

GENERAL PRINCIPLES AND PROCESSES OF  
ISOLATION OF ELEMENTS

*Revise Most Important Questions to Crack NEET 2020*

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Q-1 - 12660290

Which one of the following ores is a chloride?

(A) Horn silver

(B) Zincite

(C) Bauxite

(D) Feldspar

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CORRECT ANSWER: A

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SOLUTION:

Horn silver ( $AgCl$ )

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Q-2 - 13169521

The method of zone refining of metal is based on the principle of *AIFMIT* – 2003)

- (A) greater mobility of the pure metal from that of the impurity
- (B) Higher melting point of the impurity than that of the pure metal
- (C) greater volatility of the solid metal than that of the impurity
- (D) greater solubility of the impurity in the molten state than the solid

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CORRECT ANSWER: D

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## SOLUTION:

The method of purification called zone refining is based on the principle that the impurities are more soluble in the melt than in the solid state of the metal. It is very useful for producing semiconductors and other metals of very high purity.

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Q-3 - 11478970

Which method is not correct for refining of crude metals ?

- (A) Liquation : tin
  - (B) Zone refining : silicon
  - (C) Electrolytic refining : blister copper
  - (D) Mond's process : aluminium
-

CORRECT ANSWER: D

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SOLUTION:

Mond's process :  $Ni$ .

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Q-4 - 12660332

In zone-refining methode the molten zone

- (A) consists of impurities only
- (B) contains more impurity than the original metal
- (C) contains the purified metal only
- (D) moves to either side

---

CORRECT ANSWER: B

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SOLUTION:

Zone refining involves more concentration of original metal by removal of impurity in the fused zone.

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Q-5 - 11479067

Find the number of metals from the given metals which can be commercially purified by zone refining methods :

*Si, Ge, Ga, Al, Ti, Zr.*

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CORRECT ANSWER: (3)

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SOLUTION:

Metals that can be refined by zone refining are *Si, Ge* and *Ga*.

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Q-6 - 12660345

Which technique is used in the manufacture of aluminium from bauxite?

(A) Reduction with magnesium

(B) Reduction with coke

(C) Electrolytic reduction

(D) Reduction with iron

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CORRECT ANSWER: C

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SOLUTION:

Electrolytic reduction Hall and Heroult process.

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Q-7 - 12660413

In zone refining, pure metal is obtained at the

(A) Right end, if zone is travelling from left to right

(B) Left end, if zone is travelling from left to right

(C) Left end, if zone is travelling from right to left

(D) Centre, if zone is travelling from any side

---

CORRECT ANSWER: B

---

SOLUTION:

In zone refining, pure metal is obtained at the left end, if zone is travelling from left to right

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Q-8 - 12660365

The substance used in the thermite process of reducing metal ores is

(A) Aluminium

(B) Thorium

(C) Heated platinum gauze

(D) Carbon

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CORRECT ANSWER: A

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SOLUTION:

In thermite process a mixture of aluminium powder and ferric oxide in the rate of 1 : 3 is used.

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Q-9 - 14158638

Out of the following which ores are calcinated during extraction

(a) Copper pyrites (b) Malachite (c) Bauxite

Correct answer is

(A) a,b,c



(B) b,c

(C) Only a

(D) All

---

**CORRECT ANSWER: B**

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Q-10 - 12660295

Which of the following is not an ore of magnesium?

(A) Magnesite

(B) Dolomite

(C) Gypsum

(D) Carnallite

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**CORRECT ANSWER: C**

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SOLUTION:

Gypsum ( $CaSO_4 \cdot 2H_2O$ ) is an ore of calcium.

Dolomite ( $CaCO_3 \cdot MgCO_3$ ), Magnesite ( $MgCO_3$ )

and

Carnallite ( $KCl \cdot MgCl_2 \cdot 6H_2O$ ) are the ores of  
Magnesium.

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Q-11 - 14158610

Which of the following is not an ore:

(A) malachite

(B) calamine

(C) stellite

(D) cerussite

---

CORRECT ANSWER: C

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Q-12 - 18699180

Generally sulphide ores are concentrated by following process

- (A) Hand picking
  - (B) Washing with water
  - (C) Leaching
  - (D) Froth floatation
- 

CORRECT ANSWER: D

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Q-13 - 13169516

Which of the following pairs of metals uis purified by van arkel

method?

(A)  $Ni$  and  $Fe$

(B)  $Ca$  and  $In$

(C)  $Zr$  and  $Ti$

(D)  $Ag$  and  $Au$

---

CORRECT ANSWER: C

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SOLUTION:

Small amount very pure metal can be produced when by

the van Arkel- deBoer method impure  $Zr$  or  $Ti$  is

heated at an evacuated vessel with  $I_2$ .  $ZrI_4$  or  $TiI_4$

is formed and volatilizes (thus separating it from any

impurities )

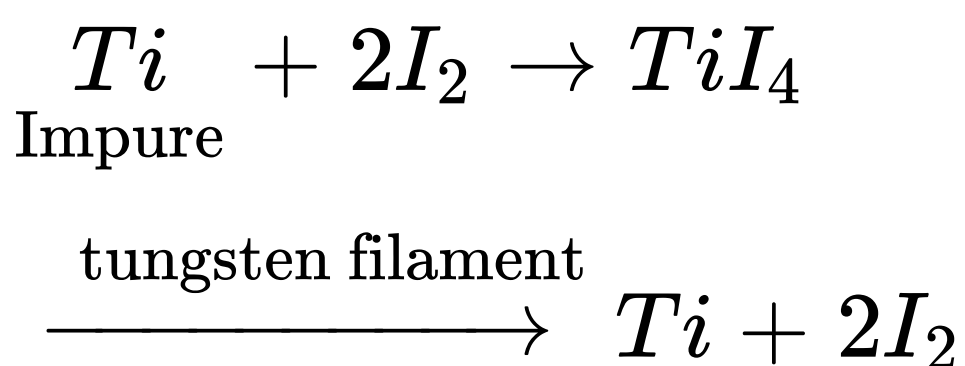
at atmospheric pressure

$ZrI_4$   $m.p. < 499^\circ C$  and  $boils at 600^\circ C$  ,  $TiI_4$

$m.p. < 150^\circ C$   $377^\circ C$

. However,  
under reduced pressure  
the boiling point are lower.

The gas  $MI_2$  is decomposed on a while but magson  
filament as more metal in depends on the filament it  
conducts electricity better. This more electric current  
must be present to loop a while but



Zr is produced on a smaller scale than Ti. Zr is non  
more corrosion resistance than is Ti and is steel is  
chemical plants

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Q-14 - 18256127

van-Arkel method is based on

- (A) cupellation method
  - (B) furnace refining method
  - (C) poling method
  - (D) None of the above
- 

CORRECT ANSWER: D

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SOLUTION:

van-Arkel method is based on vapour phase refining.

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Q-15 - 12979296

Which of the following metals is purified by converting the metal to the coordination compounds ?

