



CHEMISTRY

JEE (MAIN AND ADVANCED) CHEMISTRY

PRINCIPLES OF METALLURGY

Example

1. In moist air copper corrodes to produce a green layer on the surface. What is that layer ?

[Watch Video Solution](#)

2. Metal sulphides occur mainly in rocks, but metal halides occur in lakes and sea. Why ?



Watch Video Solution

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



Watch Video Solution

4. 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 ?



Watch Video Solution

5. Reduction of metal sulphides directly with carbon is not possible. Why?



Watch Video Solution

6. Eventhough reduction of magnesia with aluminium is thermodynamically feasible, in practice aluminium is not used in the metallurgy of Mg. Why ?



View Text Solution

7. Aluminium containing alumina as impurity can be refined by poling or not. Why?



Watch Video Solution

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



[Watch Video Solution](#)

9. Hydrogen is a common reductant of organic chemicals, but it is not widely used in metallurgy. Substantiate.



[Watch Video Solution](#)

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



[Watch Video Solution](#)

11. Reduction of metal oxides by thermit process becomes faster just after ignition . Why ?



Watch Video Solution

12. Out of coke carbon monoxide, which is a better reducing agent for iron oxide ?



View Text Solution

13. Both coke and lime stone are used in smelting of iron ore. Why?



Watch Video Solution

14. To precipitate silver from sodium argento-cyanide, aluminium can be used . Comment.



Watch Video Solution

15. For precipitation of silver from the complex $[Ag(CN)_2]^-$, zinc is used but not copper. Why?



Watch Video Solution

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



View Text Solution

17. Electrolysis of aqueous alkali metal chloride does not liberate metal . Why ?



Watch Video Solution

18. How is a mixture of oxides of Al and Fe separated ?



Watch Video Solution

19. Graphite rods are frequently replaced in Hall-Heroult's process of extracting aluminium metal. Why ?



Watch Video Solution

1. Write short note on froth floatation process.



Watch Video Solution

2. Write short notes on : roasting, calcination and smelting.



Watch Video Solution

3. Define flux and slag. Give examples.



Watch Video Solution

Subjective Exercise 2 Very Short Answer Questions

1. Which metal is purified by cupellation?



Watch Video Solution

2. How the green wood poles are effecting in the refining of impure metal.



Watch Video Solution

3. What is flux ? Give an example.



Watch Video Solution

4. Give the principle used in gravity concentration method.



Watch Video Solution

5. Why haematite is concentrated by electro-magnetic separation method?



Watch Video Solution

6. Where do the reactions in a blast furnace take place?



Watch Video Solution

7. What are the changes that place during roasting ?



Watch Video Solution

8. What types of ores are subjected to calcination ?



Watch Video Solution

9. Write note on zone refining .



[Watch Video Solution](#)

Subjective Exercise 3 Short Answer Questions

1. How wrought iron is prepared from pig iron?



[Watch Video Solution](#)

2. Give any one method to convert cast -iron into steel of high quality.



[Watch Video Solution](#)

Subjective Exercise 3 Very Short Answer Questions

1. Write the names and formulae of any two ores of iron



Watch Video Solution

2. Give the composition of charge in blast furnace in the extraction of iron?



Watch Video Solution

3. What is the percentage of carbon in cast iron and wrought iron



Watch Video Solution

Subjective Exercise 4 Short Answer Questions

1. Write the names and formulae of any two minerals of Cu. How is the Cu extracted ?



Watch Video Solution

2. Mention the ores of zinc and give their formulae. How is zinc dust obtained from zinc blende ?



Watch Video Solution

Subjective Exercise 4 Very Short Answer Questions

1. Write any two minerals of Cu.



 [Watch Video Solution](#)

Subjective Exercise 4 Very Short Answer Questions

1. What is the primary product of Bessemerisation of Matte?

 [Watch Video Solution](#)

2. Write the names of the minerals of zinc

 [Watch Video Solution](#)

3. Calamine is not directly reduced with carbon ? It is calcined first and then reduced. Why ?

 [Watch Video Solution](#)

4. Write an equation for the reaction between silver glance and NaCN solution.



Watch Video Solution

5. How is red bauxite purified ?



Watch Video Solution

6. Mention oxide minerals of aluminium . Describe the Baeyer's process.



Watch Video Solution

7. Why cryolite is added to during electrolysis of bauxite ?



[Watch Video Solution](#)

Objective Exercise 1 Occurrence And Concentration Of Ores

1. Which of the following is true ?

- A. A mineral need not be an ore
- B. An ore can't be a mineral
- C. All ores are not minerals
- D. All minerals are ores

Answer: A



[Watch Video Solution](#)

2. Which of the following is/are found in the solid state ?

A. Pt

B. Cu

C. Au

D. Na

Answer: D



Watch Video Solution

3. Metals occur in the native form because of their

A. High Electronegativity

B. High reactivity

C. Low reactivity

D. Low density

Answer: C



Watch Video Solution

4. A mineral usually has large amount of undesirable impurities.

These impurities are called

A. Matrix of gangue

B. Slag

C. Flux

D. Ore

Answer: A



[View Text Solution](#)

5. Most abundant metal in the earth crust is

A. Na

B. Ca

C. Al

D. Fe

Answer: C



[View Text Solution](#)

6. Which of the following is best concentrated by froth floatation method ?

A. Cassiterite

B. Galena

C. Malachite

D. Magnetite

Answer: B



View Text Solution

7. Cassiterite one is used to extract

A. Fe

B. Sn

C. Au

D. Pb

Answer: B



View Text Solution

8. The metal never found in free state is

A. Au

B. Ag

C. Pt

D. Zn

Answer: D



View Text Solution

9. both calcination and coating can be performed in

A. Reverberatory furnace

B. Blast furnace

C. Muffle furnace

D. Electric furnace

Answer: A



View Text Solution

10. Copper pyrites ore is concentrated by

A. Electromagnetic method

B. Gravity separation method

C. Froth floatation method

D. All the above methods

Answer: C



Watch Video Solution

11. Which one of the following is not a method of concentration of ore

- A. gravity separation
- B. froth flotation process
- C. electromagnetic separation
- D. smelting

Answer: D



Watch Video Solution

12. Most abundant element in earth crust is

- A. Oxygen
- B. Silicon
- C. Aluminuim
- D. Iron.

Answer: A



Watch Video Solution

13. The rocky and silicious matter associated with an ore is called

- A. Slag
- B. Mineral

C. Matrix of Gangue

D. Flux

Answer: C



Watch Video Solution

14. The process of removing of lighter ganse particles by washing in a current of water is called

A. Levigation (or) gravity separation

B. Liquiation

C. Leaching

D. Cupellation

Answer: A



[Watch Video Solution](#)

15. In the froth flotation process for the purification of minerals the particles float because

- A. they are light
- B. they are insoluble
- C. their surface is preferentially wetted by oil
- D. they bear an electrostatic charge

Answer: C



[Watch Video Solution](#)

16. Froth floatation process for the concentration of ores is an illustration of the practical application of

- A. Adsorption
- B. Abdorption
- C. Coagulation
- D. Sedimentation

Answer: A



Watch Video Solution

17. Wolframite ($FeWO_4$) is separated from cassiterite by

- A. Froth flotation method
- B. Levigation
- C. Electromagenetic method
- D. Electrostatic separation method.

Answer: C



Watch Video Solution

18. Which of the following ores are concentrated by Froth flotation

- A. Oxide ores
- B. Chloride ores
- C. Sulphide ores
- D. Nitride ores

Answer: C



View Text Solution

19. The common impurity present in bauxite is

A. CuO

B. ZnO

C. Fe_2O_3

D. Cr_2O_3

Answer: C



Watch Video Solution

Objective Exercise 1 Extration Of Crude Metal

1. A common metal that is used for the extraction of some metals from their oxides is

A. Cr

B. Fe

C. Mn

D. Al

Answer: D



Watch Video Solution

2. Extraction of metals from sulphide ores is done by

A. Electrolysis

B. Smelting

C. Hydrometallurgy

D. Roasting

Answer: B



Watch Video Solution

3. Roasting is generally carried out in case of

A. Oxide ores

B. Sulphide ores

C. Silicate ores

D. Carbonate ores

Answer: B



Watch Video Solution

4. Refractory materials are used for the construction of furnaces because they

- A. Are light in weight
- B. Can stand with high temperature
- C. Are leaf proof
- D. Do not require to be replaced

Answer: B



Watch Video Solution

5. The metal that cannot be obtained by electrolysis of the aqueous solution of their salts is

- A. Ag

B. Mg

C. Cu

D. Cr

Answer: B



Watch Video Solution

6. To remove basic impurities from the ore the substance generally used is

A. SiO_2

B. P_2O_5

C. P_2O_5 (or) SiO_2

D. $CaCO_3$

Answer: C



Watch Video Solution

7. During smelting an additional substance added to form a fusible product. It is known as

- A. Slag
- B. Mud
- C. Gangue
- D. Flux

Answer: D



Watch Video Solution

8. Calcination is the process of heating the ore :

- A. in inert gas
- B. in the presence of air
- C. in the absence of air
- D. in the presence of CaO and MgO

Answer: C



Watch Video Solution

9. To which of the following ores, calcination process is not applicable

- A. $CaCO_3$
- B. $Al_2O_3 \cdot H_2O$

C. CaCO_3 . $\text{Ca}(\text{OH})_2$

D. ZnS

Answer: D



Watch Video Solution

10. Roasting is carried out in case of

A. Galena

B. Iron pyrites

C. Copper glance

D. All

Answer: D



Watch Video Solution

11. Smelting is usually carried out in

- A. Blast furnace
- B. Open hearth furnace
- C. Muffle furnace
- D. Electric furnace

Answer: A



Watch Video Solution

12. Slag is a product of

- A. Flux and coke
- B. Coke and metal oxide

C. Flux and impurities

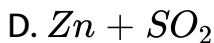
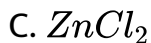
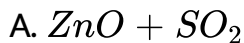
D. Metal and flux

Answer: C



Watch Video Solution

13. In oxidising roasting of Zn, products are

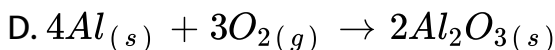
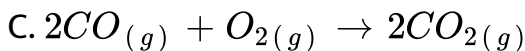
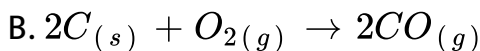
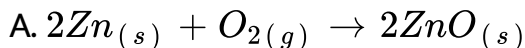


Answer: A



Watch Video Solution

14. For which one the following reaction ΔS is positive

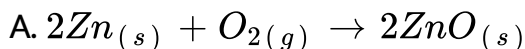


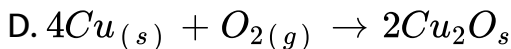
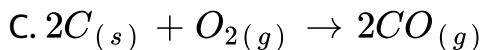
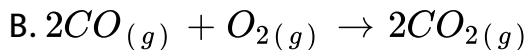
Answer: B



Watch Video Solution

15. For which one of the following reaction ΔG decreases with increasing the temperature



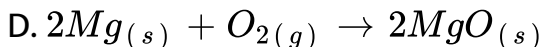
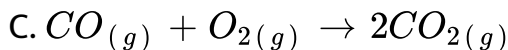
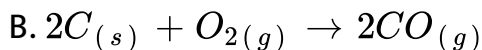
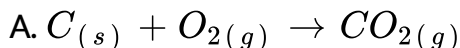


Answer: C



Watch Video Solution

16. For which one of the following reaction, the graph of ΔG against T is almost horizontal to temperature axis



Answer: A



Watch Video Solution

17. The least stable oxide at room temperature is

A. ZnO

B. CuO

C. Sb_2O_3

D. As_2O_3

Answer: D



Watch Video Solution

18. During extraction of a metal the ore is roasted if it is a

- A. Sulphate ore
- B. Sulphide ore
- C. Carbonate ore
- D. Oxide ore

Answer: B



Watch Video Solution

Objective Exercise 1 Refining Of Metals

1. The process of zone refining is used for

- A. Silicon
- B. Germamium

C. Gallium

D. All the above

Answer: D



Watch Video Solution

2. In zone-refining method 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

Answer: B



Watch Video Solution

3. Tin and lead can be refined by

A. Cupellation Liquation

B. Liquiation

C. Bessemerisations

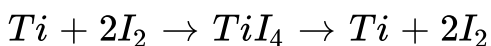
D. Bessemerisations

Answer: B



Watch Video Solution

4. Which process represents the change



A. Cupellation

B. Van Arkel

C. Poling

D. Zone refining

Answer: B



Watch Video Solution

5. Lead impurity is removed from silver by

A. distillation

B. Poling

C. Levigation

D. Cupellation

Answer: D



[Watch Video Solution](#)

6. You are provided with impure samples of Zn, Cu and Ge. Which methods are recommended for purification of these metals respectively

- A. Electrolytic refining, Zone phase refining, distillation
- B. Distillation, Zone phase refining Electrolytic refining
- C. Electrolytic refining, distillation, zone phase refining
- D. Distillation, Electrolytic refining, zone phase refining.

Answer: D



[Watch Video Solution](#)

7. In the electrorefining, the impure metal is made

- A. Cathode
- B. Anode
- C. Both 1 and 2
- D. None of these

Answer: B



Watch Video Solution

8. Electrolytic refining is used to purify which of the following metals ?

- A. Cu and Zn
- B. Ge and Si

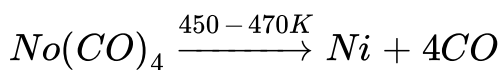
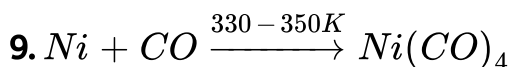
C. Zr and Ti

D. Zn and Hg

Answer: A



Watch Video Solution



This sequence of reactions are involved in

A. Van Arkel method for refining of nickel

B. Mond's process for refining of nickel

C. Zone refining of nickel

D. Refining of nickel by distillation

Answer: B



Watch Video Solution

10. The method of zone refining of metals is based on the principle of

- A. Greater mobility of the pure metal than that of impurity
- B. Greater solubility of the impurity in the molten state than in the solid of metal
- C. Higher melting point of the impurity than that of the pure metal
- D. The low melting point metal is purified by this method

Answer: B



Watch Video Solution

Objective Exercise 1 Iron Metallurgy

1. Most abundant ore of iron is

- A. magnetite
- B. Haematite
- C. limonite
- D. pyrites

Answer: B



Watch Video Solution

2. The iron obtained from blast furnace is

- A. Pig iron
- B. Silver
- C. Soft iron
- D. Steel

Answer: A



Watch Video Solution

3. In the middle part of blast furnace, iron ore is treated with lime stone to remove

- A. C
- B. CaO
- C. SiO_2

D. Fe_2O

Answer: C



Watch Video Solution

4. In the manufacture of iron from haematite, the limestone acts as

A. A reducing agent

B. Flux

C. Slag

D. Gangue

Answer: B



Watch Video Solution

5. The main ore of iron is its

A. Chloride

B. Sulphate

C. Nitrate

D. Oxide

Answer: D



Watch Video Solution

6. Which one of the following elements constitutes a major impurity in pig iron ?

A. Silicon

B. Oxygen

C. Sulphur

D. Carbon

Answer: D



Watch Video Solution

7. In blast furnace, the cup and cone arrangement is used

A. To escape the gases during charging

B. Not to allow the escape of the gases

C. To heat the charge with the gases

D. None of these

Answer: C



[Watch Video Solution](#)

8. Which of the following are the advantages of using oxygen in place of air in steel industry

- a) It gives more pure product
- b) The surface is free from nitrides
- c) It makes procedure faster, that is more product on
- d) Larger quantities can be handled

A. a,b,c

B. b & d only

C. b,c,d

D. a,b,c,d

Answer: D



[Watch Video Solution](#)

9. In which of the following percentage of carbon is maximum

- A. Pig iron
- B. Cast iron
- C. Wrought iron
- D. Pig iron and wrought iron

Answer: A



Watch Video Solution

10. Mark the wrong statement among the following. The iron ore after washing is roasted with a little coal in excess of air. During roasting

- A. Moisture is removed
- B. S and As are removed in the form of their volatile oxides
- C. Any ferrous oxide is oxidised to ferric oxide
- D. The mass becomes compact and thus makes it suitable for ready reduction to metallic iron.

