrome ,Brass)

) Write any one characteristic of the above alloy.

Hint.

) Nichrome

) High resistance (electrical / corrosion resistance)

Marks :(2)

Hide Answer

Qn No. 34 *Chapter Name:Production of Metals*

Qn.
What are the methods used to refine the following metals?Why those methods are employed?

a) Tin b)Cadmium

Hint.
Tin - Liquation - Low melting point

Cadmium---Distillation- Low boiling point

Marks :(2)

Hide Answer

Qn No. 35 *Chapter Name:Production of Metals*

Qn.
The production of Aluminium is different from that of Iron.

a)Which is the method of concentration of the ore of aluminium

b)Which is the reducing agent used in the production of Aluminium?

c)Name the furnace used in the production of iron.

d) pig iron directly got from the furnace is not used as such.What may be the reason?

Hint.
Answer key:

a)Leaching.

b)Electricity

c)Blast furnace.

d)Presence of high amount of impurities such as carbon,sulphur,and phosphorus make it brittle.

Marks :(4)

Hide Answer

Qn No. 36 *Chapter Name:Production of Metals*

Qn.

What are the methods used to refine the following metals?Why these metods are employed?

a) Tin

b)Cadmium

Hint.
a) Tin - Liquation -Low melting point

b)Cadmium-Distillation- Low boiling point

Marks :(2)

Hide Answer

Qn No. 37 *Chapter Name:Production of Metals*

Qn.
Answer the questions related to concentrations of bauxite given below.

a) Which method is used to concentrate bauxite?

b) Name the product obtained on heating aluminium hydroxide.

Hint.
Answer key

a) Leaching.

b) Alumina/Aluminium Oxide/Al_2O_3

Marks :(2)

Hide Answer

Qn No. 38 *Chapter Name:Production of Metals*

Qn.

The components of stainless steel and nichrome are Fe, Ni,Cr,C.

a) Write any one characteristic of each of these.

b)Why these two are showing different characteristic?

Hint.
a) Stainless steel: Very hard/Corrosion resistant etc

Nichrome: High resistance/High melting poin/corrosion resistant etc

b)Though the constituent elements in both are the same, the ratio of the constituent elements are different.

Marks :(2)

Hide Answer

Qn No. 39 *Chapter Name:Production of Metals*

Qn.
Flux is used to remove impurities which is is not removed during the concentration of ore

a) How does flux remove gangue?

b) The gangue present in an ore is FeO.Select a flux that can be used to remove tis gangue.

(CaO,MgO,SiO_2)

(Hint: Metallic oxides are basic and non metallic oxides are acidic)

Hint.

a) Flux reacts with gangue to form low melting slag.

b) SiO_2 / Silica

Marks :(4)

Hide Answer

Qn No. 40 *Chapter Name:Production of Metals*

Qn.
a)What are minerals?

b)All minerals are not ores.Why?(give two reasons)

Hint.
a)Naturally compounds of metals.

b)

- **Ores are to be abundant,**
- **should have high metal content.**
- **Metals can be easily and economically seperated.(Any two)**

Marks :(3)

Hide Answer

Qn No. 41 *Chapter Name:Production of Metals*

Qn.
A is a carbonate ore of a metal and B is a sulphide ore of a metal.

a) Which method is used to concentrate the ore B

b)Which method is used to convert the concentrated ore A into the oxide

b)Select from those in the bracket the process in which the ore is converted to metal and write it.

.

(Oxidation, Electro plating, Reduction)

Hint.
a) Froath floation

b) Calcination

c)Reduction

Marks :(3)

Hide Answer

Qn No. 42 ***Chapter Name:Production of Metals***

Qn.
Some ores are given.

a) Bauxite $Al_2O_3.2H_2O$

b) Zinc Blende ZnS

c) Tin Stone SnO_2

d)Haematite Fe_2O_3

Which of the above ore is roasted?

Which is the method used to concentrate tinstone?

Hint.
Zinc Blende

Magnetic separation

Marks :(2)

Hide Answer

Qn No. 43 ***Chapter Name:Production of Metals***

Qn.
a) Which one of these is an alloyf steel.?

(Bronze, Aluminium Bronze, Nichrome, Brass)

b)Write any one characteristic of the above alloy.

Hint.
Answer key:

a)Nichrome

b)High resistance(Electrical/corrosion resistance)

Marks :(2)

.

Hide Answer

Qn No. 44 ***Chapter Name:Production of Metals***

Qn.
a) Which is the reducing agent used to extract aluminium from alumina?

b)Complete the equation of ionisation of alumina during electrolysis Al

$O_{2\rightarrow}$..... + ...

Hint.
a)Electricity

b)$Al_2O_3 \rightarrow 2Al^{3+} + 3O^{2-}$

Marks :(2)

Hide Answer