(A) Pt

(B) Ni

(C) Pd

(D) All of these

---

CORRECT ANSWER: B

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SOLUTION:

Purification of metals can be achieved through formation and subsequent decomposition of their coordination compounds. For example, impure Ni is converted to  $[Ni(CO)_4]$ , which is decomposed to yield pure Ni.

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Q-16 - 18255909

Which of the following metals is extracted by the electrometallurgical method?

(A) Cu

(B) Fe

(C) Na

(D) Ag

---

SOLUTION:

(c) Na is extracted by the electrometallurgical method.

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Q-17 - 13169509

In the extraction of copper from its sulphide ore, the metal is finally obtained by the reduction of cuprous oxide with

(A) copper (I) sulphide

(B) sulphur dioxide



(C) iron(II) sulphide

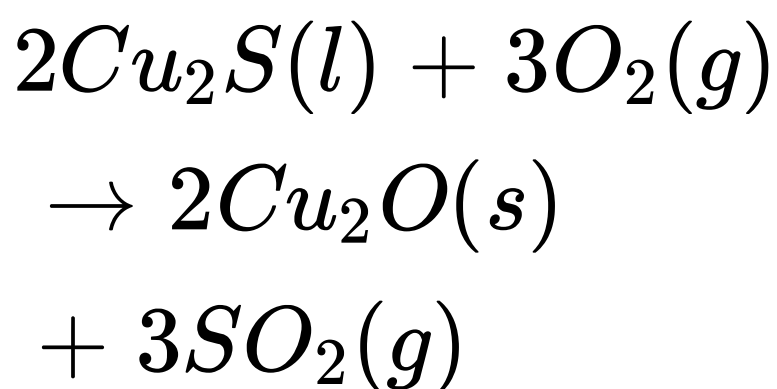
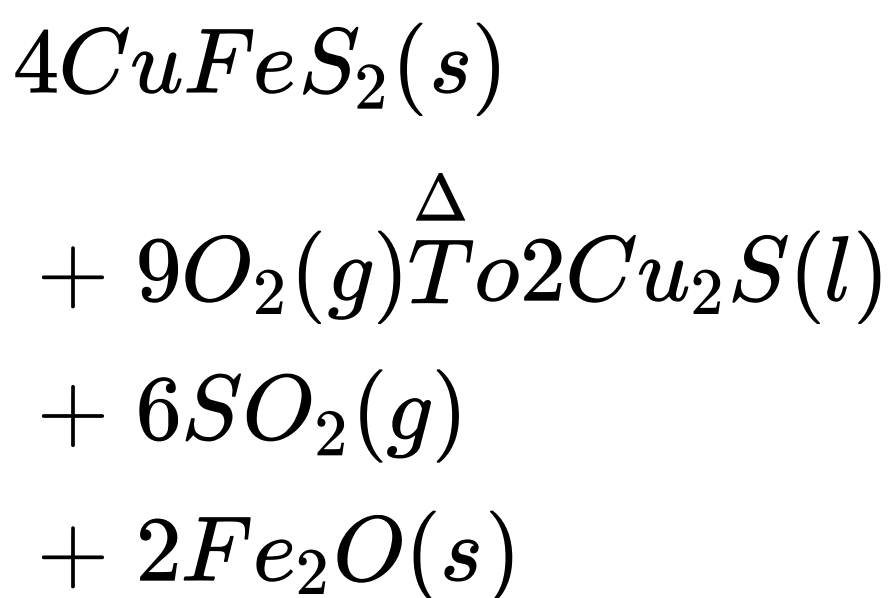
(D) carbon monoxide

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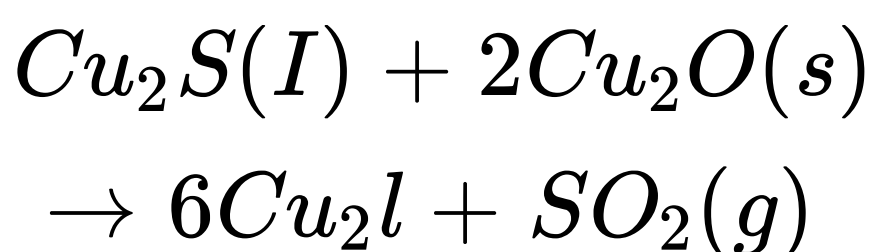
CORRECT ANSWER: A

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SOLUTION:



The mixture of copper (I) oxide and copper (I) sulphide then undergoes an unusual redox reaction (called self-reduction ) to give impure copper metal :



Q-18 - 12660519

Extraction of gold and silver involves leaching with  $CN^-$  ion. silver is later recovered by:

- (A) distillation
- (B) zone refining
- (C) displacement with  $Zn$
- (D) liquation

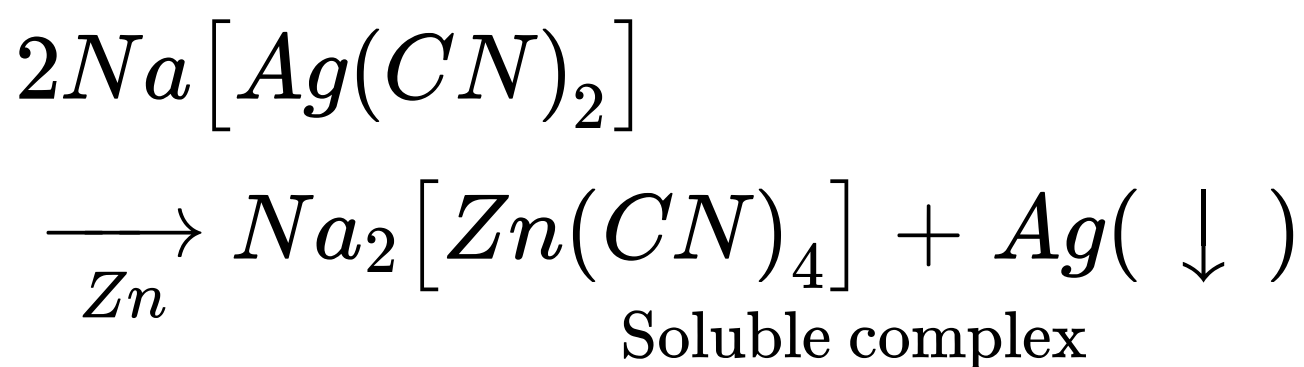
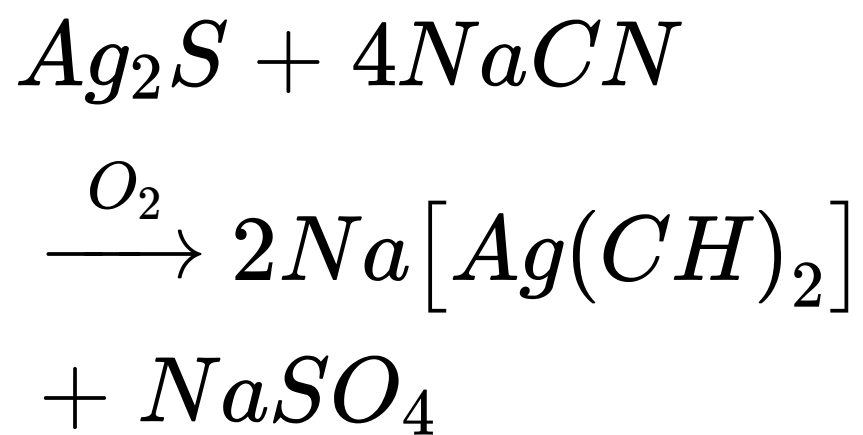
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CORRECT ANSWER: C