Answer: D



Watch Video Solution

11. Weight ratio of roasted ore, coke and lime stone fed into the blast furnace in the manufacture of cast iron is

- A. 8 : 1 : 4
- B. 6 : 4 : 1

C. 8:4:1

D. 8:4:3

Answer: C



Watch Video Solution

12. The reducing agent added in the extraction of Iron from oxide ore of iron is

A. Coke

B. Aluminium

C. Carbon monoxide

D. Zinc

Answer: A



Watch Video Solution

13. In the extraction of iron, the slag produced is

A. CO

B. $FeSiO_3$

C. $MgSiO_3$

D. $CaSiO_3$

Answer: D



Watch Video Solution

Objective Exercise 1 Extration Of Some Metals

1. The flux used in the smelting of copper pyrites is

A. Lime stone

B. Silica

C. Borax

D. P_2O_5

Answer: B



Watch Video Solution

2. In the metallurgy of copper blister copper is obtained from

A. Blast furnace

B. Reverberatory furnace

C. Bessemer converter

D. Electrolytic tank

Answer: C



Watch Video Solution

3. Zinc is obtained on large scale by

A. Electrolysis of $ZnCl_2$

B. Reduction of ZnO

C. Precipitation with Ag

D. Any to these methods

Answer: B



Watch Video Solution

4. In Belgian process, for reduction of ZnO to Zn reductant is

A. Al

B. Coal or Coke

C. H_2

D. Water gas

Answer: B



Watch Video Solution

5. The metal that occurs in the native state as well as in the combined form is

A. Silver

B. Magnesium

C. Aluminum

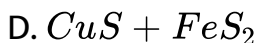
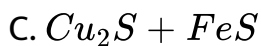
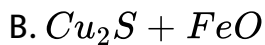
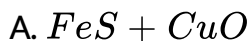
D. Manganese

Answer: A



Watch Video Solution

6. The matter obtained in the metallurgy of copper has the approximate Composition



Answer: C



Watch Video Solution

7. The metal extracted by leaching with a cyanide is

A. Mg

B. Ag

C. Cu

D. Na

Answer: B



Watch Video Solution

8. The chemical reagent used for leaching of gold and silver ores is

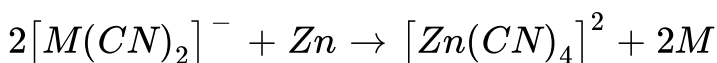
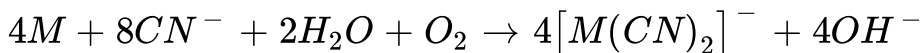
- A. Sodium hydroxide
- B. Potassium cyanide
- C. Potassium cyanate
- D. Sodium sulphate

Answer: B



Watch Video Solution

9. Name the metal M, which is extracted based on the following equation



A. Cu

B. Au (or) Ag

C. Hg

D. Ni

Answer: B



Watch Video Solution

10. Of the following metals that cannot be obtained by electrolysis of the aqueous solution of their salts is /are

A. Ag

B. Mg

C. Cu

D. Al and Mg

Answer: D



Watch Video Solution

11. Commercially important ore of copper is its

A. Oxide ore

B. Sulphide ore

C. Sulphate ore

D. Silicate ore

Answer: B



Watch Video Solution

12. Which is the chief ore of copper ?

- A. Galena
- B. Copper pyrites
- C. Sphalerite
- D. Siderite

Answer: B



Watch Video Solution

13. Match the extraction processes listed in Column-I with metals listed in Column-II

Column-I

A) Self reduction

B) Carbon reduction

C) Complex formation and displacement by metal

D) Decomposition of iodide

Column-II

P) Lead

Q) Silver

R) Copper

S) Boron

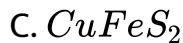
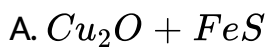
- A. $\begin{matrix} A & B & C & D \\ R & P & Q & S \end{matrix}$
- B. $\begin{matrix} A & B & C & D \\ Q & D & P & R \end{matrix}$
- C. $\begin{matrix} A & B & C & D \\ P & Q & D & R \end{matrix}$
- D. $\begin{matrix} A & B & C & D \\ D & P & Q & R \end{matrix}$

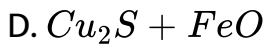
Answer: A



Watch Video Solution

14. The chemical composition of slag formed during smelting process in the extraction of Cu is





Answer: B



Watch Video Solution

15. The statement that is not correct is

- A. A furnace lined with Haematite is used to convert cast iron to wrought iron
- B. Collectors enhance the wettability of mineral particles during froth floatation
- C. In vapour phase refining, metal should form a volatile compound

D. Copper from its low grade ore is extracted by hydrometallurgy

Answer: B



Watch Video Solution

16. Chemical leaching is useful in the concentration of

A. copper pyrites

B. bauxite

C. galena

D. cassiterite

Answer: B



Watch Video Solution

17. The electrolytic reduction method for the preparation of aluminium is called

- A. Hoope's process
- B. Baeyer's process
- C. Hall and Heroult process
- D. Serpeck process

Answer: C



Watch Video Solution

18. In the electrolytic reduction of alumina, the anodic product is

A. Al

B. Na

C. O_2

D. H_2

Answer: C



Watch Video Solution

19. 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

Answer: A



Watch Video Solution

20. In the Bayer's process of purification of red hauxite the leaching agent is

A. NaOH

B. Na_2CO_3

C. NaCN

D. KCN

Answer: A



Watch Video Solution

21. A common metal widely used in the displacement method to obtain other metals is

A. Cu

B. Fe

C. Zn

D. Ca

Answer: C



Watch Video Solution

22. The metal extracted by leaching with a cyanide is

A. Al

B. Na

C. Cu

D. Ag

Answer: D



Watch Video Solution

23. Alloy used in making anchors, bolts, chains and wires

A. Pig iron

B. Cast iron

C. Wrought iron

D. german silver

Answer: C



Watch Video Solution

24. Aluminothermy used for the spot welding of large iron structures is based upon the fact that

- A. As compared to iron, aluminium has greater affinity for oxygen
- B. As compared to aluminium, iron has greater affinity for oxygen
- C. Reaction between aluminium and oxygen is endothermic
- D. Reaction between iron oxide and aluminium is endothermic

Answer: A



Watch Video Solution

25. Coinage alloy contains copper. The other metal present may be

A. Fe

B. Ni

C. Zn

D. Pt

Answer: B



Watch Video Solution

Objective Exercise 2 Occurance And General Principles

List-I (mineral)	List-II (type of mineral)
1. 1) Beryl	a) Sulphate
2) Monosite sand	b) Silicate
3) Pentlandite	c) Sulphide
4) Anglesite	d) Phosphate

A. 1 2 3 4
 b d c a

B. 1 2 3 4
 a b c d

C. 1 2 3 4
 b c d a

D. 1 2 3 4
 a d c b

Answer: A



Watch Video Solution

2. X' is substance which combines chemically with impurities associated with the ore to form easily fusible mass 'Y'. Here X and

Yare

- A. Flux, slag
- B. Slag, flux
- C. Gangue, slag
- D. Reductant, flux

Answer: A



Watch Video Solution

3. In Goldsmith thermite process reductant in

- A. Coke
- B. Aluminium
- C. Water gas

D. Carbonmonoxide

Answer: B



Watch Video Solution

4. Match the following

List-I

List-II

(1) Liquation

(a) Volatile metals with non volatile impurity

(2) Poling

(b) Metal with its metal oxides as impurity

(3) Cupellation

(c) Metal with easily oxidisable impurities

(4) Distillation

(d) Metal and impurities differ in M.P

A. 1 2 3 4
 a b c d

B. 1 2 3 4
 d c b a

C. 1 2 3 4
 d b c a

D. 1 2 3 4
 a b d c

Answer: C



Watch Video Solution

5. In which of the following products are in the molte state

A. Calcination

B. Oxidizing roasting

C. Sulphatizing roasting

D. smelting

Answer: D



Watch Video Solution

6. The removal of impurities from an ore by forming molten mass is called

A. Calcination

B. Levigation

C. Slagging

D. Refining

Answer: C



Watch Video Solution

7. Cryolite is chemically

A. Na_3AlF_6 and is used in the electrolysis of alumina for increasing electrical conductivity

- B. Na_3AlF_6 and is used in the electrolysis of alumina for increase the melting point of alumina
- C. Na_3AlF_6 and is used in the electrolytic purification of alumina
- D. Na_3AlF_6 and is used in the electrolysis of alumina

Answer: A



Watch Video Solution

8. In the froth flotation process for the purification of minerals the particles float because

- A. they are light
- B. Their surface is hydrophobic (not easily watted by water)

C. They bear electrostatic charge

D. They are insoluble

Answer: B



Watch Video Solution

9. Match the following :

List-I

(1) van Arkel method

(B) Solvay process

(C) Cupellation

(D) Poling

List-II

(1) Manufacture of caustic soda

(2) Purification of Titanium

(3) Manufacture of Na_2CO_3

(4) Purification of copper

(5) Refining of silver

A.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
2	1	3	4

B.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
4	3	2	5

C.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
2	3	5	4

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
D.	5	1	3	4

Answer: C



Watch Video Solution

10. Match the following

List-I (Type of mineral)

List-II

(1)Oxide

(*a*)Kaolinite

(2)Carbonate

(*b*)Calamine

(3)Sulphide

(*c*)Copper glance

(4)Silicate

(*d*)Cuprite

A.
1 2 3 4
d b c a

B.
1 2 3 4
b d a c

C.
1 2 3 4
a b c d

D.
1 2 3 4
b a c d

Answer: A



Watch Video Solution

- | | List-I | List-II |
|-----|----------------|---------------------------|
| | 1) Argentite | a) KCl |
| 11. | 2) Horn silver | b) AgCl |
| | 3) Ruby silver | c) Ag_2S |
| | 4) Sylvine | d) $2Ag_2S \cdot Sb_2S_3$ |

A.

1	2	3	4
c	a	d	b

B.

1	2	3	4
d	b	c	a

C.

1	2	3	4
c	b	d	a

D.

1	2	3	4
d	c	b	a

Answer: C



Watch Video Solution

12. Match items of Column-I with the items of Column II and assign the correct code :

Column-I

- a) Cyanide process
- b) Froth floatation process
- c) Electrolytic reduction
- d) Zone refining

Column-II

- i) Ultrapure Ge
- ii) Dressing of ZnS
- iii) Extraction of Al
- iv) Extraction of Au
- v) Purification of Ni

A. I-(c), II-(a), III-(d), IV-(b)

B. I-(d), II-(b), III-(c), IV-(a)

C. I-(c), II-(b), III-(d), IV-(a)

D. I-(d), II-(a), III-(c), IV-(b)

Answer: B



Watch Video Solution

13. Match the following

List-I (Concentration method)

- 1) Hydraulic washing
- 2) Magnetic separation
- 3) Froth flotation
- 4) Leaching

List-II (Principle)

- a) Difference in solubility of gangue and ore particles in a specific substance
- b) Difference in wetting property of ore and gangue particles
- c) Difference in gravities of ore and gangue particles
- d) Difference in magnetic property of gangue and ore particles

The correct match is

A. 1 2 3 4
 b d c a

B. 1 2 3 4
 a b c d

C.

1	2	3	4
<i>a</i>	<i>d</i>	<i>b</i>	<i>c</i>

D.

1	2	3	4
<i>c</i>	<i>d</i>	<i>b</i>	<i>a</i>

Answer: D



Watch Video Solution

14. In froth flotation process which of the following is used as froth stabiliser

A. Pine oil

B. Xanthates

C. Fatty acids

D. Aniline (or) Cresol

Answer: D



[Watch Video Solution](#)

15. All of the following metals are silvery white except

A. Zn

B. Pb

C. Mg

D. Cu

Answer: D



[Watch Video Solution](#)

16. Consider the following statements regarding roasting. It is carried out to

A) convert sulphide to oxide and sulphate

B) remove water of hydration

C) melt the ore

D) remove arsenic and sulphur impurities

Of these statements :

A. A, B and C are correct

B. A and D are correct

C. A, B and D are correct

D. B, C and D are correct

Answer: C



Watch Video Solution

17. Neutral refractory material used in furnaces is

A. Graphite

B. CaO

C. SiO_2

D. MgO

Answer: A



Watch Video Solution

18. Zirconium and titanium are purified by

A. Electrolysis

B. Zone refining

C. Bessemerisation

D. Van-arkel method

Answer: D



19. At which one of the following condition, a reducing agent is suitable for reducing a metal oxide

- A. Sum of the ΔG values for oxidation of metal and oxidation of reductant should be negative
- B. Sum of the ΔG values for oxidation of metal and oxidation of reductant should be positive
- C. Sum of the ΔG values for reduction of metal oxide and oxidation of reductant should be negative
- D. Sum of the ΔG values for oxidation of metal and reduction of reductant should be negative

Answer: C



[Watch Video Solution](#)

20. What is pyrometallurgy ?

- A. Calcination of the ore
- B. Hydrolysis of the ore
- C. Electrolytic reduction of metal oxide to the metal
- D. Termal reduction of metal oxide to the metal

Answer: A



[Watch Video Solution](#)

21. Match the following

List-I

- A) Zone refining
- B) Poling
- C) Van-Arkel method
- D) Mond process

List-II

- I) Indium
- II) Titanium
- III) Nickel
- IV) Blister copper
- V) Zinc

The correct answer is

A.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>I</i>	<i>III</i>	<i>II</i>	<i>IV</i>

B.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>I</i>	<i>IV</i>	<i>II</i>	<i>III</i>

C.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>V</i>	<i>III</i>	<i>II</i>	<i>I</i>

D.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>IV</i>	<i>II</i>	<i>I</i>	<i>III</i>

Answer: B



Watch Video Solution

Objective Exercise 2 Extraction Of Some Metals

1. Sodium cannot be extracted by electrolysis of aqueous solutions due to

A. Sodium is less reactive

B. Sodium liberated reacts with H_2O and forms NaOH and N_2

C. Sodium has high vapour pressure

D. Preferential discharge theory

Answer: D



Watch Video Solution

2. Silver can be precipitated in hydrometallurgy by using aluminium. This is because

- A. silver is more electropositive metal
- B. aluminium is more electronegative metal
- C. silver is a good oxidising agent
- D. aluminum is a good reducing agent

Answer: D



Watch Video Solution

3. Which of following metal oxide (s) can be reduced to the corresponding metal by hydrogen

a) MoO_3 b) WO_3 c) Fe_2O_3 d) ZnO

The correct match is

A. only a and b

B. a, b and d

C. a and c

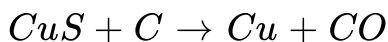
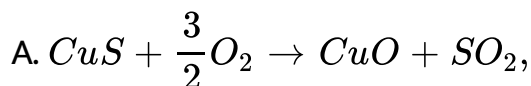
D. a only

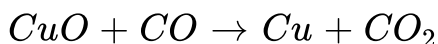
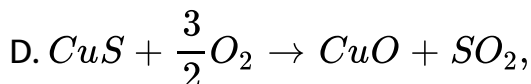
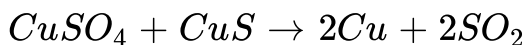
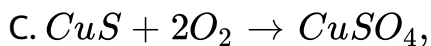
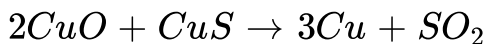
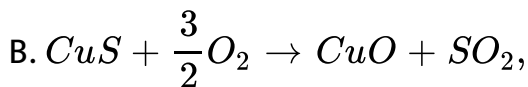
Answer: A



Watch Video Solution

4. Formation of metallic copper from the sulphide ore in the normal thermo-metallurgical process essentially involves which one of the following reaction ?