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SOLUTION:

Mac arther forest process / cyanide process

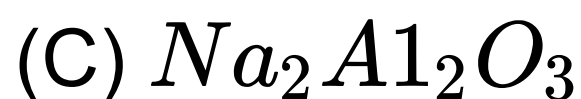
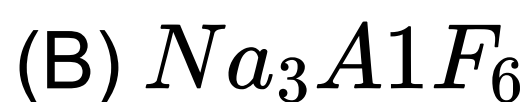


*Ag* extractes by displacement with *Zn*

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Q-19 - 12660521

The molecular formula of cryolite is



(D) All of these

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CORRECT ANSWER: B

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SOLUTION:

Cryolite is an ore of  $Al$  containing  $Na_3AlF_6$ .

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Q-20 - 12660524

Which of the following is a carbonate ore?

(A) Pyrolusite

(B) Malachite

(C) Diaspore

(D) Cassiterite

---

CORRECT ANSWER: B

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SOLUTION:

Malachite —  $CuCO_3 \cdot Cu(OH)_2$

Pyrolusite —  $MnO$

Diaspore —  $Al_2O_3 \cdot H_2O$

Cassiterite —  $SnO_2$

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Q-21 - 12660321

Calcination is used in matallurgy for removal of

(A) Water and sulphide

(B) Water and  $CO_2$

(C)  $CO_2$  and  $H_2S$

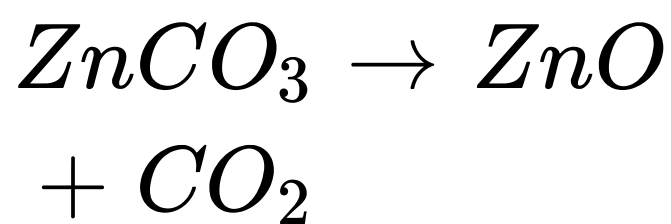
(D)  $H_2$  and  $H_2S$

---

CORRECT ANSWER: B

---

SOLUTION:



In calcination ore is heated in absence of air in a reverberatory furnace to remove moisture and  $\text{O}_2$

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Q-22 - 18255946

Aluminothermic process is used for metallurgy of

(A) Pb

(B) Ag

(C) Al

(D) None of these

---

SOLUTION:

(d) Thermite process is not used for the metallurgy of Pb, Al and Ag.

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Q-23 - 12660497

Assertion: During calcination the ore is heated well below its melting point in the limited supply of air or absence of air.

Reason: The process of calcination is carried out for sulphide ores.

(A) If both assertion and reason are true and the reason is the correct explanation of the assertion.

(B) If both assertion and reason are true but reason is not the correct explanation of the assertion.

(C) If assertion is true but reason is false.

(D) If assertion is false but reason is true.

---

CORRECT ANSWER: C

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Q-24 - 20470909

In metallurgy process, the flux used for removing acidic impurities is:

- (A) silica
- (B) sodium chloride
- (C) lime stone
- (D) sodium carbonate

---

CORRECT ANSWER: C

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SOLUTION:

Limestone,  $CaCO_3$  is basic

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Q-25 - 18699192

Hydro metallurgy is used in the extraction of

(A) Cu

(B) Au

(C) Ag

(D) All

---

CORRECT ANSWER: D

Q-26 - 12676526

Which of the following process is used in the extractive metallurgy of magnesium ?

(A) Fused salt electrolysis

(B) Self- reduction

(C) aqueous solution electrolysis

(D) Thermite reduction

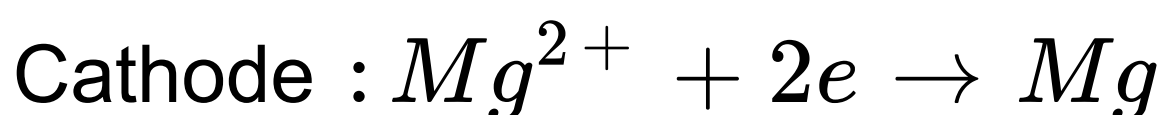
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CORRECT ANSWER: A

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SOLUTION:

Highly electropositive metals (*e. g.* , alkali and alkaline earth metals and *Al*) are extracted by the electrolysis of their fused salts.



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Froth flotation process used for the concentration of sulphide ore.

(A) Is based on the difference in wettability of different minerals.

(B) Uses sodium ethyl xanthate,  $C_2H_5OCS_2Na$ , as collector

(C) Used  $NaCN$  as depressant in the mixture of  $ZnS$  and  $PbS$  when  $ZnS$  forms soluble complex and  $PbS$  forms froth

(D) Uses pine oil as frothing agent

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CORRECT ANSWER: A::B::C::D

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Q-28 - 18104824

Which one of the following is used as an acidic flux in metallurgy ?

(A)  $\text{CaO}$

(B)  $\text{SiO}_2$

(C)  $\text{Na}_2\text{CO}_3$

(D)  $\text{SO}_2$

---

CORRECT ANSWER: B

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Q-29 - 11479014

The method not used in metallurgy to refine impure metal is :

(A) Mond's process

(B) Van Arkel process

(C) Liquation

(D) All are used

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CORRECT ANSWER: D

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Q-30 - 11478901

Select the correct statements for calcination :

- (A) Carbonate ore is converted in oxide ore
  - (B) Hydrated oxide ore is converted into its oxide ore
  - (C) Oxidisable volatile impurities are removed by calcination process
  - (D) Only calcination occurs for carbinate or oxide ore
- 

CORRECT ANSWER: A::B

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Q-31 - 12660312

Flux is used to remove

- (A) Silica
  - (B) Metal oxide
  - (C) All impurities from ores
  - (D) Silica and undersirable metal oxide
- 

CORRECT ANSWER: D

---

SOLUTION:

Flux is used to remove silica and undesirable metal oxide.

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Q-32 - 14158631

Name the flux to remove the impurity of  $SiO_2$

(A)  $P_4O_{10}$

(B)  $CaO$

(C)  $N_2O_5$

(D)  $Al_2O_3$

---

CORRECT ANSWER: B

---

SOLUTION:

$CaO$  is obtained from carbonate.

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Q-33 - 12228038

Zeolite process is used to remove

(A) iron

(B) hardness

(C) zinc

(D)  $pH$  value

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CORRECT ANSWER: B

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SOLUTION:

Zeolite is a silicate of sodium and found as a rock mineral naturally. When zeolite is brought in contact with hard water a simple exchange of bases takes place.