Answer: B



Watch Video Solution

5. A mixture of Al_2O_3 and Fe_2O_3 can be separated by using

A. Sodium hydroxide

B. Cold water

C. Ethyl alcohol

D. Boiling water

Answer: A



Watch Video Solution

6. Percentages of copper and zinc present in a alloy brass, are respectively

A. 60 % and 40%

B. 40% and 60%

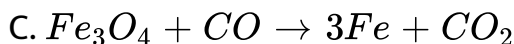
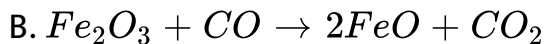
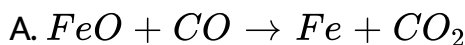
C. 0 % and 100%

D. 100 % and 0%

Answer: A

[Watch Video Solution](#)

7. In the blast furnace, the reaction that is taking place at the temperature zone of 900 K to 1500 K is



D. All the above reactions

Answer: A

[Watch Video Solution](#)

8. Metal used in the extraction of Mn and Cr from their oxides is

A. Ag

B. Cu

C. Al

D. Fe

Answer: C



Watch Video Solution

9. Impurity present in red bauxite is

A. ZnO

B. Fe_2O_3

C. SiO_2

D. Al_2O_3

Answer: B



Watch Video Solution

10. Metal extracted from molten cryolite is

A. Al

B. Fe

C. Zn

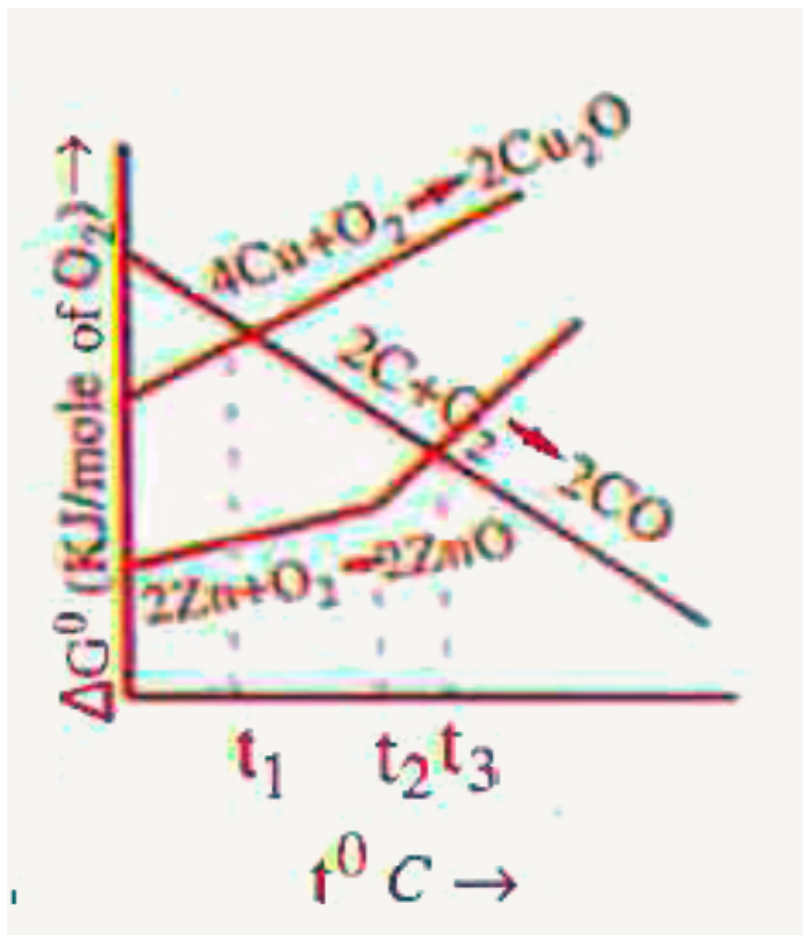
D. Ag

Answer: A



Watch Video Solution

11. From the below Ellingham diagram, incorrect statement among the following is



A. at the temperature above $t_1^{\circ}C$, carbon can reduce Cu_2O

B. at the temperature above $t_3^{\circ}C$, carbon can reduce ZnO

C. at t_2^0 , $ZnO_{(s)}$ will boil

D. reduction of Cu_2O with carbon requires low temperature

when compared with the reduction of ZnO by carbon

Answer: C



Watch Video Solution

12. Metal extracted only by electrolysis process is

A. copper

B. zinc

C. sodium

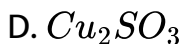
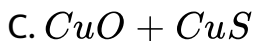
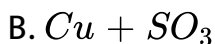
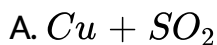
D. silver

Answer: C



Watch Video Solution

13. Heating mixture of Cu_2O and Cu_2S will give



Answer: A



Watch Video Solution

14. Metal that can be extracted by eletrolysis of its salt even from aqueous solutions

A. Cu

B. Mg

C. Al

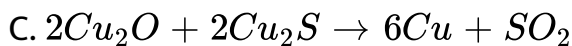
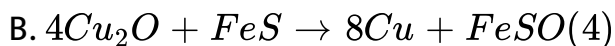
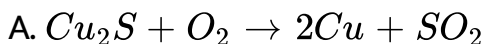
D. Ni

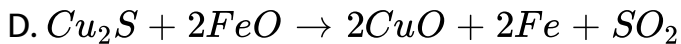
Answer: A



Watch Video Solution

15. The final step in the metallurgical extraction of Cu metal from Cu pyrites takes place in a Bessemer converter. The reaction taking place





Answer: C



Watch Video Solution

16. The process of bringing the metal or its ore into solution by the action of a suitable chemical reagent followed by extraction of the metal either by electrolysis or by suitable precipitating agent is called

A. Electrometallurgy

B. Electro-refining

C. Hydrometallurgy

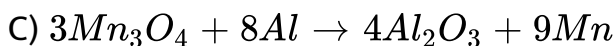
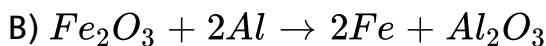
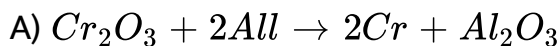
D. Zone-refining

Answer: C



Watch Video Solution

17. Exothermic reaction among the following is



A. A, B

B. B, C

C. A, C

D. A, B, C

Answer: D



Watch Video Solution

18. In the extraction of silver from argentite the one is treated with dilute solution of NaCN in water in the presence of Y, whereby the following reaction takes place.

$Ag_2X + 4NaCN + 2Y \rightarrow 2Na[Ag(CN)_2] + Na_2XO_4X$ and Y in this reaction are represented by

- A. Cl and S
- B. S and O_2
- C. O and O_2
- D. O and S

Answer: B



Watch Video Solution

19. Which of the following reagent is used to separate the impurity from red bauxite

A. Conc. HCl

B. H_2SO_4

C. NaOH

D. HNO_3

Answer: C



Watch Video Solution

20. The metal iron obtained for the last furnace contains 'X' percent of carbon. The maximum value of 'X' is

A. 1

B. 2

C. 3

D. 4

Answer: D



Watch Video Solution



Incorrect statement about 'X' is

A. X is anionic complex

B. In 'X' primary valency and secondary valency of Ag are 1
and 2

C. IUPAC and of 'X' is sodium dicyano-argentate (I)

D. IUPAC name of 'X' is sodium dicyanosilver (I)

Answer: D



Watch Video Solution

22. Regarding the electrolysis of Alunina, the correct statements

- A) Cryolite is added to increase the fusion temp
- B) Impure aluminium is mixed with copper and silicon to decrease the density
- C) Fluorspar is added to reduce the fusion temp
- D) Electrolyte is mixture of oxides saturated with alumina

A. Only B, C and D are correct

B. Only A, C and D are correct

C. Only A, B and D are correct

D. Only C is correct

Answer: D



View Text Solution

23. Gold and silver are extracted from their respective ores by

A. Calcination

B. Smelting

C. Roasting

D. Hydrometallurgy

Answer: D



View Text Solution

24. In which of the following pair of metals, both are commercially extracted from their respective ores by carbon reduction method ?

A. Zn, Cu

B. Fe, Cu

C. Sn, Zn

D. Al, Ag

Answer: C



View Text Solution

25. The percentage of carbon in steel is approx

A. 0.01

B. 0.03

C. 0.02

D. 0.1

Answer: C



Watch Video Solution

26. Which of following metal is extracted by the electrolysis of its salt in molten state

(a) Na, (b) Mg, (c) Al, (d) Fe, (e) Ag

The correct answer is

A. only a and b

B. Only a, b and c

C. Only a, b, c and e

D. All the above

Answer: B



Watch Video Solution

27. The charge of the Blast Furnace consists of

A. Fe - Ore + Coke + Lime stone

B. Fe- Ore + Coke + Petrol

C. Fe- Ore + Petrol + BaS

D. Fe- Ore + Coke + BaS

Answer: A



View Text Solution

28. The correct statements with respect to Ellingham's diagram among the following are

- I) Magnesium reduces aluminium oxide below 1700 K
- II) Aluminium reduces magnesium oxide above 1700 K
- III) Aluminium reduces magnesium oxide below 1700 K
- IV) Magnesium reduces aluminium oxide above 1700 K

A. I & II

B. II & III

C. III & IV

D. II, III & IV

Answer: A



View Text Solution

29. Which of the following element is extracted using I_2 as the reactant ?

A. Ni

B. Zr

C. Al

D. Cu

Answer: C



Watch Video Solution

Objective Exercise 2 Uses Of Metals

1. A common metal widely used in electrical cables and kitchen ware is

A. Fe

B. Ag

C. Cu

D. Ni

Answer: C



View Text Solution

2. Nickel steel is used in making

A. Cycles

B. Utensils

C. Cutting tools

D. Cables

Answer: D



Watch Video Solution

3. Metal commonly present in bronze, brass and German silver is

A. Cu

B. Ag

C. Zn

D. Fe

Answer: A



[Watch Video Solution](#)

4. Which of the following is used in electro-plating process ?

- A. AgCl solid
- B. $AgNO_3$ solution
- C. Sodium argentocyanide
- D. None of these

Answer: C



[View Text Solution](#)

5. The process of protecting iron by coating with zinc is called

- A. Corrosion

B. Galvanisation

C. Rusting

D. Smelting

Answer: B



Watch Video Solution

Objective Exercise 3 Previous Neet Aipmt Questions

1. The method of zone refining of metals is based on the principle of

A. Greater solubility of the impurities in the molten state than in the solid

B. Greater solubility of pure metal than that of impurity

C. Higher melting point of the impurity than that of the pure metal

D. Greater noble character of the solid metal than that of the impurity

Answer: A



Watch Video Solution

2. Which of the following is not an ore of magnesium ?

A. Magnesite

B. Dolomite

C. Gypsum

D. Carnallite

Answer: C



Watch Video Solution

3. What of the following statement about the advantage of roasting of sulphide ore before reduction is not true ?

A. ΔG_f^a of the sulphide is greater than CS_2 and H_2S

B. ΔG_f^a is negative for roasting of sulphide ore to oxide

C. Roasting of the sulphide to oxide is ther-modynamically feasible

D. Carbon and hydrogen are suitable reducing agents for metal sulphides

Answer: D



Watch Video Solution

[View Text Solution](#)

4. Sulphide ores of metals are usually concentrated by froth floatation process. Which one of the following sulphide ores offers an exception and is concentrated by leaching ?

- A. Argentite
- B. Copper pyrites
- C. Sphalerite
- D. Galena

Answer: A

[View Text Solution](#)

5. Which of the following pairs of metals is purified by van Arkel method ?

A. Zr and Ti

B. Ga and In

C. Ni and Fe

D. Ag and Au

Answer: A



View Text Solution

6. 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 (Cu_2S)

B. Carbon monoxide (CO)

C. Iron sulphide (FeS)

D. Sulphur dioxide (SO_2)

Answer: A



View Text Solution

7. Which one of the following is a mineral of iron ?

A. Pyrolusite

B. Magnetite

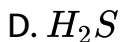
C. Malachite

D. cassiterite

Answer: B

[View Text Solution](#)

8. Roasting of sulphides gives the gas X as a by product. This is a colorless gas with choking smell of burnt sulphur and causes great damage to respiratory organs as it results in acid rain. Its aqueous solution is acidic and acts as a reducing agent, and its acid has never been isolated. The gas X is



Answer: B

[Watch Video Solution](#)

9. "Metals are usually not found as nitrates in their ores . " Out of the following two (I and II) reasons which is/are true for the above observation ?

I. Metal nitrates are highly unstable

II. Metal nitrates are highly soluble in water

A. I is false but II is true

B. I is true but II is false

C. I and II are true

D. I and II are false

Answer: A



View Text Solution

10. Match items of Column-I with the items of Column II and assign the correct code :

Column-I

- a) Cyanide process
- b) Froth floatation process
- c) Electrolytic reduction
- d) Zone refining

Column-II

- i) Ultrapure Ge
- ii) Dressing of ZnS
- iii) Extraction of Al
- iv) Extraction of Au
- v) Purification of Ni

A. 1 2 3 4
 i ii iii iv

B. 1 2 3 4
 iii iv v i

C. 1 2 3 4
 iv ii iii i

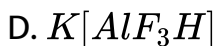
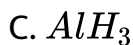
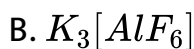
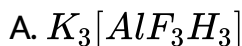
D. 1 2 3 4
 ii iii i v

Answer: C



Watch Video Solution

11. AlF_3 is soluble in HF only in presence of KF . It is due to the formation of

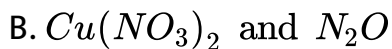
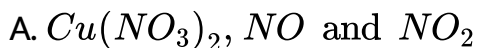


Answer: B



Watch Video Solution

12. When copper is heated with cone. HNO_3 It produces :



C. $Cu(NO_3)_2$ and NO_2

D. $Cu(NO_3)_2$ and NO

Answer: C



Watch Video Solution

13. Extraction of gold and silver involved leaching with CN^- ions. Silver is later recovered by

A. Displacement with Zn

B. Liquiation

C. Distillation

D. Zone refining

Answer: A



[Watch Video Solution](#)

14. Considering Ellingham diagram, which of the following metals can be used to reduce alumina ?

A. Mg

B. Zn

C. Fe

D. Cu

Answer: A



[Watch Video Solution](#)

Objective Exercise 4 Assertion A Reason R Type Questions

1. (A) Reduction of a metal oxide is easier if the metal formed is in liquid state at the temperature of reduction .

(R) ΔG° for the net reaction, reduction of metal oxide with the reductant, is more-ve when the metal formed is in molten state

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



Watch Video Solution

2. (A): Efficiency of the reverberatory furnace is less

(R): The waste gases formed in the furnace reactions leave the furnace through chimney.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



Watch Video Solution

3. (A): In the smelting of copper pyrites in blast furnace, Cu_2S formed but not FeS .

(R) : Cu has greater affinity to 'S' than to 'O' where as Fe has greater affinity to 'O' than to 'S'.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



Watch Video Solution

4. (A): Iron pyrate is used in the extraction of iron releases pollutants like sulphurdioxide

(R) : Ores which are abundant with non metals produce poluting gases

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



Watch Video Solution

5. (A) Cassiterite mineral is concentrated by electromagnetic method

(R) Tinstone is non-magnetic and impurity wolframite is magnetic

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



View Text Solution

6. (A) Leaching is chemical method used to ore beneficiation process

(R) Leaching is usually performed in metallurgy with the help of a non-aqueous solvent

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C



View Text Solution

7. (A): In aluminothermic process, Al reduction increases the heat of the reaction

(R): During reduction in thermit process, Al_2O_3 is formed which is an exothermic product.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



Watch Video Solution

8. (A) : Sulphide ores are concentrated by froth floatation process.

(R) : Pine oil acts as a frothing agent in froth floatation process.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



Watch Video Solution

9. (A): Platinum and gold occur in native state in nature.

(R): Platinum and gold are noble metals

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



Watch Video Solution

10. (A) Levigation is used for the separation of oxide ores from impurities

(R) Ore particles are removed by washing in a current of water.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C



View Text Solution

11. (A) Calamine is a mineral of calcium

(R) Calamine is chemically a sulphate mineral

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



View Text Solution

12. Carnallite is an example of

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: D



Watch Video Solution

13. (A) Froath floatation process involves adsorption

(R) Pure ore is preferentially wetted by froath in the beneficiation method.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

14. (A) Wolframite impurities are separated from cassiterite by electromagnetic separation

(R) Cassiterite being magnetic is attracted by the magnet and forms a separate heap.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: C



View Text Solution

15. (A) In smelting, roasted ore is heated with powdered coke in presence of a flux.