$Ca^{2+}$  and  $Mg^{2+}$  ions in hard water are exchanged by  $Na^{+}$  ions in zeolite. No precipitate is formed.

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Q-34 - 13169438

Roasting of ores is done in

(A) Presence of an excess of air or oxygen



(B) Presence of superheated steam

(C) Absence of air

(D) Presence of a limited supply of air

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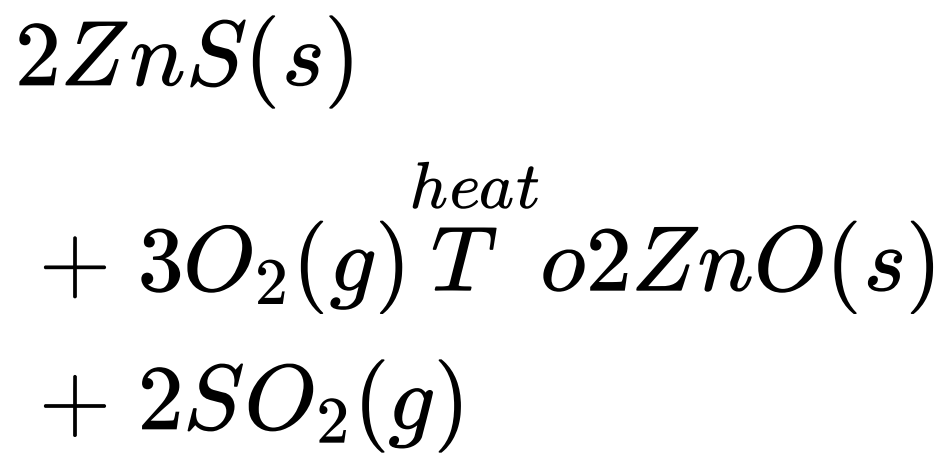
CORRECT ANSWER: A

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SOLUTION:

Once an ore is concentrated, it may be necessary to convert the mineral to a compound more suitable for reduction. Roasting is the process of heating a concentrated ore below its melting point in the presence of excess of air to obtain the oxide.

Sulphide minerals such as zinc ore (containing the mineral sphalerite  $ZnS$ ) are usually roasted before reducing them to the metal).



$$\Delta H = -684 \text{ kJ mol}^{-1}$$

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Q-35 - 12660331

Heating of ore in presence of air to remove sulphure impurities is called

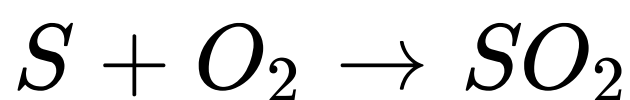
- (A) Calcination
- (B) Roasting
- (C) Smelting
- (D) None of these

---

CORRECT ANSWER: B

## SOLUTION:

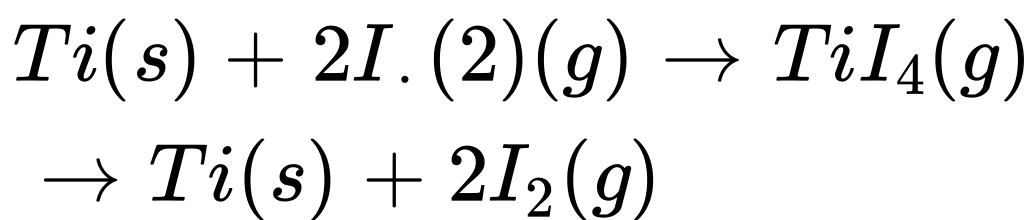
Roasting involves heating of the ore either alone or with some other material usually in presence of air below its fusion temperature. In roasting, definite chemical changes like, oxidation, chlorination etc., take place



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Q-36 - 13169485

Which method of purification is represented by the following equation ?



(A) van arkel

(B) poling

(C) Cupellation

(D) zone reflation

---

CORRECT ANSWER: A

---

SOLUTION:

Van arkel method is very useful for removing all the oxygen nitrogen present in the form impurity in certain metals like  $Zr$  and  $Ti$

The process of cupellation involves the separation of  $Ag$  and after noble metals is placed in a cupel, a flat dish made of porous refractory material, and a blast of hot air is directed upon it in a special furnace, the impurities are oxidized by the air and are partly swept away by the blast and partly absorbed by the cupel.

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Lapis-Lazuli' is a blue coloured precious stone. It is mineral of the class

(A) sodium-alumino silicate

(B) zinc cobaltate

(C) basic copper carbonate

(D) prussian blue

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CORRECT ANSWER: A

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SOLUTION:

Lapis Lazuli is the aluminium silicate present in earth rocks as blue stone.

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During the process of electrolytic refining of copper some metals present as impurity settle as 'anode mud'. These are

(A)  $\text{Sn}$  and  $\text{Ag}$

(B)  $\text{Pb}$  and  $\text{Zn}$

(C)  $\text{Ag}$  and  $\text{Au}$

(D)  $\text{Fe}$  and  $\text{Ni}$

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CORRECT ANSWER: C

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SOLUTION:

$\text{Au}$  and  $\text{Ag}$  settle down below the anode as anode mud during the process of electrolytic refining of copper.

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Gold is extracted by hydrometallurgical processes based on its property

(A) of being electropositive

(B) of being less reactive

(C) to form complexes which are water soluble

(D) to form salts which are water soluble

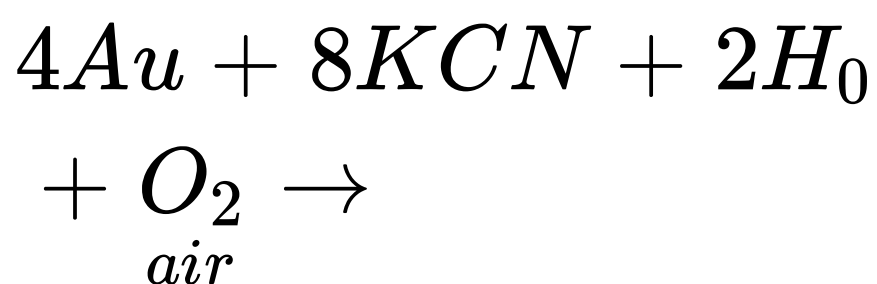
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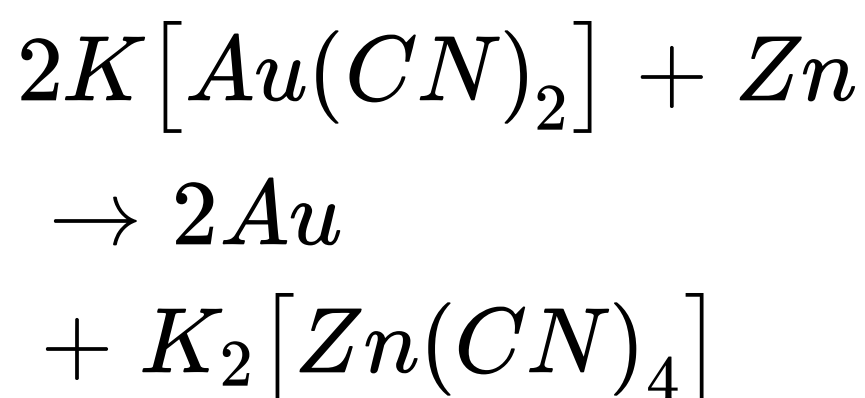
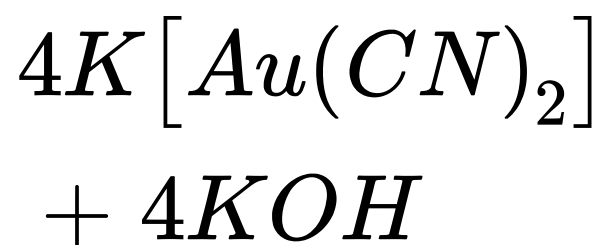
CORRECT ANSWER: C