(R) Oxides are reduced to metals by carbon or carbonmonoxide. Impurities are removed as slag.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

- 16.** (A) Leaching is the process of converting the ore into oxide and then reducing it .
- (R) Leaching is done in a blast furnace.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: D



Watch Video Solution

17. (A) Aluminium metal is used as a reducing agent in thermite welding
- (R) Al has a lower melting point than Fe, Cr and Mn.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

18. (A) Lead, tin and bismuth are purified by liquation method .

(R) Lead, tin and bismuth have low melting points as compared to impurities

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

19. (A) Pin oil is fused as a foaming agent in froth floatation process
- (R) Adsorption principle is involved in froth floatation process

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

20. (A) Aluminium metal can be extracted by the electrolysis of aqueous aluminium fluoride

(R) The reduction potential of standard aluminium electrode is positive

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: D



View Text Solution

21. (A) Magnesium can not be extracted by electrolysis of aqueous salt solution
- (R) Magnesium reacts with water

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



View Text Solution

22. (A) Iron metal is refined in blast furnace

(R) Blast furnace is used to perform roasting

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: D



View Text Solution

- 23.** (A) Van Arkel method is a vapour phase refining process
- (R) Vapours of nickel are condensed in van Arkel method

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: C



View Text Solution

24. (A) For iron extraction usually Fe_2O_3 is used but not FeS_2
(R) Fe_2O_3 does not produce polluting gas like SO_2 but FeS_2

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

25. (A) In the case of an ore containing ZnS and PbS , the one depressant like NaCN is used
- (R) NaCN prevents ZnS from coming to the froth

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

26. (A) In Froth floatation process collectors like pine oil is added
(R) Froth Floatation is in use for removing gangue from sulphide ores

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



View Text Solution

27. (A) During leaching of Al from bauxite seeding agent freshly prepared hydrated Al_2O_3 is added
- (R) Seeding agent induces precipitation of Al_2O_3, xH_2O

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

28. (A) The thermodynamical reaction proceeds forward if ΔG is negative in the equation $\Delta G = \Delta H - T\Delta S$

(R) If ΔS and ΔH are positive and with increasing temperature, $T\Delta S$ increases

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

29. (A) Mg metal is not used for reduction of Al_2O_3 thermodynamically
- (R) The process will be uneconomical

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

30. (A) The reduction of metal oxide is easier if the metal is in liquid state at temp of reduction

(R) ΔS is -ve and ΔG is + ve

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: C



Watch Video Solution

31. (A) At all conditions Mg can reduce Al_2O_3

(R) Below $135^\circ C$ Mg can reduce Al_2O_3

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: D



View Text Solution

32. (A) In metallurgy of Al , the electrolyte is bauxite mixed with cryolite

(R) Addition of Na_3AlF_6 or CaF_2 lower M.P and increases conductivity

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

- 33.** (A) The reduction of leached copper ore will be advisable with Iron scrap than zinc scrap
- (R) Zinc is more costlier than Iron

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

34. (A) H_2 is good reducing agent but not widely used in metallurgical process

(R) Metal hydrides can be formed and mixture of H_2 and O_2 may explode

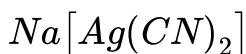
- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

35. (A) In metallurgy of Ag, Zn replaces Ag from complex



(R) Zn is more electropositive than Ag.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

36. (A) The reduction of Cr_2O_3 with Al posses $\Delta G^0 = -ve$ but does not take place at room 'T'

(R) Certain amount of E_a is required and hence heating is required .

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

37. (A) In extraction of Al , Al_2O_3 is concentrated by leaching
(R) Leaching removes impurities like SiO_2 , Fe_2O_3

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

38. (A) Ores like haematite, Iron pyrites can be concentrated by magnetic separation method

(R) Magnetic separation is used for ores in which the impurity or ore is magnetic

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



View Text Solution

39. (A) Alumina is leached from bauxite using caustic soda

(R) Leaching is used when ore alone, but not gangue is soluble in a suitable solvent.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: C



View Text Solution

Problems

1. In moist air copper corrodes to produce a green layer on the surface. What is that layer ?



Watch Video Solution

2. Metal sulphides occur mainly in rocks, but metal halides occur in lakes and sea. Why?



View Text Solution

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



Watch Video Solution

4. The value of $\Delta_f G^\ominus$ for formation of Cr_2O_3 is -540 kJ mol^{-1} and that of Al_2O_3 is -827 kJ mol^{-1} . Is the reduction of Cr_2O_3 possible with Al ?



[Watch Video Solution](#)

5. Reduction of metal sulphides directly with carbon is not possible. Why?



[View Text Solution](#)

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



[Watch Video Solution](#)

7. Aluminium containing alumina as impurity can be refined by poling or not. Why?



[View Text Solution](#)



[View Text Solution](#)

8. The choice of a reducing agent in a particular case depends on thermodynamic factor. How far do you agree with this statement? Support your opinion with two examples.



[Watch Video Solution](#)

9. Hydrogen is a common reductant of organic chemicals, but it is not widely used in metallurgy. Substantiate.



[View Text Solution](#)

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



[Watch Video Solution](#)

11. Reduction of metal oxides by thermit process becomes faster just after ignition . Why ?



[Watch Video Solution](#)

12. Out of coke and carbonmonoxide, which is a better reducing agent for iron oxide?



[View Text Solution](#)

13. Both coke and lime stone are used in smelting of iron ore. Why?



[Watch Video Solution](#)

14. To precipitate silver from sodium argento-cyanide, aluminium can be used . Comment.



Watch Video Solution

15. For precipitation of silver from the complex $[Ag(CN)_2]^-$, zinc is used but not copper. Why?



Watch Video Solution

16. 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?



Watch Video Solution

17. Electrolysis of aqueous alkali metal chloride does not liberate metal. Why?



[View Text Solution](#)

18. How is a mixture of oxides of Al and Fe separated ?



[View Text Solution](#)

19. Graphite rods are frequently replaced in Hall-Heroult's process of extracting aluminium metal. Why?



[View Text Solution](#)

20. In moist air copper corrodes to produce a green layer on the surface. What is that layer ?



Watch Video Solution

21. Metal sulphides occur mainly in rocks, but metal halides occur in lakes and sea. Why ?



Watch Video Solution

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



Watch Video Solution

23. The value of $\Delta_f G^\ominus$ for formation of Cr_2O_3 is -540 kJ mol^{-1} and that of Al_2O_3 is -827 kJ mol^{-1} . Is the reduction of Cr_2O_3 possible with Al?



Watch Video Solution

24. Reduction of metal sulphides directly with carbon is not possible. Why?



Watch Video Solution

25. Even though reduction of magnesia with aluminium is thermodynamically feasible, in practice aluminium is not used in the metallurgy of Mg. Why?



View Text Solution

26. Aluminium containing alumina as impurity can be refined by poling or not. Why?



Watch Video Solution

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



Watch Video Solution

28. Hydrogen is a common reductant of organic chemicals, but it is not widely used in metallurgy. Substantiate.



Watch Video Solution

29. Although thermodynamically feasible, in practice alumina is not reduced using magnesium. Why?



View Text Solution

30. Reduction of metal oxides by thermit process becomes faster just after ignition . Why ?



Watch Video Solution

31. Out of coke and carbonmonoxide, which is a better reducing agent for iron oxide?



View Text Solution

32. Both coke and lime stone are used in smelting of iron ore.
Why?



Watch Video Solution

33. To precipitate silver from sodium argento-cyanide, aluminium can be used . Comment.



Watch Video Solution

34. For precipitation of silver from the complex $[Ag(CN)_2]^-$, zinc is used but not copper. Why?



Watch Video Solution

35. 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?



Watch Video Solution

36. Electrolysis of aqueous alkali metal chloride does not liberate metal . Why ?



Watch Video Solution

37. How is a mixture of oxides of Al and Fe separated ?



Watch Video Solution

38. Graphite rods are frequently replaced in Hall-Heroult's process of extracting aluminium metal. Why ?



Watch Video Solution

Subjective Exercise 2 Short Answer Questions

1. Mention any four reducing agents used to reduce oxide and halide ores. Give one equation for each.



Watch Video Solution

2. Write short note on froth floatation process.



Watch Video Solution

3. Write short notes on : roasting, calcination and smelting.



Watch Video Solution

4. Define flux and slag. Give examples.



Watch Video Solution

5. Mention any four reducing agents used to reduce oxide and halide ores. Give one equation for each.



Watch Video Solution

6. Write the functions of pine oil and sodium ethyl xanthate in metallurgy ?



[Watch Video Solution](#)

7. Write an equation for each of the types of roasting.



[Watch Video Solution](#)

8. How is Ellingham diagram useful in the selection of reductant ?



[Watch Video Solution](#)

Subjective Exercise 2 Very Short Answer Questions

1. What is flux ? Give an example.



[Watch Video Solution](#)

2. (A) Efficiency of the reverboratary furnace is less

(R) The waste gases formed in the furnace reactions leave the furnace through chimney .



Watch Video Solution

3. What are the changes that take place during roasting?



Watch Video Solution

4. Which metal is purified by cupellation ?



Watch Video Solution

5. How the green wood poles are effecting in the refining of impure metal.



Watch Video Solution

6. Give the anode, cathode and the electrolysis method of refining a metal.



Watch Video Solution

7. What is flux ? Give an example.



Watch Video Solution

8. What is the suitable method for the concentration of native gold ?



Watch Video Solution

9. Give the principle used in gravity concentration method.



Watch Video Solution

10. Ore bearing particles are wetted more by water. True or false. Give an example.



Watch Video Solution

11. Why haematite is concentrated by electromagnetic separation method ?



Watch Video Solution

12. Write any two furnaces that are generally used in metallurgical process.



Watch Video Solution

13. (A) Efficiency of the reverboratary furnace is less

(R) The waste gases formed in the furnace reactions leave the furnace through chimney .



Watch Video Solution

14. What purpose is served by the cup and cone arrangement in a blast furnace ?



Watch Video Solution

15. Where do the reactions in a blast furnace take place?



Watch Video Solution

16. How is nickel oxide reduced to the metal ?



Watch Video Solution

17. What are the changes that take place in large intestine during digestion of food?



[Watch Video Solution](#)

18. What types of ores are subjected to calcination ?



[Watch Video Solution](#)

19. The method of zone refining of metals is based on the principle of



[Watch Video Solution](#)

Subjective Exercise 3 Long Answer Questions

1. Describe a method for the manufacture of cast iron and wrought iron.



Watch Video Solution

2. Describe a method for the manufacture of cast iron and wrought iron.



Watch Video Solution

3. Write a method for the manufacturing of pig iron from the ore.



Watch Video Solution

Subjective Exercise 3 Short Answer Questions

1. Which treatment is given to the iron ore before it is reduced to the metal ? Explain.



Watch Video Solution

2. How wrought iron is prepared from pig iron?



Watch Video Solution

3. Give any one method to convert cast -iron into steel of high quality.



Watch Video Solution

4. Which treatment is given to the iron ore before it is reduced to the metal ? Explain.



Watch Video Solution

5. How wrought iron is prepared from pig iron?



Watch Video Solution

6. Give any one method to convert cast -iron into steel of high quality.



Watch Video Solution

1. Write the names and formulae of any two ores of iron



Watch Video Solution

2. What are the impurities present in the cast iron ?



Watch Video Solution

3. Give the composition of charge in blast furnace in the extraction of iron?



Watch Video Solution

4. What is the percentage of carbon in cast iron and wrought iron



Watch Video Solution

5. Write the names and formulae of any two ores of iron



Watch Video Solution

6. What are the impurities present in the cast iron ?



Watch Video Solution

7. Give the composition of charge in blast furnace in the extraction of iron?



Watch Video Solution

8. What is the percentage of carbon in cast iron and wrought iron



Watch Video Solution

Subjective Exercise 4 Short Answer Questions

1. Write the names and formulae of any two minerals of Cu. How is the Cu extracted ?



Watch Video Solution

2. Mention the ores of zinc and give their formulae. How is zinc dust obtained from zinc blende ?



Watch Video Solution

3. What are the natural sources of silver? How is the metal obtained from one of them?



Watch Video Solution

4. Write the names and formulae of any two minerals of Cu.
How is the Cu extracted ?



Watch Video Solution

5. Mention the ores of zinc and give their formulae. How is zinc dust obtained from zinc blende ?



Watch Video Solution

6. What are the natural sources of silver? How is the metal obtained from one of them?



Watch Video Solution

Subjective Exercise 4 Very Short Answer Questions

1. Write any two minerals of Cu.



Watch Video Solution

2. What is the primary product of Bessemerisation of Matte?



Watch Video Solution

3. Write the names of the minerals of zinc



Watch Video Solution

4. Calamine is not directly reduced with carbon ? It is calcined first and then reduced. Why ?



Watch Video Solution

5. Write an equation for the reaction between silver glance and NaCN solution.



Watch Video Solution

6. How is red bauxite purified ?



[Watch Video Solution](#)

7. Mention oxide minerals of aluminium . Describe the Baeyer's process.



[Watch Video Solution](#)

8. Explain the electrolysis of fused bauxite dissolved in cryolite.



[Watch Video Solution](#)

9. Why cryolite is added to during electrolysis of bauxite ?



[Watch Video Solution](#)

10. Write any two minerals of Cu.



Watch Video Solution

11. What is the primary product of Bessemerisation of Matte?



Watch Video Solution

12. Write the names of the minerals of zinc



Watch Video Solution

13. Calamine is not directly reduced with carbon ? It is calcined first and then reduced. Why ?



Watch Video Solution

14. Write an equation for the reaction between silver glance and NaCN solution.



Watch Video Solution

15. How is red bauxite purified ?



Watch Video Solution

16. Mention oxide minerals of aluminium . Describe the Baeyer's process.



Watch Video Solution

17. Explain the electrolysis of fused bauxite dissolved in cryolite.



[Watch Video Solution](#)

18. Why cryolite is added to during electrolysis of bauxite ?



[Watch Video Solution](#)

Objective Exercise 1

1. Which of the following is true

A. A mineral need not be an ore

B. An ore can't be a mineral

C. All ores are not minerals

D. All minerals are ores

Answer: A



Watch Video Solution

2. Which of the following is not found in native state ?

A. Pt

B. Cu

C. Au

D. Na

Answer: D



Watch Video Solution

3. Cassiterite ore is used to extract

A. Fe

B. Sn

C. Au

D. Pb

Answer: B



Watch Video Solution

4. The metal never found in free state is

A. Au

B. Ag

C. Pt

D. Zn

Answer: D



Watch Video Solution

5. Both calcination and roasting can be performed in

A. Reverberatory furnace

B. Blast furnace

C. Muffle furnace

D. Electric furnace

Answer: A



View Text Solution

6. Copper pyrites ore is concentrated by

- A. Electromagnetic method
- B. Gravity separation method
- C. Froth floatation method
- D. All the above methods

Answer: C



View Text Solution

7. Which one of the following is not a method of concentration of ore

- A. gravity separation
- B. froth flotation process

C. electromagnetic separation

D. smelting

Answer: D



View Text Solution

8. Most abundant element in the earth's crust by weight is

A. Oxygen

B. Silicon

C. Alluminuim

D. Iron

Answer: A



View Text Solution

9. The rocky and silicious matter associated with an ore is called

- A. Slag
- B. Mineral
- C. Matrix or Gangue
- D. Flux

Answer: C



View Text Solution

10. The process of removing of lighter ganse particles by washing in a current of water is called

- A. Levigation (or) gravity separation

B. Liquiation

C. Leaching

D. Cupellation

Answer: A



Watch Video Solution

11. In the froth flotation process for the purification of minerals the particles float because

A. they are light

B. they are insoluble

C. their surface is preferentially wetted by oil

D. they bear an electrostatic charge

Answer: C



Watch Video Solution

12. Froth floatation process for the concentration of ores is an illustration of the practical application of

- A. Adsorption
- B. Absorption
- C. Coagulation
- D. Sedimentation

Answer: A



View Text Solution

13. Gravity separation process may be used for the concentration of

- A. Chalcopyrite
- B. Bauxite
- C. Haematite
- D. Calamine

Answer: C



Watch Video Solution

14. Wolframite ($FeWO_4$) is separated from cassiterite by

- A. Froth flotation method
- B. levigation

C. electromagnetic method

D. electrostatic separation method

Answer: C



View Text Solution

15. In the extraction of gold ,alluival sand is conected by which method

A. Gavity separation

B. Frouth floation

C. magnetic separation

D. Liquation

Answer: A



[View Text Solution](#)