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SOLUTION:

Hydrometallurgy is the process of dissolving the metal or its ore by the action of a suitable chemical reagent followed by recovery of the metal either by electrolysis or by the use of a suitable precipitating agent.





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Q-40 - 12660400

During extraction of  $Fe$ , slag obtained is

- (A)  $FeO$
- (B)  $FeSiO_3$
- (C)  $MgSiO_3$
- (D)  $CaSiO_3$

---

CORRECT ANSWER: D

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SOLUTION:

During extraction of  $Fe$  calcium silicate ( $CaSiO_3$ ) slag is obtained.

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Q-41 - 13169420

Which of the following statements is incorrect in the context of minerals ?

- (A) All ores are minerals but all minerals are not ores
- (B) Minerals from which can be conveniently and economically extracted are known as ores
- (C) Minerals are always single compounds and have a definite composition
- (D) Naturally occurring crystal bodies consisting of

compounds of metals which are formed as a result of physical and chemical processes are called minerals

---

CORRECT ANSWER: C

---

SOLUTION:

Most metals occur in nature (some of the metals are man made as metals, the crystalline, inorganic constituents of the rocks that make up the earth's crust, A mineral may be a definite chemical substance or it may be a homogeneous solid mixture

Silicates and aluminosilicates are the most abundant minerals, but they are difficult to concentrate and reduce and are therefore generally unimportant as commercial source of metals, More important are oxides and sulphides, such as iron, titanium, and mercury respectively.

Mineral depends from which metals can be produced economically are called ores. All the ores are minerals but all minerals cannot be ores. For example, iron is found in the earth's crust as oxide (hematite, magnetite) sulphides (iron pyrites, copper pyrites) and carbonates (siderite). Out of these minerals usually the ones (particularly hematite) which are abundant and do not produce polluting gases. Similarly out of the available minerals extracted from copper pyrites.

Thus, a metal may occur in a number of minerals but every mineral is not suitable for the extraction of the metal, because the mineral may contain low concentration of metal, sometimes the mineral may contain low concentration of metal or may contain a large concentration of impurities which may be may not be feasible or commercially viable.

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Q-42 - 11481924

What is the role of depressant in froth floatation process?

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Q-43 - 13169438

Roasting of ores is done in

- (A) Presence of an excess of air or oxygen
- (B) Presence of superheated steam
- (C) Absence of air
- (D) Presence of a limited supply of air

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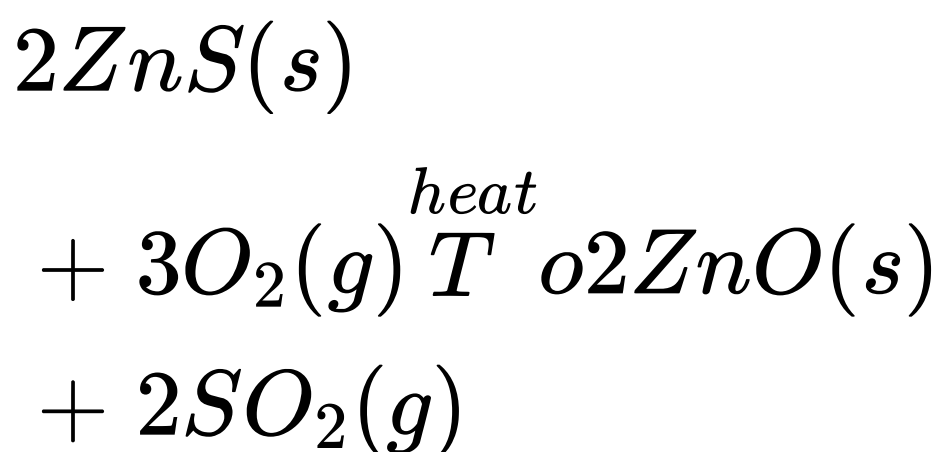
CORRECT ANSWER: A

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## SOLUTION:

Once an ore is concentrated, it may be necessary to convert the mineral to a compound more suitable for reduction. Roasting is the process of heating a concentrated ore below its melting point in the presence of excess of air to obtain the oxide.

Sulphide minerals such as zinc ore (containing the mineral sphalerite  $ZnS$ ) are usually roasted before reducing them to the metal).



$$\Delta H = -684 \text{ kJ mol}^{-1}$$

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Which of the following observations made from the Ellingham diagram is wrong ?

- (A) The slope of the curves of the formation of metal oxides is negative
- (B) Each curve is straight line except when some change takes place in phase ( $S \rightarrow 1$  or  $1 \rightarrow g$ )
- (C) In the case of less reactive (or less electropositives metal like  $Ag$  and  $Hg$ ,  $\Delta G^\circ$  become positive at relatively low temperatures .
- (D) Any metal oxide with lower value of  $\Delta G^\circ$  is more stable than a metal oxide with higher  $\Delta G^\circ$  .

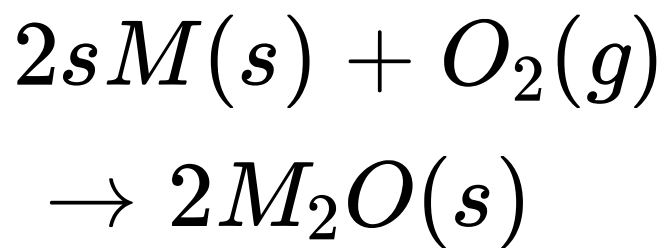
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CORRECT ANSWER: A

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SOLUTION:

Consider the formation of a metal oxide ( $M_2O$ )



In this reaction there is a decrease in the value of  $\Delta S$  for  $M_2O$  solid and  $O_2$  is a gas i.e.  $\Delta S$  is negative. This if temperature increases  $T\Delta S$  becomes more negative as is the equation

$$\Delta G = \Delta H - T\Delta S$$

Since the formation of metal oxide is endothermic and  $T\Delta S$  (a negative quantity) is subtracted,  $\Delta G$  becomes less negative i.e.  $\Delta G$  is likely to increase with rise in temperature and this trend is confirmed from the curves of metal oxide in its Ellingham diagram. The slope of the curve for the formation of metal oxides is  $-ve$  because  $\Delta G$  becomes less negative or temperature with the rise in temperature.