16. Which one of the following is used as conditioner in froth floatation process

- A. pine oil
- B. sodium ethyl xanthate
- C. Sodium carbonate
- D. Olive oil

Answer: C



[View Text Solution](#)

17. During extraction of a metal the ore is roasted if it is a

- A. sulphate ore
- B. sulphide ore
- C. Carbonate ore
- D. Oxide ore

Answer: A



Watch Video Solution

18. A common metal that is used for the extraction of some metals from their oxides is

- A. Cr
- B. Fe
- C. Mn

D. Al

Answer: D



Watch Video Solution

19. Extraction of metals from sulphide ores is done by

A. Electrolysis

B. smelting

C. Hydrometallurgy

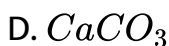
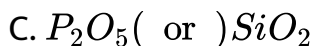
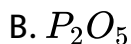
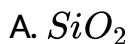
D. Roasting

Answer: B



Watch Video Solution

20. To remove basic impurities from the ore the substance generally used is



Answer: C



Watch Video Solution

21. During smelting an additional substance added to form a fusible product. It is known as

A. Slag

B. Mud

C. Gangue

D. Flux

Answer: D



Watch Video Solution

22. Calcination is the process of heating the ore :

A. in inert gas

B. in the presence of air

C. in the absence of air

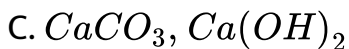
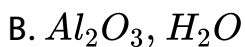
D. in the presence of CaO and MgO

Answer: C



[Watch Video Solution](#)

23. To which of the following ores, calcination process is not applicable



Answer: D



[Watch Video Solution](#)

24. Roasting is carried out in case of

- A. Galena
- B. Iron pyrites
- C. Copper glance
- D. All

Answer: D



Watch Video Solution

25. Smelting is usually carried out in

- A. Blast furnace
- B. Open hearth furnnce
- C. Muffle furnace
- D. Electric furnace

Answer: A



Watch Video Solution

26. Slag is a product of

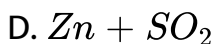
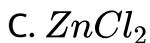
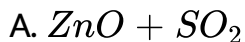
- A. Flux and coke
- B. Coke and metal oxide
- C. Flux and impurities
- D. Metal and flux

Answer: C



Watch Video Solution

27. In oxidising roasting of Zn, the products are

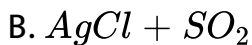
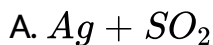


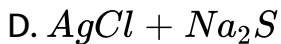
Answer: A



Watch Video Solution

28. Ag_2S or in mixed with $NaCl$ and heated to 6000° in the presence of air then product formed are



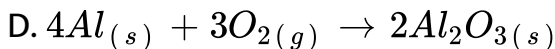
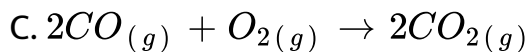
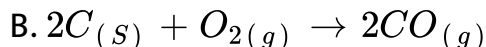
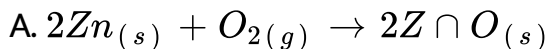


Answer: C



Watch Video Solution

29. For which one the following reaction ΔS is positive

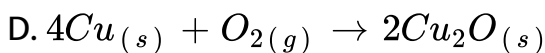
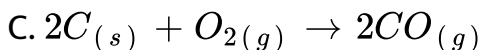
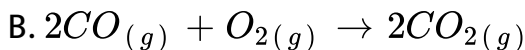
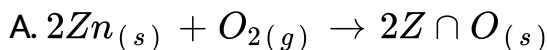


Answer: B



Watch Video Solution

30. For which one of the following reaction ΔG decreases with increasing the temperature

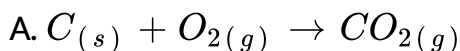


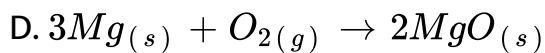
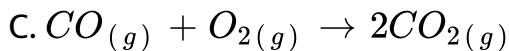
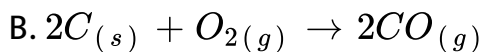
Answer: C



Watch Video Solution

31. For which one of the following reaction , the graph of ΔG against T is almost horizontal to temperature axis



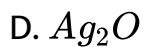
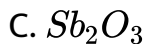


Answer: A



Watch Video Solution

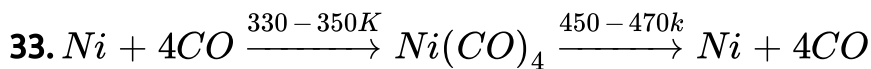
32. The least stable oxide at room temperature is



Answer: D



[Watch Video Solution](#)



this sequence of reaction s involed in

- A. Van Arkel methal for refining of nickel
- B. Mond's process for refining of nickel
- C. Zone refining of nickel
- D. Refining of nickel by disstilation

Answer: B



[View Text Solution](#)

34. The process of zone refining is used for

- A. Silicon
- B. Germanium
- C. Gallium
- D. all the above

Answer: D



Watch Video Solution

35. The process used in the refining of aluminium and zinc metals are respectively

- A. Hoope's process and fractional distillation
- B. Hoope's process and cupellation
- C. Poling and fractional distillation

D. Cupellation and fractional distillation

Answer: A



Watch Video Solution

36. In the metallurgy of which of the following supellation process is used ?

A. Copper

B. silver

C. Iron

D. Aluminium

Answer: B



Watch Video Solution

37. In zone - Refining method 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

Answer: B



Watch Video Solution

38. Tin and lead can be refined by

- A. Cupellation
- B. Liquation

C. Poling

D. Bessmerisations

Answer: B



Watch Video Solution

39. Silver containing lead as an impurity is not purified by

A. Poling

B. Cupellation

C. Levigation

D. Distillation

Answer: B



Watch Video Solution

40. The main ore of iron is its

- A. chloride
- B. sulphate
- C. Nitrate
- D. Oxide

Answer: D



Watch Video Solution

41. Mark the wrong statement among the following. The iron ore after washing is roasted with a little coal in excess of air. During roasting

- A. moisture is removed
- B. S and As are removed in the form of their volatile oxides
- C. Any ferrous oxide is oxidised to ferric oxide
- D. The mass becomes compact and thus makes it suitable for ready reduction to metallic iron.

Answer: D



Watch Video Solution

42. Most abundant ore of iron is

- A. magnetite
- B. haematite
- C. limonite

D. pyrites

Answer: B



Watch Video Solution

43. The reducing agent added in the extraction of Iron from oxide ore of iron is

A. coke

B. Aluminium

C. carbon monoxide

D. zinc

Answer: A



View Text Solution

44. The iron obtained from blast furnace is

- A. Pig iron
- B. Silver
- C. Soft iron
- D. Steel

Answer: A



Watch Video Solution

45. In the middle part of blast furnace, iron ore is treated with lime stone to remove

- A. *C*

B. CaO

C. SiO_2

D. Fe_2O

Answer: C



Watch Video Solution

46. In the manufacture of iron from haematite, the limestone acts as

A. A reducing agent

B. Flux

C. Slag

D. Gangue

Answer: B



Watch Video Solution

47. In the extraction of iron, the slag produced is

A. CO

B. $FeSiO_3$

C. $MgSiO_3$

D. $CaSiO_3$

Answer: D



Watch Video Solution

48. Which one of the following elements constitutes a major impurity in pig iron?

- A. Silicon
- B. Oxygen
- C. Sulphur
- D. Carbon

Answer: D



Watch Video Solution

49. In which of the following percentage of carbon is maximum

- A. Pig iron
- B. Cast iron

C. Wrought iron

D. Pig iron and wrought iron

Answer: A



Watch Video Solution

50. Weight ratio of roasted ore, coke and lime stone fed into the blast furnace in the manufacture of cast iron is

A. 8 : 1 : 4

B. 6 : 4 : 1

C. 8 : 4 : 1

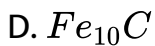
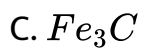
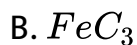
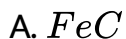
D. 8 : 4 : 3

Answer: C



Watch Video Solution

51. Carbon is present in pig Iron as



Answer: C



Watch Video Solution

52. Commercially important ore of copper is its

A. Oxide ore

B. sulphide ore

C. sulphate ore

D. silicate ore

Answer: B



View Text Solution

53. Which is the chief ore of copper ?

A. Galena

B. Copper pyrites

C. Sphalerite

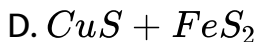
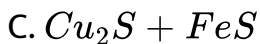
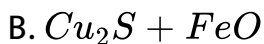
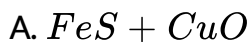
D. Siderite

Answer: B



[Watch Video Solution](#)

54. The matte obtained in the callurgy of copper has the approximate Composition



Answer: C



[Watch Video Solution](#)

55. The flux used in the smelting of copper pyrites is

A. lime stone

B. silica

C. borax

D. P_2O_5

Answer: B



Watch Video Solution

56. In the metallurgy of copper blister copper is obtained from

A. Blast furnace

B. Reverberatory furnace

C. Bessemer converter

D. Electrolytic tank

Answer: C



Watch Video Solution

57. Blister Cu is about :

A. 60% Cu

B. 98% Cu

C. 90% Cu

D. 100% Cu

Answer: C



Watch Video Solution

58. Zinc is obtained on large scale by

A. Electrolysis of $ZnCl_2$

B. Reduction of ZnO

C. Precipitation with Ag

D. Any of these methods

Answer: B



Watch Video Solution

59. in Belgian process for reduction of ZnO to Z reductant is

A. Al

B. Coal or Coke

C. H_2

D. Water gas

Answer: B



Watch Video Solution

60. The metal that occurs in the native state as well as in the combined form is

- A. Silver
- B. Magnesium
- C. Aluminum
- D. Manganese

Answer: A



Watch Video Solution

61. A common metal widely used in the displacement method to obtain other metals is

A. Cu

B. Fe

C. Zn

D. Ca

Answer: C



Watch Video Solution

62. The metal extracted by leaching with a cyanide is

A. Mg

B. Ag

C. Cu

D. Na

Answer: B



Watch Video Solution

63. The chemical reagent used for leaching of gold and silver ores is

A. Sodium hydroxide

B. Potassium cyanide

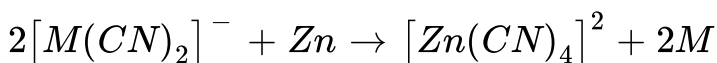
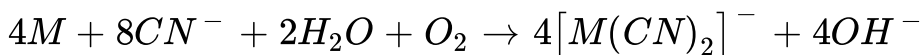
C. Potassium cyanate

D. Sodium sulphate

Answer: B

[Watch Video Solution](#)

64. Name the metal M, which is extracted based on the following equation



A. Cu

B. Au (or) Ag

C. Hg

D. Ni

Answer: B

[Watch Video Solution](#)

65. Of the following metals that cannot be obtained by electrolysis of the aqueous solution of their salts is /are

A. Ag

B. Mg

C. Cu

D. Al and Mg

Answer: D



Watch Video Solution

66. 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

Answer: A



View Text Solution

67. In the Bayer's process of purification of red hauxite the leaching agent is

A. NaOH

B. Na_2CO_3

C. NaCN

D. KCN

Answer: A



Watch Video Solution

68. Chemical leaching is useful in the concentration of

A. copper pyrites

B. bauxite

C. galena

D. cassiterite

Answer: B



Watch Video Solution

69. The electrolytic reduction method for the preparation of aluminium is called

- A. Hoope's process
- B. Baeyer's process
- C. Hall and Heroult process
- D. Serpeck process

Answer: C



Watch Video Solution

70. In the electrolytic reduction of alumina, the anodic product is

- A. Al

B. Na

C. O_2

D. H_2

Answer: C



View Text Solution

71. Coinage alloy contains copper. The other metal present may be

A. Fe

B. Ni

C. Zn

D. Pt

Answer: B



Watch Video Solution

72. Alloy used in making anchors, bolts, chains and wires

A. pig iron

B. cast iron

C. wrought iron

D. german silver

Answer: C



Watch Video Solution

73. (A) : Cassiterite mineral is concentrated by electromagnetic method

(R): Tinstone is non-magnetic and impurity wolframite is magnetic

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



View Text Solution

74. (A): Efficiency of the reverberatory furnace is less

(R): The waste gases formed in the furnace reactions leave the

furnace through chimney.

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: A



Watch Video Solution

75. (A): In the smelting of copper pyrites in blast furnace, Cu_2S formed but not FeS.

(R) : Cu has greater affinity to 'S' than to 'O' where as Fe has greater affinity to 'O' than to 'S'.

- A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

76. (A): Iron pyrate is used in the extraction of iron releases pollutants like sulphurdioxide

(R) : Ores which are abundant with non metals produce poluting gases

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: B



View Text Solution

77. (A) Reduction of a metal oxide is easier if the metal formed is in liquid state at the temperature of reduction .

(R) ΔG° for the net reaction, reduction of metal oxide with the reductant, is more -ve when the metal formed is in molten state

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

78. (A): Leaching is chemical method used to ore beneficiation process

(R): Leaching is usually performed in metallurgy with the help of a non aqueous solvent

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: C



View Text Solution

79. (A): Hydrated oxides are usually subjected to roasting

(R) : Hydrated oxides on heating loses water and gives oxide

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: D



View Text Solution

80. (A): Levigation is used for the separation of oxide ores from impurities

(R) : Ore particles are removed by washing in a current of water.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: C



View Text Solution

81. (A): High purity gallium for semiconducting purpose can be obtained by zone refining

(R): Zone refining works on the principle of fractional crystallisation, leading to high purity

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

82. (A): Copper metal can be extracted by electrolysis even from aqueous solution

(R): Copper ions are preferentially reduced to water in aqueous solution

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

83. (A): Last traces of lead from silver is removed by cupellation

(R): Lead will be converted to volatile litharge during cupellation, but silver remains.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



[View Text Solution](#)

84. (A): Zinc can be refined from lead by distillation

(R): Vapour pressure of lead is more compared to that of zinc

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: C



[View Text Solution](#)

85. (A): Metals like Sn and Pb can be refined by liquation

(R) : Sn and Pb are readily fusible and can be separated from

less fusible impurities on heating

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: A



Watch Video Solution

86. (A): Mond's process is used to refine nickel metal

(R) : With carbonmonoxide, nickel forms a neutral complex nickeltetracarbonyl.

- A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: B



Watch Video Solution

87. (A): Corrosion involves the oxidation of metal

(R): Oxidised form of metal is more stable than metal.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



View Text Solution

88. (A): Silver cyanide complex is treated with zinc to precipitate silver metal

(R): Zinc cyanide complex is more stable than silver cyanide complex.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



View Text Solution

89. (A): In aluminothermic process, Al reduction increases the heat of the reaction

(R): During reduction in thermit process, Al_2O_5 is formed which is an exothermic product.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



View Text Solution

90. (A) : Sulphide ores are concentrated by froth floatation process.

(R) : Pine oil acts as a frothing agent in froth floatation process.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: B



Watch Video Solution

91. (A): Platinum and gold occur in native state in nature.

(R): Platinum and gold are noble metals

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: A



Watch Video Solution

92. (A): Graphite is an example of neutral refractory material used in furnaces

(R) : Chemically graphite is most stable allotrope of carbon

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false

D. A is false, R is true

Answer: C



Watch Video Solution

93. Which of the following is true ?

A. A mineral need not be an ore

B. An ore can't be a mineral

C. All ores are not minerals

D. All minerals are ores

Answer: A



Watch Video Solution

94. Which of the following is not found in native state ?

A. Pt

B. Cu

C. Au

D. Na

Answer: D



Watch Video Solution

95. Cassiterite ore is used to extract

A. Fe

B. Sn

C. Au

D. Pb

Answer: B



Watch Video Solution

96. The metal never found in free state is

A. Au

B. Ag

C. Pt

D. Zn

Answer: D



Watch Video Solution

97. Both calcination and roasting can be performed in

A. Reverberatory furnace

B. Blast furnace

C. Muffle furnace

D. Electric furnace

Answer: A



Watch Video Solution

98. Copper pyrites ore is concentrated by

A. Electromagnetic method

B. Gravity separation method

C. Froth floatation method

D. All the above methods

Answer: C



Watch Video Solution

99. Which one of the following is not a method of concentration of ore

- A. gravity separation
- B. froth flotation process
- C. electromagnetic separation
- D. smelting

Answer: D



Watch Video Solution

100. Most abundant element in the earth's crust by weight is

- A. Oxygen
- B. Silicon
- C. Alluminuim
- D. Iron

Answer: A



Watch Video Solution

101. The rocky and silicious matter associated with an ore is called

- A. Slag

B. Mineral

C. Matrix or Gangue

D. Flux

Answer: C



Watch Video Solution

102. The process of removing of lighter ganse particles by washing in a current of water is called

A. Levigation (or) gravity separation

B. Liquiation

C. Leaching

D. Cupellation

Answer: A



Watch Video Solution

103. In the froth flotation process for the purification of minerals the particles float because

- A. they are light
- B. they are insoluble
- C. their surface is preferentially wetted by oil
- D. they bear an electrostatic charge

Answer: C



Watch Video Solution

104. Froth floatation process for the concentration of ores is an illustration of the practical application of

- A. Adsorption
- B. Absorption
- C. Coagulation
- D. Sedimentation

Answer: A



Watch Video Solution

105. Gravity separation process may be used for the concentration of

- A. Chalcopyrite

B. Bauxite

C. Haematite

D. Calamine

Answer: C



Watch Video Solution

106. Wolframite ($FeWO_4$) is separated from cassiterite by

A. Froth flotation method

B. levigation

C. electromagnetic method

D. electrostatic separation method

Answer: C



[Watch Video Solution](#)

107. In the extraction of gold ,alluival sand is conected by which method

- A. Gavity separation
- B. Frouth floatation
- C. magnetic separation
- D. Liquation

Answer: A



[Watch Video Solution](#)

108. Which one of the following is used as conditioner in froth flotation process

- A. pine oil
- B. sodium ethyl xanthate
- C. Sodium carbonate
- D. Olive oil

Answer: C



Watch Video Solution

109. During extraction of a metal the ore is roasted if it is a

- A. sulphate ore
- B. sulphide ore

C. Carbonate ore

D. Oxide ore

Answer: A



Watch Video Solution

110. A common metal that is used for the extraction of some metals from their oxides is

A. Cr

B. Fe

C. Mn

D. Al

Answer: D



[Watch Video Solution](#)

111. Extraction of metals from sulphide ores is done by

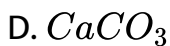
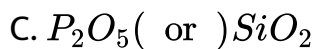
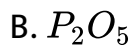
- A. Electrolysis
- B. smelting
- C. Hydrometallurgy
- D. Roasting

Answer: B



[Watch Video Solution](#)

112. To remove basic impurities from the ore the substance generally used is



Answer: C



Watch Video Solution

113. During smelting an additional substance added to form a fusible product. It is known as

A. Slag

B. Mud

C. Gangue

D. Flux

Answer: D



Watch Video Solution

114. Calcination is the process of heating the ore :

A. in inert gas

B. in the presence of air

C. in the absence of air

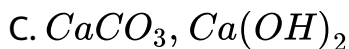
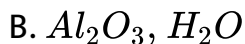
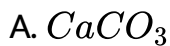
D. in the presence of CaO and MgO

Answer: C



Watch Video Solution

115. To which of the following ores, calcination process is not applicable



Answer: D



Watch Video Solution

116. Roasting is carried out in case of

A. Galena

B. Iron pyrites

C. Copper glance

D. All

Answer: D



Watch Video Solution

117. Smelting is usually carried out in

A. Blast furnace

B. Open hearth furnnce

C. Muffle furnace

D. Electric furnace

Answer: A



Watch Video Solution

118. Slag is a product of

- A. Flux and coke
- B. Coke and metal oxide
- C. Flux and impurities
- D. Metal and flux

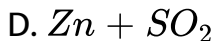
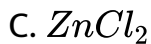
Answer: C



Watch Video Solution

119. In oxidising roasting of Zn, the products are

- A. $ZnO + SO_2$
- B. $ZnO + ZnSO_4 + SO_2$

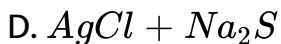
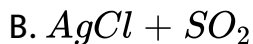
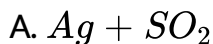


Answer: A



Watch Video Solution

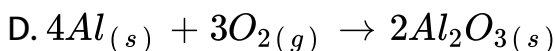
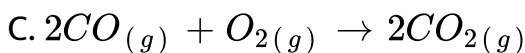
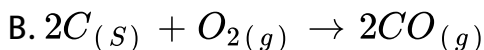
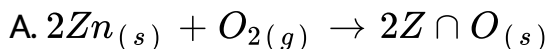
120. Ag_2S or in mixed with $NaCl$ and heated to 6000° in the presence of air then product formed are



Answer: C

[Watch Video Solution](#)

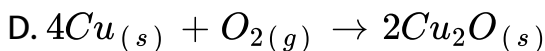
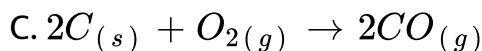
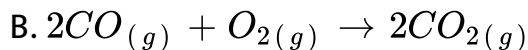
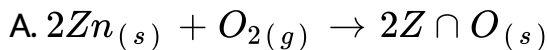
121. For which one the following reaction ΔS is positive



Answer: B

[Watch Video Solution](#)

122. For which one of the following reaction ΔG decreases with increasing the temperature

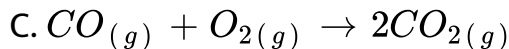
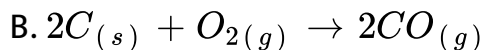
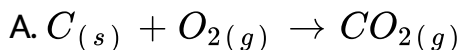


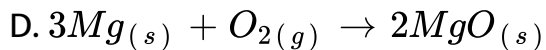
Answer: C



Watch Video Solution

123. For which one of the following reaction , the graph of ΔG against T is almost horizontal to temperature axis





Answer: A



Watch Video Solution

124. The least stable oxide at room temperature is

A. ZnO

B. Cu O

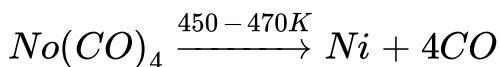
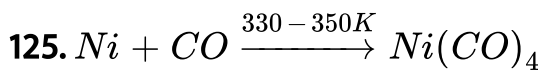
C. Sb_2O_3

D. Ag_2O

Answer: D



Watch Video Solution



This sequence of reactions are involved in

- A. Van Arkel method for refining of nickel
- B. Mond's process for refining of nickel
- C. Zone refining of nickel
- D. Refining of nickel by distillation

Answer: B



Watch Video Solution

126. The process of zone refining is used for

- A. Silicon

- B. Germanium
- C. Gallium
- D. all the above

Answer: D



Watch Video Solution

127. The process used in the refining of aluminium and zinc metals are respectively

- A. Hoope's process and fractional distillation
- B. Hoope's process and cupellation
- C. Poling and fractional distillation
- D. Cupellation and fractional distillation

Answer: A



Watch Video Solution

128. In the metallurgy of which of the following supellation process is used ?

A. Copper

B. silver

C. Iron

D. Aluminium

Answer: B



Watch Video Solution

129. In zone - Refining method 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

Answer: B



Watch Video Solution

130. Tin and lead can be refined by

- A. Cupellation
- B. Liquation

C. Poling

D. Bessmerisations

Answer: B



Watch Video Solution

131. Silver containing lead as an impurity is not purified by

A. Poling

B. Cupellation

C. Levigation

D. Distillation

Answer: B



Watch Video Solution

132. The main ore of iron is its

- A. chloride
- B. sulphate
- C. Nitrate
- D. Oxide

Answer: D



Watch Video Solution

133. Mark the wrong statement among the following. The iron ore after washing is roasted with a little coal in excess of air. During roasting

- A. moisture is removed
- B. S and As are removed in the form of their volatile oxides
- C. Any ferrous oxide is oxidised to ferric oxide
- D. The mass becomes compact and thus makes it suitable for ready reduction to metallic iron.

Answer: D



Watch Video Solution

134. Most abundant ore of iron is

- A. magnetite
- B. haematite
- C. limonite

D. pyrites

Answer: B



Watch Video Solution

135. The reducing agent added in the extraction of Iron from oxide ore of iron is

A. coke

B. Aluminium

C. carbon monoxide

D. zinc

Answer: A



Watch Video Solution

136. The iron obtained from blast furnace is

- A. Pig iron
- B. Silver
- C. Soft iron
- D. Steel

Answer: A



Watch Video Solution

137. In the middle part of blast furnace, iron ore is treated with lime stone to remove

- A. *C*

B. CaO

C. SiO_2

D. Fe_2O

Answer: C



Watch Video Solution

138. In the manufacture of iron from haematite, the limestone acts as

A. A reducing agent

B. Flux

C. Slag

D. Gangue

Answer: B



Watch Video Solution

139. In the extraction of iron, the slag produced is

A. CO

B. $FeSiO_3$

C. $MgSiO_3$

D. $CaSiO_3$

Answer: D



Watch Video Solution

140. Which one of the following elements constitutes a major impurity in pig iron?

- A. Silicon
- B. Oxygen
- C. Sulphur
- D. Carbon

Answer: D



Watch Video Solution

141. In which of the following percentage of carbon is maximum

- A. Pig iron
- B. Cast iron

C. Wrought iron

D. Pig iron and wrought iron

Answer: A



Watch Video Solution

142. Weight ratio of roasted ore, coke and lime stone fed into the blast furnace in the manufacture of cast iron is

A. 8 : 1 : 4

B. 6 : 4 : 1

C. 8 : 4 : 1

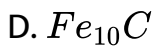
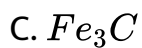
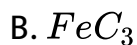
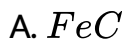
D. 8 : 4 : 3

Answer: C



Watch Video Solution

143. Carbon is present in pig Iron as



Answer: C



Watch Video Solution

144. Commercially important ore of copper is its

A. Oxide ore

B. sulphide ore

C. sulphate ore

D. silicate ore

Answer: B



Watch Video Solution

145. Which is the chief ore of copper ?

A. Galena

B. Copper pyrites

C. Sphalerite

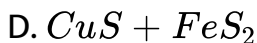
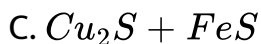
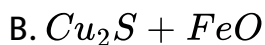
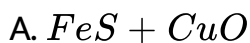
D. Siderite

Answer: B



[Watch Video Solution](#)

146. The matte obtained in the callurgy of copper has the approximate Composition



Answer: C



[Watch Video Solution](#)

147. The flux used in the smelting of copper pyrites is

A. lime stone

B. silica

C. borax

D. P_2O_5

Answer: B



Watch Video Solution

148. In the metallurgy of copper blister copper is obtained from

A. Blast furnace

B. Reverberatory furnace

C. Bessemer converter

D. Electrolytic tank

Answer: C



Watch Video Solution

149. Blister Cu is about :

- A. 60% Cu
- B. 98% Cu
- C. 90% Cu
- D. 100% Cu

Answer: C



Watch Video Solution

150. Zinc is obtained on large scale by

A. Electrolysis of $ZnCl_2$

B. Reduction of ZnO

C. Precipitation with Ag

D. Any of these methods

Answer: B



Watch Video Solution

151. in Belgian process for reduction of ZnO to Z reductant is

A. Al

B. Coal or Coke

C. H_2

D. Water gas

Answer: B



Watch Video Solution

152. The metal that occurs in the native state as well as in the combined form is

- A. Silver
- B. Magnesium
- C. Aluminum
- D. Manganese

Answer: A



Watch Video Solution

153. A common metal widely used in the displacement method to obtain other metals is

A. Cu

B. Fe

C. Zn

D. Ca

Answer: C



Watch Video Solution

154. The metal extracted by leaching with a cyanide is

A. Mg

B. Ag

C. Cu

D. Na

Answer: B



Watch Video Solution

155. The chemical reagent used for leaching of gold and silver ores is

A. Sodium hydroxide

B. Potassium cyanide

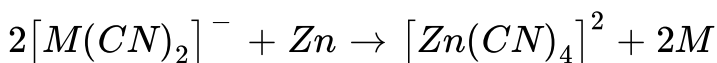
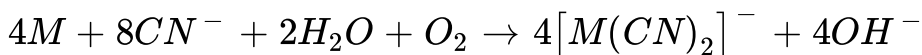
C. Potassium cyanate

D. Sodium sulphate

Answer: B

[Watch Video Solution](#)

156. Name the metal M, which is extracted based on the following equation



A. Cu

B. Au (or) Ag

C. Hg

D. Ni

Answer: B

[Watch Video Solution](#)

157. Of the following metals that cannot be obtained by electrolysis of the aqueous solution of their salts is /are

A. Ag

B. Mg

C. Cu

D. Al and Mg

Answer: D



Watch Video Solution

158. 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

Answer: A



Watch Video Solution

159. In the Bayer's process of purification of red hauxite the leaching agent is

A. NaOH

B. Na_2CO_3

C. NaCN

D. KCN

Answer: A



Watch Video Solution

160. Chemical leaching is useful in the concentration of

- A. copper pyrites
- B. bauxite
- C. galena
- D. cassiterite

Answer: B



Watch Video Solution

161. The electrolytic reduction method for the preparation of aluminium is called

- A. Hoope's process
- B. Baeyer's process
- C. Hall and Heroult process
- D. Serpeck process

Answer: C



Watch Video Solution

162. During the electrolytic reduction of alumina, the reaction at cathode is

- A. Al

B. Na

C. O_2

D. H_2

Answer: C



Watch Video Solution

163. Coinage alloy contains copper. The other metal present may be

A. Fe

B. Ni

C. Zn

D. Pt

Answer: B



Watch Video Solution

164. Alloy used in making anchors, bolts, chains and wires

A. pig iron

B. cast iron

C. wrought iron

D. german silver

Answer: C



Watch Video Solution

165. (A) : Cassiterite mineral is concentrated by electromagnetic method

(R): Tinstone is non-magnetic and impurity wolframite is magnetic

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

166. (A) Efficiency of the reverboratary furnace is less

(R) The waste gases formed in the furnace reactions leave the

furnace through chimney .

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: A



Watch Video Solution

167. (A): In the smelting of copper pyrites in blast furnace, Cu_2S formed but not FeS.

(R): Ca has greater affinity to 'S' than to where as Fe has greater affinity to than to's

- A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

168. (A): Iron pyrate is used in the extraction of iron releases pollutants like sulphurdioxide

(R) : Ores which are abundant with non metals produce poluting gases

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: B



Watch Video Solution

169. (A) Reduction of a metal oxide is easier if the metal formed is in liquid state at the temperature of reduction .

(R) ΔG° for the net reaction, reduction of metal oxide with the reductant, is more -ve when the metal formed is in molten state

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

170. (A): Leaching is chemical method used to ore beneficiation process

(R): Leaching is usually performed in metallurgy with the help of a non aqueous solvent

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: C



Watch Video Solution

171. (A): Hydrated oxides are usually subjected to roasting

(R) : Hydrated oxides on heating loses water and gives oxide

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: D



Watch Video Solution

172. (A): Levigation is used for the separation of oxide ores from impurities

(R) : Ore particles are removed by washing in a current of water.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: C



Watch Video Solution

173. (A): High purity gallium for semiconducting purpose can be obtained by zone refining

(R): Zone refining works on the principle of fractional crystallisation, leading to high purity

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

174. (A): Copper metal can be extracted by electrolysis even from aqueous solution

(R): Copper ions are preferentially reduced to water in aqueous solution

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

175. (A): Last traces of lead from silver is removed by cupellation

(R): Lead will be converted to volatile litharge during cupellation, but silver remains.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A

176. (A): Zinc can be refined from lead by distillation

(R): Vapour pressure of lead is more compared to that of zinc

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: C

177. (A): Metals like Sn and Pb can be refined by liquation

(R) : Sn and Pb are readily fusible and can be separated from

less fusible impurities on heating

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: A



Watch Video Solution

178. (A): Mond's process is used to refine nickel metal

(R) : With carbonmonoxide, nickel forms a neutral complex nickeltetracarbonyl.