The temperature at which such a change occurs is

indicated by an increase in the slope on the  $-ve$  side

for example, in the  $Zn - ZnO$  curve,

the melting of Zn is indicated by the first abrupt increase in slope at temperature 692K

. This indicates that both silver oxide ( $Ag_2O$ ) and mercuric oxide

$2Ag_2O \xrightarrow{\Delta} 4Ag + O_2$   $2HgO \xrightarrow{\Delta} 2Hg + O_2$

$(\Delta) \rightarrow 2Hg + O_2$

$\Delta H_f^\circ \leq \Delta H_{ox}$

$\otimes$  is placed higher

$\rightarrow$  the diagram can be reduced by the  $\Delta H_f^\circ$  involved in

$Ct, Ct_2O_3 + Al \rightarrow Al_2O_3 + 2Ct$

$< \Delta H_f^\circ$

$>$  Thus the relative tendency of the various metals  $\rightarrow$  order of reactivity

$Cu > Mg > Al > Cr > Zn > Fe > Ni$

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Ellingham diagram can be drawn for the following:

(A) Sulphides

(B) Oxides

(C) Halides

(D) All of these

---

CORRECT ANSWER: D

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Q-46 - 20470976

Blister copper is:

(A) impure copper

(B) obtained in self reduction process during  
bessemerisation

(C) both a and b are correct

(D) None of these

---

CORRECT ANSWER: C

---

SOLUTION:

The solidified copper obtained after bessermerisation is impure and contains Fe, Ni, Zn, Ag, Au, etc. as impurity. It has blistered like appearance due to the evolution of  $SO_2$  and so it is called blister copper.

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Q-47 - 13169463

The flux in the smelting of copper is

(A)  $P_2O_3$

(B)  $CaO$

(C)  $SiO_2$

(D)  $MnO$

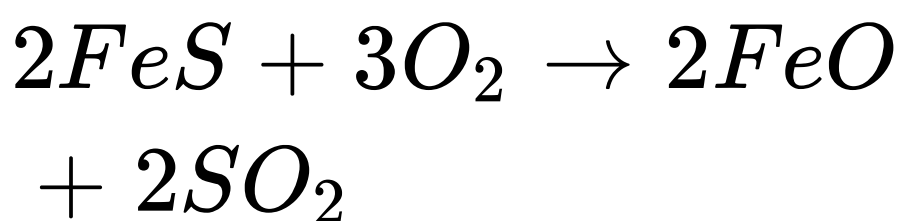
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CORRECT ANSWER: C

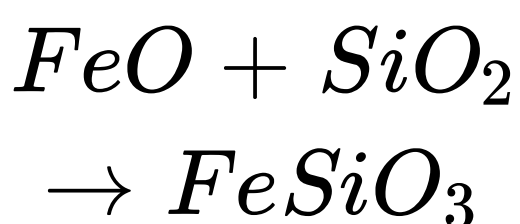
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SOLUTION:

During smelting the roasted ore is mixed with coke and silica and transferred to a small blast furnace. The mixture is heated in the presence of excess of air most of the iron sulphide is oxidised to ferrous oxide

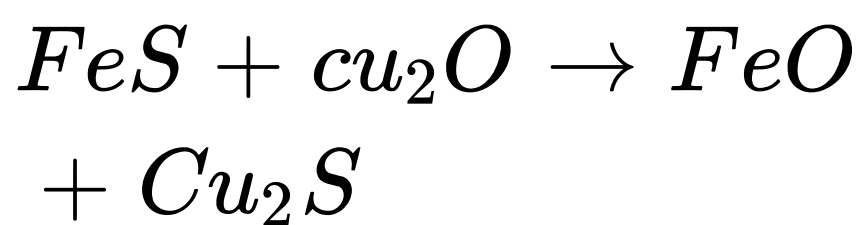


ferrous oxide combines with silica and forms ferrous silicate by this reaction mass of the iron is removed as slag



Thus sillica is added to reaction copper ore during smelting to remove ferrous oxide (obtained from iron ore,  $FeS$  as a slag and the is  $FeSiO_3$

Since Fe has greater affinity for oxygen than copper the copper oxide formed during smelting reacts with unoxidized iron sulphide to form oxide and regenerate copper sulphide



Thus it is difficult to oxidize copper sulphide until when the iron sulphide is oxidized

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Q-48 - 13169472

Which of the following processes causes air pollution ?

(A) Roasting

(B) Calcination

(C) Froth floatation

(D) Both (1) and (2)

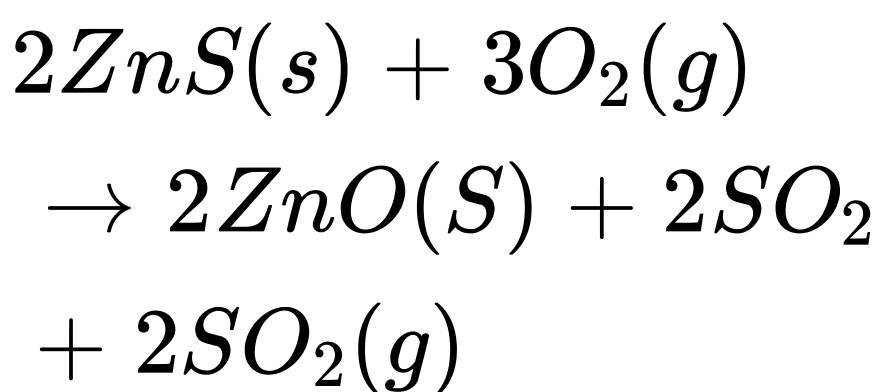
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CORRECT ANSWER: A

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SOLUTION:

Some sulphide ores are converted to oxides by roasting. That is, heating below their melting point in the presence of oxygen from air, for example



Roasting sulphide ores causes air pollution large quantities of  $SO_2$  escape into the atmosphere, where it

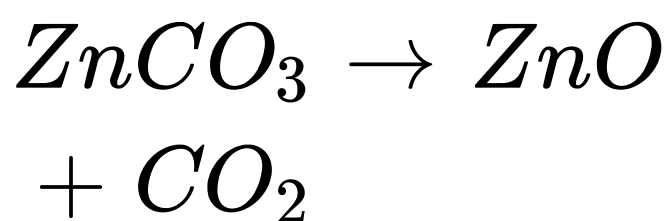
cause great environmental damage. Regulation now required limiting the amount of  $SO_2$ . Now most of  $SO_2$  is trapped and used in the manufacture of sulphuric acid

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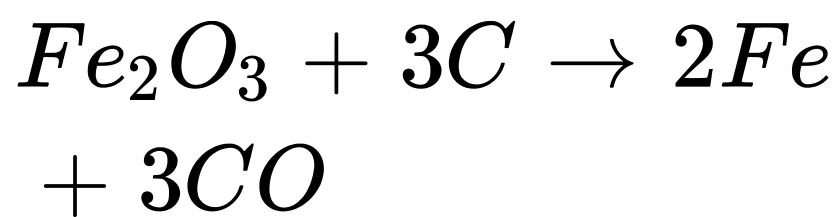
Q-49 - 11478910

Which of the following processes involve the roasting process ?