- A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: B



Watch Video Solution

179. (A): Corrosion involves the oxidation of metal

(R): Oxidised form of metal is more stable than metal.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

180. (A): Silver cyanide complex is treated with zinc to precipitate silver metal

(R): Zinc cyanide complex is more stable than silver cyanide complex.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

181. (A): In aluminothermic process, Al reduction increases the heat of the reaction

(R): During reduction in thermit process, Al_2O_5 is formed which is an exothermic product.

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: A



Watch Video Solution

182. (A) : Sulphide ores are concentrated by froth floatation process.

(R) : Pine oil acts as a frothing agent in froth floatation process.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: B



Watch Video Solution

183. (A): Platinum and gold occur in native state in nature.

(R): Platinum and gold are noble metals

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

184. (A): Graphite is an example of neutral refractory material used in furnaces

(R) : Chemically graphite is most stable allotrope of carbon

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: C



Watch Video Solution

Objective Exercise 2

List - I (mineral)

List - II (type of mineral)

1) Zircon

a) Sulphate

2) Monite

b) Silicate

3) Pentlandite

c) Sulphide

4) Anglesite

d) Phosphate

1.

Correct

Match is

A. 1 2 3 4
b d c a

B. 1 2 3 4
a b c d

C. 1 2 3 4
b c d a

D.

1	2	3	4
<i>a</i>	<i>d</i>	<i>c</i>	<i>b</i>

Answer: A



Watch Video Solution

2. X' is substance which combines chemically with impurities associated with the ore to form casily fusible mass'Y! Her X and Yare

A. Flux, slag

B. Slag, flux

C. Gangue, slag

D. Reductant, flux

Answer: A



[Watch Video Solution](#)

3. In Goldsmith thermite process reductant in

- A. Coke
- B. Aluminium
- C. Water gas
- D. Carbonmonoxide

Answer: B



[Watch Video Solution](#)

4. In which of the following products are in the molte state

- A. Calcination

B. Oxidizing roasting

C. Sulphatizing roasting

D. Smelting

Answer: D



Watch Video Solution

- 4.
- | List -I | List -II |
|--------------------|--|
| A) vanArkel method | 1) Manufacture of caustic soda |
| B) Solvay process | 2) Purification of Titanium |
| C) Cupellation | 3) Manufacture of Na_2CO_3 |
| D) Poling | 4) Purification of copper |
| | 5) Refining of silver |
- 5.

A.

A	B	C	D
2	1	3	4

B. $(A, B, C, D), (, 4, 3, 2, 5)$

C.

A	B	C	D
2	3	5	4

D.

A	B	C	D
5	1	3	4

Answer: C



Watch Video Solution

List - I

- 1) Argentite
- 2) Horn silver
- 3) Ruby silver
- 4) Sylvine

List - II

- a) KCl
- b) $AgCl$
- c) Ag_2S
- d) $3Ag_2S.Sb_2S_3$

6.

The

correct Match is

A.

1	2	3	4
c	a	d	b

B.

1	2	3	4
d	b	c	a

C.

1	2	3	4
c	b	d	a

- D.

1	2	3	4
<i>d</i>	<i>c</i>	<i>b</i>	<i>a</i>

Answer: C



Watch Video Solution

7. Match the following

List - I

- I. Cyanide process
- II. Flootation process
- III. Electrolytic reduction
- IV. Zone refining

List - II

- a) Ultrapure Ge
- b) Pine oil
- c) Extraction of Al
- d) Extraction of Au

A. I - (C), II - (a), III - (d), IV - (b)

B. I - (d), II - (b), III - (c), IV - (a)

C. I - (C), II - (b), III - (d), IV - (a)

D. I - (d), II - (a), III - (C), IV - (b)

Answer: B



Watch Video Solution

8. Match the following

List-I (Concentration method)

- 1) Hydraulic washing
- 2) Magnetic separation
- 3) Froth flotation
- 4) Leaching

List-II (Principle)

- a) Difference in solubility of gangue and ore particles in a specific substance
- b) Difference in wetting property of ore and gangue particles
- c) Difference in gravities of ore and gangue particles

d) Difference in magnetic property of gangue and ore particles

The correct match is

A. 1 2 3 4
 b *d* *c* *a*

B. 1 2 3 4
 a *b* *c* *d*

C. 1 2 3 4
 a *d* *b* *c*

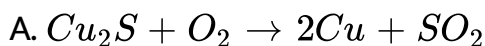
D. 1 2 3 4
 c *d* *b* *a*

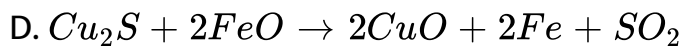
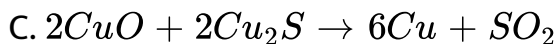
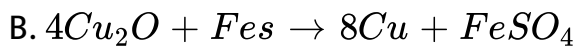
Answer: D



Watch Video Solution

9. The final step in the metallurgical extraction of Cu metal from Cu pyrites takes place in a Bessemer converter. The reaction taking place



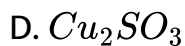
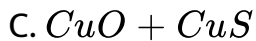
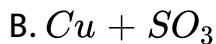
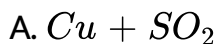


Answer: C



Watch Video Solution

10. Heating mixture of Cu_2O and Cu_2S will give



Answer: A

[Watch Video Solution](#)

11. In the extraction of silver from argentite are the one is treated with dilute solution of NaCN in water in the presence of Y, whereby the following reaction takes place.

$Ag_2X + 4NaCN + 2Y \rightarrow 2Na[Ag(CN)_2] + Na_2XO_4$ X and Y in this reaction are represented by

- A. Cl and S
- B. S and O_2
- C. O and O_2
- D. O and S

Answer: B

[Watch Video Solution](#)

12. Which of the following is not a characteristic of open - hearth process

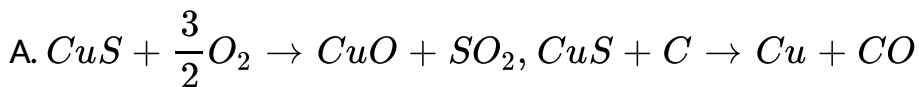
- A. The quality of steel obtained is very high
- B. Composition of steel can be controlled
- C. A blast of air is used in the furnace
- D. Iron scrap and lower grade pig iron can be used

Answer: C

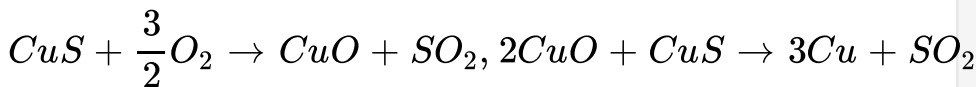


Watch Video Solution

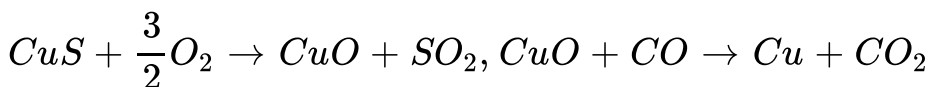
13. Formation of metallic copper from the sulphide ore in the normal thermo-metallurgical process essentially involves which one of the following reaction ?



B.



D.



Answer: B



Watch Video Solution

14. Which of the following reagent is used to separate the impurity from red bauxite

A. Conc. HCl

B. H_2SO_4

C. $NaOH$

D. HNO_3

Answer: C



Watch Video Solution

15. A mixture of Al_2O_3 and Fe_2O_3 can be separated by using

A. Sodium hydroxide

B. Cold water

C. Ethyl alcohol

D. Boiling water

Answer: A



[Watch Video Solution](#)

16. Percentages of copper and zinc present in a alloy brass, are respectively

A. 60 % and 40%

B. 40% and 60%

C. 0 % and 100%

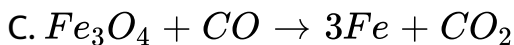
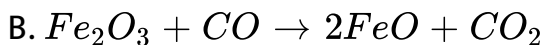
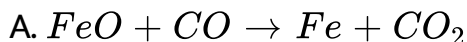
D. 100 % and 0%

Answer: A



[Watch Video Solution](#)

17. In the blast furnace, the reaction that is taking place at the temperature zone of 900 K to 1500 K is



D. All the above reactions

Answer: A



Watch Video Solution

18. Metal used in the extraction of Mn and Cr from their oxides is

A. Ag

B. Cu

C. Al

D. Fe

Answer: C



Watch Video Solution

19. Impurity present in red bauxite is

A. ZnO

B. Fe_2O_3

C. SiO_2

D. Al_2O_3

Answer: B



[Watch Video Solution](#)

20. Metal extracted from molten cryolite is

A. Al

B. Fe

C. Zn

D. Ag

Answer: A



[Watch Video Solution](#)

21. Metal commonly present in bronze, brass and German silver is

A. Cu

B. Ag

C. Zn

D. Fe

Answer: A



Watch Video Solution

List - I (mineral)

List - II (type of mineral)

1) Zircon

a) Sulphate

2) Monite

b) Silicate

3) Pentlandite

c) Sulphide

4) Anglesite

d) Phosphate

22.

Correct

Match is

A. 1 2 3 4
 b d c a

- 1 2 3 4
B. a b c d
- 1 2 3 4
C. b c d a
- 1 2 3 4
D. a d c b

Answer: A



Watch Video Solution

23. X' is substance which combines chemically with impurities associated with the ore to form casily fusible mass'Y! Her X and Yare

- A. Flux, slag
- B. Slag, flux
- C. Gangue, slag
- D. Reductant, flux

Answer: A



Watch Video Solution

24. In Goldsmith thermite process reductant in

A. Coke

B. Aluminium

C. Water gas

D. Carbonmonoxide

Answer: B



Watch Video Solution

25. In which of the following products are in the molte state

- A. Calcination
- B. Oxidizing roasting
- C. Sulphatizing roasting
- D. Smelting

Answer: D



Watch Video Solution

26. Match the following

List - I

- 1) Liquation
- 2) Poling
- 3) Cupellation
- 4) Distillation

List - II

- a) Volatile metals with non volatile impurity
- b) Metal with its metal oxides as impurity
- c) Metal with easily oxidisable impurities
- d) Metal and impurities differ in M.P.

- A. $\begin{matrix} 1 & 2 & 3 & 4 \\ a & b & c & d \end{matrix}$
- B. $\begin{matrix} 1 & 2 & 3 & 4 \\ d & c & b & a \end{matrix}$
- C. $\begin{matrix} 1 & 2 & 3 & 4 \\ d & b & c & a \end{matrix}$
- D. $\begin{matrix} 1 & 2 & 3 & 4 \\ a & b & d & c \end{matrix}$

Answer: C



Watch Video Solution

27. Various types of zone in the blast burnace are given in the list -I and reactions take place in the extraction of iron are given in list - II.

List - I

- 1) Zone of reduction
- 2) Zone of heat
absorption
- 3) Zone of fusion

List - II

- a) $C + O_2 \rightarrow CO_2$
- b) $CO_2 + C \rightarrow 2CO$
- c) $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

A. $\begin{matrix} 1 & 2 & 3 \\ a & b & c \end{matrix}$

B. $\begin{matrix} 1 & 2 & 3 \\ c & b & a \end{matrix}$

C. $\begin{matrix} 1 & 2 & 3 \\ b & c & a \end{matrix}$

D. $\begin{matrix} 1 & 2 & 3 \\ c & a & b \end{matrix}$

Answer: B



Watch Video Solution

List -I

List -II

- | | |
|--------------------|--|
| A) vanArkel method | 1) Manufacture of caustic soda |
| B) Solvay process | 2) Purification of Titanium |
| C) Cupellation | 3) Manufacture of Na_2CO_3 |
| D) Poling | 4) Purification of copper |
| | 5) Refining of silver |

28.

A. $\begin{matrix} A & B & C & D \\ 2 & 1 & 3 & 4 \end{matrix}$

B. $(A, B, C, D), (, 4, 3, 2, 5)$

C.

	A	B	C	D
	2	3	5	4

D.

	A	B	C	D
	5	1	3	4

Answer: C



Watch Video Solution

29.

1) Oxide

2) Carbonate

3) Sulphide

4) Silicate

a) Kaolinite

b) Calamine

c) Copper glance

d) Cuprite

A.

1	2	3	4
d	b	c	a

B.

1	2	3	4
b	d	a	c

C.

1	2	3	4
a	b	c	d

D.

1	2	3	4
b	a	c	d

Answer: A



Watch Video Solution

List - I

- 1) Argentite
- 2) Horn silver
- 3) Ruby silver
- 4) Sylvine

List - II

- a) KCl
- b) $AgCl$
- c) Ag_2S
- d) $3Ag_2S.Sb_2S_3$

30.

The

correct Match is

A.

1	2	3	4
c	a	d	b

B.

1	2	3	4
d	b	c	a

C.

1	2	3	4
c	b	d	a

D.

1	2	3	4
d	c	b	a

Answer: C

31. Match the following

List - I

- I. Cyanide process
- II. Floatation proces
- III. Electrolytic reduction
- IV. Zone refining

List - II

- a) Ultrapure Ge
- b) Pine oil
- c) Extraction of Al
- d) Extraction of Au

A. I - (C), II - (a), III - (d), IV - (b)

B. I - (d), II - (b), III - (c), IV - (a)

C. I - (C), II - (b), III - (d), IV - (a)

D. I - (d), II - (a), III - (C), IV - (b)

Answer: B

32. Match the following

List-I (Concentration method)

- 1) Hydraulic washing
- 2) Magnetic separation
- 3) Froth flotation
- 4) Leaching

List-II (Principle)

- a) Difference in solubility of gangue and ore particles in a specific substance
- b) Difference in wetting property of ore and gangue particles
- c) Difference in gravities of ore and gangue particles
- d) Difference in magnetic property of gangue and ore particles

The correct match is

A. 1 2 3 4
 b d c a

B. 1 2 3 4
 a b c d

C. $\begin{array}{cccc} 1 & 2 & 3 & 4 \\ a & d & b & c \end{array}$

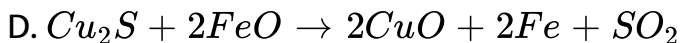
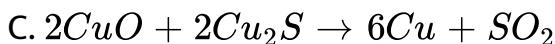
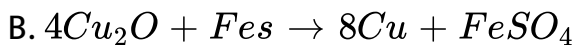
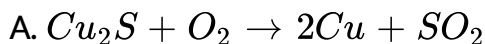
D. $\begin{array}{cccc} 1 & 2 & 3 & 4 \\ c & d & b & a \end{array}$

Answer: D



Watch Video Solution

33. The final step in the metallurgical extraction of Cu metal from Cu pyrites takes place in a Bessemer converter. The reaction taking place

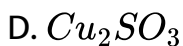
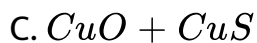
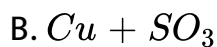
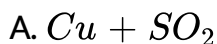


Answer: C



Watch Video Solution

34. Heating a mixture of Cu_2O and Cu_2S will give

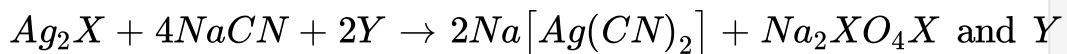


Answer: A



Watch Video Solution

35. In the extraction of silver from argentite are the one is treated with dilute solution of NaCN in water in the presence of Y, whereby the following reaction takes place.



in this reaction are represented by

- A. Cl and S
- B. S and O_2
- C. O and O_2
- D. O and S

Answer: B



Watch Video Solution

36. Which of the following is not a characteristic of open - hearth process

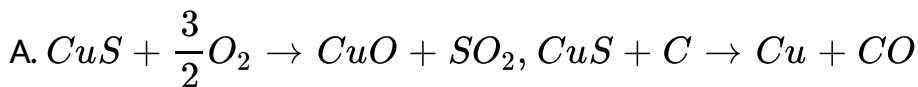
- A. The quality of steel obtained is very high
- B. Composition of steel can be controlled
- C. A blast of air is used in the furnace
- D. Iron scrap and lower grade pig iron can be used

Answer: C

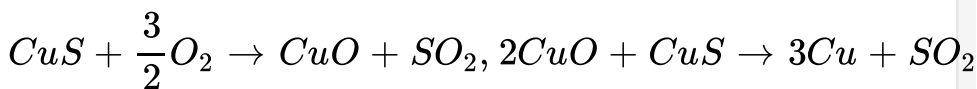


Watch Video Solution

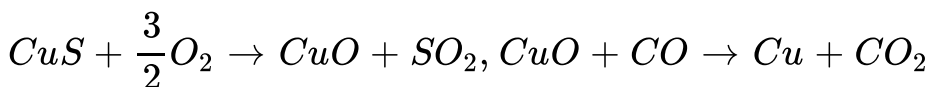
37. Formation of metallic copper from the sulphide ore in the normal thermo-metallurgical process essentially involves which one of the following reaction ?