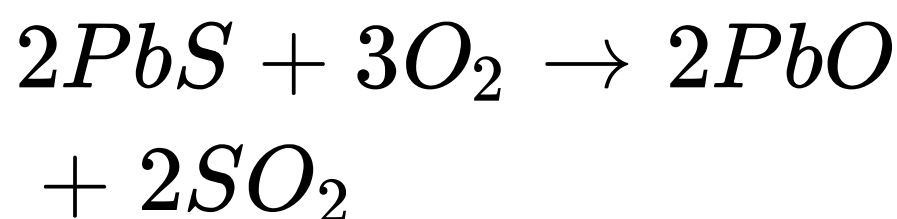
(A)



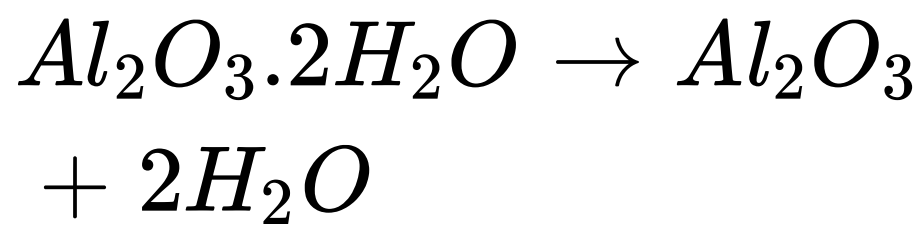
(B)



(C)



(D)



CORRECT ANSWER: C

---

SOLUTION:

Roasting involves heating the ore strongly in presence of excess of air ( $O_2$ ).

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Q-50 - 20470874

Which of the following ore is converted into oxide by roasti but not by calcination?

(A) Chalcocite

(B) Cerrusite

(C) Anglesite

(D) Dolomite

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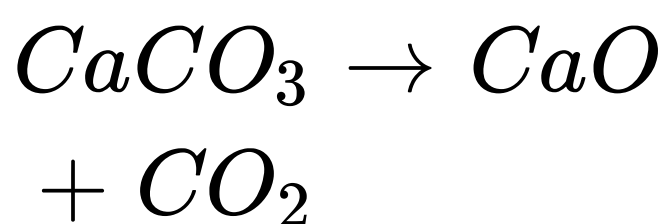
CORRECT ANSWER: A

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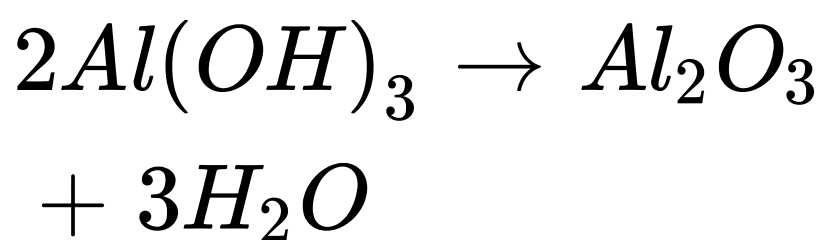
Q-51 - 11478867

Which of the following reactions occurs during calcination ?

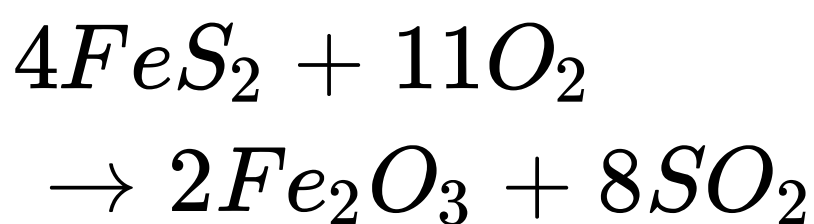
(A)



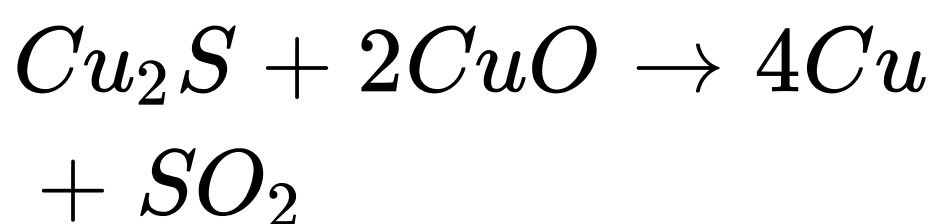
(B)



(C)



(D)





CORRECT ANSWER: A::B

---

SOLUTION:

Reaction (*a*) and (*b*) represent calcination process, whereas (*c*) is roasting as reduction is done by heating in presence of  $O_2$  and (*d*) is auto-reduction process.

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Q-52 - 14277895

Which of the following statement ore incorrect regarding roasting?

- (A) Impurities are removed in the form of their elemental vapours
- (B) Lower oxidation states are oxidised further
- (C) Sulphide ores are converted to their oxides
- (D) The temperature of the process is maintained just

above the melting point of mixture

---

CORRECT ANSWER: A

---

SOLUTION:

Fact based

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Q-53 - 11478783

(xi) While furnace can be used to get temperature above  $3000^{\circ}\text{C}$  ?

- (A) Blast furnace
  - (B) Reverberatory furnace
  - (C) Arc furnace
  - (D) None of the above
- 

CORRECT ANSWER: C

---

Q-54 - 11478855

Liquation process may be applied for the purification of.

(A) Copper

(B) Tin

(C) Iron

(D) Lead

---

CORRECT ANSWER: B::D

Q-55 - 18255943

Mond's process is used for the purification of

(A) Ni

(B) Ti

(C) Zr

(D) Hg

---

SOLUTION:

(a) Mond's process is used for the purification of Ni.

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Q-56 - 11478861

Metallurgy involves steps :

(A) Concentration of ore

(B) Reduction of ore

(C) Purification

(D) Alloy formation

---

CORRECT ANSWER: A::B::C

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Q-57 - 11478866

Auto-reduction process is used for the extraction of :

(A) Cu

(B) Hg

(C) Pb

(D) Al

---

CORRECT ANSWER: A::B::C

---

SOLUTION:

Sulphides of *Cu*, *Hg*, *Pb* (less electropositive metals

can be reduced with the use of any additional reducing agent.

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Q-58 - 11478873

Which of the following statements are correct regarding metallurgy of iron ?

- (A) Coke reduces  $FeO$  to  $Fe$  above  $1073K$
- (B)  $CO$  reduces  $Fe_2O_3$  to  $FeO$  below  $1073K$
- (C) Coke reduces  $Fe_2O_3$  to  $FeO$  above  $1073K$
- (D) Coke reduces  $Fe_2O_3$  to  $FeO$  above  $1073K$ .

---

CORRECT ANSWER: A::B

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Which of the following combination represents the correct matching of metals with the most commonly employed ores for their extraction ?

(A)

$Fe$	$Zn$	$Cu$	$Al$
Haematite	Sphalerite	Copper pyrites	Bauxite

(B)

$Fe$	$Zn$	$Cu$	$Al$
Iron pyrites	Zincite	Cuprite	Clay

(C)

$Fe$	$Zn$	$Cu$	$Al$
Siderite	Calamine	Malachite	Clay phosphate

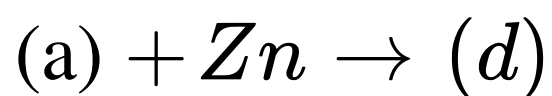
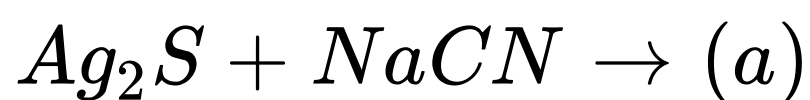
(D)

$Fe$	$Zn$	$Cu$	$Al$
Chalcocite	Magnetite	Copper glance	Bauxite

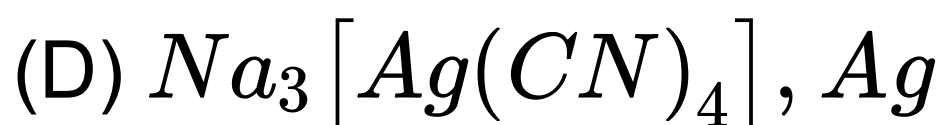
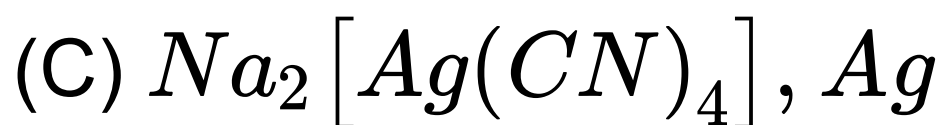
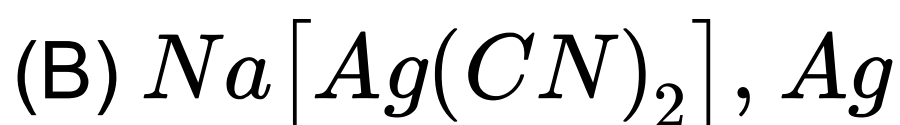
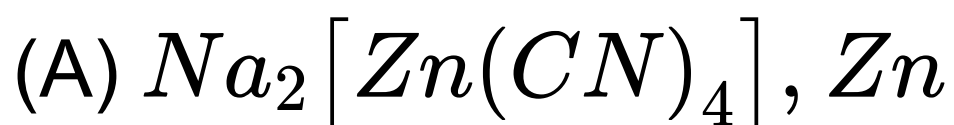
CORRECT ANSWER: A

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Q-60 - 12660389



(b) is a metal. Hence (a) and (b) are



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CORRECT ANSWER: B

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SOLUTION:



# Hydrometallurgy.

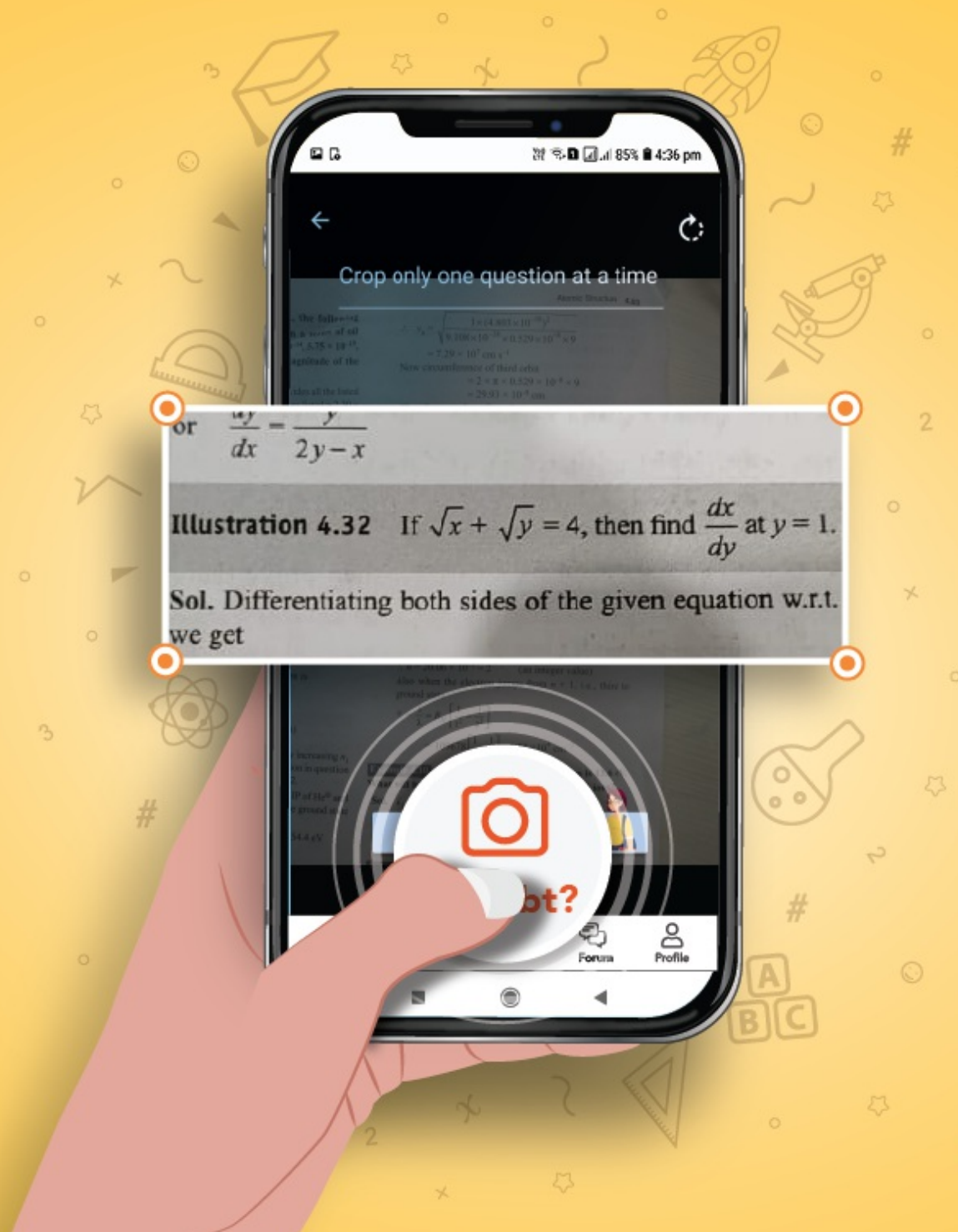
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