B.



D.



Answer: B



Watch Video Solution

38. Which of the following reagent is used to separate the impurity from red bauxite

A. Conc. HCl

B. H_2SO_4

C. $NaOH$

D. HNO_3

Answer: C



Watch Video Solution

39. A mixture of Al_2O_2 and Fe_2 can be separated by using

A. Sodium hydroxide

B. Cold water

C. Ethyl alcohol

D. Boiling water

Answer: A



[Watch Video Solution](#)

40. Percentages of copper and zinc present in a alloy brass, are respectively

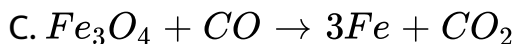
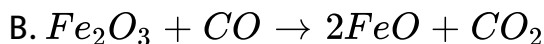
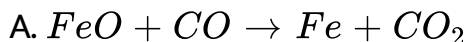
- A. 60 % and 40%
- B. 40% and 60%
- C. 0 % and 100%
- D. 100 % and 0%

Answer: A



[Watch Video Solution](#)

41. In the blast furnace, the reaction that is taking place at the temperature zone of 900 K to 1500 K is



D. All the above reactions

Answer: A



Watch Video Solution

42. Metal used in the extraction of Mn and Cr from their oxides is

A. Ag

B. Cu

C. Al

D. Fe

Answer: C



Watch Video Solution

43. Impurity present in red bauxite is

A. ZnO

B. Fe_2O_3

C. SiO_2

D. Al_2O_3

Answer: B



[Watch Video Solution](#)

44. Metal extracted from molten cryolite is

A. Al

B. Fe

C. Zn

D. Ag

Answer: A



[Watch Video Solution](#)

45. Metal commonly present in bronze, brass and German silver is

A. Cu

B. Ag

C. Zn

D. Fe

Answer: A



Watch Video Solution

Practice Exercise

1. Nickel steel is used in making

A. Cycles

B. Alensils

C. Cutting tools

D. Cables

Answer: D



View Text Solution

2. Carbonate or hydroxide ores are generally converted to their oxides by

A. Roasting

B. Calcination

C. Smelting

D. Fluxing

Answer: B



[Watch Video Solution](#)

3. Most abundant metal in the earth's crust is

A. Si

B. Al

C. Mg

D. Fe

Answer: B



[Watch Video Solution](#)

4. Gravity separation method is based upon.

A. Preferential washing of ores and gangue particles

- B. Difference in densities of ore particles and impurities
- C. Difference in chemical properties of ore particles and impurities
- D. None of these

Answer: B



Watch Video Solution

5. Among the following statements the incorrect one is

- A. Calamine and siderite are carbonates
- B. Argentite and cuprite are oxides
- C. Zinc blende and iron pyrites are sulphides
- D. Malachite and azurite are ores of copper

Answer: B



Watch Video Solution

6. Refractory metals are used in construction of furnaces because

A. they can withstand high temperature

B. they are chemically inert

C. their melting point is high

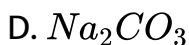
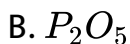
D. their boiling point is low

Answer: A



Watch Video Solution

7. The substance widely used to remove silica present as impurity, from the ore is



Answer: A



Watch Video Solution

8. Extraction of aluminium from aluminium oxide (Al_2O_3) is
het done by

A. electrolytic reduction of Al_2O_3

B. reduction of Al_2O_3 with carbon

C. reduction of Al_2O_3 with sodium

D. reduction of Al_2O_3 with CO

Answer: A



Watch Video Solution

9. the most electropositive metals are isolated from their ores by

A. High temperature reduction with carbon

B. Self reduction

C. Thermal decomposition

D. Electrolysis of fused ionic salts

Answer: D



[Watch Video Solution](#)

10. Siderite mineral is

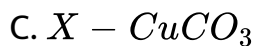
- A. Sulphate of iron
- B. Carbonate of zinc
- C. Sulphate of zinc
- D. Carbonate of iron

Answer: D



[Watch Video Solution](#)

11. Chemical composition of malachite is 'X'. Then the composition of azurite is

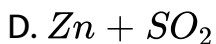
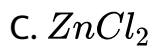
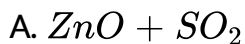


Answer: A



Watch Video Solution

12. In sulphatizing roasting of Zns, products are



Answer: B



Watch Video Solution

13. In order to refine blister copper it is melted in a furnace and is stirred with green logs of wood the purpose is

- A. To expel the dissolved gases in the blister
- B. To bring the impurities to surface and oxidise them
- C. To increase the carbon content of copper
- D. To reduce the metallic oxide impurities with hydrocarbon gases liberated from the wood

Answer: D



Watch Video Solution

14. Which of the following process is used for concentration of ores and for refining metals

- A. Liquation
- B. Leaching
- C. distillation
- D. Poling

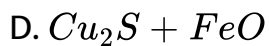
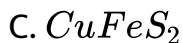
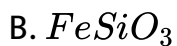
Answer: A



Watch Video Solution

15. The chemical composition of slag formed during smelting process in the extraction of Cu is





Answer: B



Watch Video Solution

16. Impurities in the zinc spelter are

A. Ag and Au

B. Cd and Pd

C. Cd and Pb

D. Cd As and Au

Answer: C



[View Text Solution](#)

17. Role of limestone used in re extraction

- A. Oxidation of Fe ore
- B. Reduction of Fe ore
- C. Formation of slag
- D. Purification of Fe formed

Answer: C



[Watch Video Solution](#)

18. The purest form of commercial iron is

- A. Pig iron

B. Cast iron

C. Wrought iron

D. Pig iron and cast iron

Answer: C



Watch Video Solution

19. Percent purity of iron in cast iron is

A. 90

B. 94

C. 97

D. 99

Answer: D



[Watch Video Solution](#)

20. Native silver metal forms a water soluble complex with a dilute aqueous solution of NaCN in the presence of

- A. Nitrogen
- B. Oxygen
- C. Carbon dioxide
- D. Argon

Answer: B



[Watch Video Solution](#)

21. Which of the following metals can be used for precipitation of silver from sodium argento cyanide solution

A. Zn

B. Cu

C. Al

D. All

Answer: D



Watch Video Solution

22. In the Down's process at low temperature sodium extracted is more because

A. Solubility of sodium metal in fused electrolyte is less

- B. Vapour pressure of sodium is more
- C. Solubility of sodium in fused state is high
- D. Common salt is the electrolyte used

Answer: A



Watch Video Solution

23. Aqueous sodium cyanide is used as a reagent in the metal extraction. This process is called

- A. Pyrometallurgy
- B. Electrometallurgy
- C. Hydrometallurgy
- D. None of these

Answer: C



Watch Video Solution

24. Metal is precipitated from $Au(CN)_4^{3-}$ using zinc as a precipitant. Along with Au, a complex compound of zinc is also formed as product. The 1° and 2° valencies in the complex are

A. 2, 3

B. 2, 6

C. 1, 4

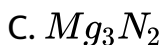
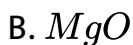
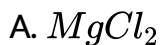
D. 2, 4

Answer: D



Watch Video Solution

25. The best electrolyte for the extraction of magnesium metal is



Answer: A



View Text Solution

26. Which one of the following is the mineral for tin?

A. galena

B. cerussite

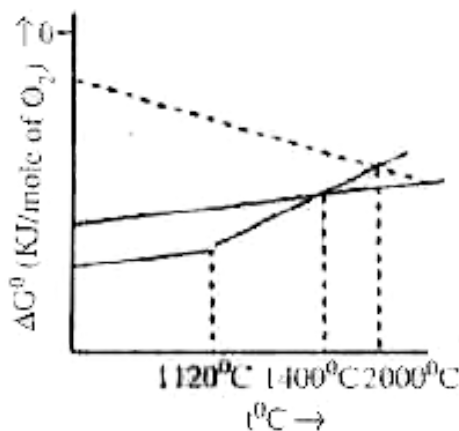
C. cassiterite

D. Anglesite

Answer: C

 Watch Video Solution

27. Some statements about the below Ellingham diagram are given below



(a) At 1120°C MgO will melt

(b) At the temperatures below 1400°C , Mg can reduce Al_2O_3

and at the temperature above 1400°C Al reduces MgO

(c) At the temperature above 2000°C , carbon can reduce MgO

The correct statement is/are

A. only a

B. only a and c

C. only c

D. a, b and c

Answer: D

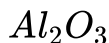


Watch Video Solution

28. Carbon cannot be used in the reduction of Al_2O_3 because

A. it is an expensive proposition

B. the enthalpy of formation of CO_2 is more than that of



C. pure carbon is not easily available

D. the enthalpy of formation of Al_2O_3

Answer: D



Watch Video Solution

29. Spinels are denoted with the formula MAl_2O_4 , where 'M' is

A. Mg in + 2 state or Mn in + 2 state

B. Fe in + 2 state or Mn is + 4 state

C. Fe in + 3 state or Mg in + 2 state

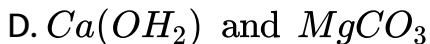
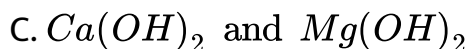
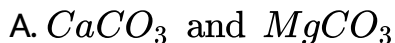
D. Mg in + 2 state or Mn in + 4 state

Answer: A



Watch Video Solution

30. Magnesium present in the sea water is precipitated using 'X' and precipitated as 'Y'. Here 'X' and 'Y' are respectively



Answer: C



Watch Video Solution

31. Magnesium oxide is reduced in the Hansging method using

- A. Silicon
- B. Ferro-silicon
- C. Coke
- D. Calcium carbide

Answer: C



Watch Video Solution

32. The green mass formed when copper is exposed to moist air has the same composition as that of

- A. Azurite
- B. Malachite

C. Cuprite

D. Copper pyrites

Answer: B



Watch Video Solution

33. The process of bringing the metal or its ore into solution by the action of a suitable chemical reagent following by extraction of the metal either by electrolysis or by suitable precipitating agent is called

A. Electrometallurgy

B. Hydrometallurgy

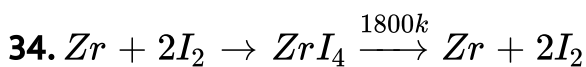
C. Electro refining

D. Zone refining

Answer: B



Watch Video Solution



This sequence of reactions involved in

- A. Mond's process for refining of zirconium
- B. Van Arkel method for refining of zirconium
- C. Zone refining of zirconium
- D. Refining of zirconium by distillation

Answer: B



Watch Video Solution

35. Some statements about Ellingham diagram a) Increase in the slope of the line on +ve side indicates the phase transformation b) Metal Oxide decomposes on its own at the temperature when the ΔG° becomes positive c) Oxide of the upper line can be reduced by the element whose oxidation is represented by the lower line The correct statement is/are

A. only a

B. only a and b

C. only b and c

D. a, b and c

Answer: D



Watch Video Solution

36. The metal that can be obtained even by the electrolysis of its aqueous salt

A. Al

B. Zn

C. Cu

D. Na

Answer: C



Watch Video Solution

37. the most electropositive metals are isolated from their ores by

A. High temperature reduction with carbon

- B. Self reduction
- C. Thermal decomposition
- D. Electrolysis of fused ionic salts

Answer: B



Watch Video Solution

38. In order to refine blister copper it is melted in a furnace and is stirred with green long of wood the purpose is

- A. To expel the dissolved gases in the blister
- B. To bring the impurities to surface and oxidise them
- C. To increase the carbon content of copper

D. To reduce the metallic oxide impurities with hydrocarbon gases liberated from the wood

Answer: D



Watch Video Solution

39. Electric furnaces are lined with magnesia because

- A. It is not affected by acids
- B. It liberates oxygen on heating
- C. It melts at very high temperature
- D. It has no effect of electricity

Answer: C



Watch Video Solution

40. The separation of lanthanoids by the ion exchange method is based on

- A. The solubility of their nitrates
- B. Size of the hydrated ions
- C. Basicity of the hydroxides
- D. Size of the anhydrated ions

Answer: B



View Text Solution

41. Metal carbonate is converted to the corresponding metal oxide usually by :

- A. roasting process
- B. calcination process
- C. reduction process
- D. oxidation process

Answer: B



Watch Video Solution

42. Blast furnace is used in the extraction of the metal

- A. Coper
- B. Iron
- C. Zinc
- D. Silver

Answer: B



Watch Video Solution

43. Nickel steel is used in making

A. Cycles

B. Alensils

C. Cutting tools

D. Cables

Answer: D



Watch Video Solution

44. Carbonate or hydroxide ores are generally converted to their oxides by

- A. Roasting
- B. Calcination
- C. Smelting
- D. Fluxing

Answer: B



Watch Video Solution

45. Most abundant metal in the earth's crust is

- A. Si
- B. Al

C. Mg

D. Fe

Answer: B



Watch Video Solution

46. Gravity separation method is based upon

- A. Preferential washing of ores and gangue particles
- B. Difference in densities of ore particles and impurities
- C. Difference in chemical properties of ore particles and impurities
- D. None of these

Answer: B



[Watch Video Solution](#)

47. Among the following statements the incorrect one is

- A. Calamine and siderite are carbonates
- B. Argentite and cuprite are oxides
- C. Zinc blende and iron pyrites are sulphides
- D. Malachite and azurite are ores of copper

Answer: B



[Watch Video Solution](#)

48. Refractory metals are used in construction of furnaces because

- A. they can withstand high temperature
- B. they are chemically inert
- C. their melting point is high
- D. their boiling point is low

Answer: A



Watch Video Solution

49. The substance widely used to remove silica present as impurity, from the ore is

A. CaO

B. P_2O_5

C. SiC

D. Na_2CO_3

Answer: A



Watch Video Solution

50. Extraction of aluminium from aluminium oxide (Al_2O_3) is
het done by

- A. electrolytic reduction of Al_2O_3
- B. reduction of Al_2O_3 with carbon
- C. reduction of Al_2O_3 with sodium
- D. reduction of Al_2O_3 with CO

Answer: A



Watch Video Solution

51. the most electropositive metals are isolated from their ores by

- A. High temperature reduction with carbon
- B. Self reduction
- C. Thermal decomposition
- D. Electrolysis of fused ionic salts

Answer: D



Watch Video Solution

52. Siderite mineral is

- A. Sulphate of iron

B. Carbonate of zinc

C. Sulphate of zinc

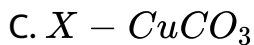
D. Carbonate of iron

Answer: D



Watch Video Solution

53. Chemical composition of malachite is 'X'. Then the composition of azurite is

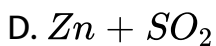
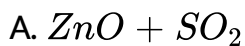


Answer: A



Watch Video Solution

54. In sulphatizing roasting of Zns, products are



Answer: B



Watch Video Solution

55. In order to refine blister copper it is melted in a furnace and is stirred with green logs of wood the purpose is

- A. To expel the dissolved gases in the blister
- B. To bring the impurities to surface and oxidise them
- C. To increase the carbon content of copper
- D. To reduce the metallic oxide impurities with hydrocarbon gases liberated from the wood

Answer: D



Watch Video Solution

56. Which of the following process is used for concentration of ores and for refining metals

A. Liquation

B. Leaching

C. distillation

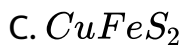
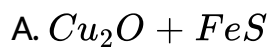
D. Poling

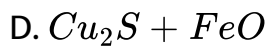
Answer: A



Watch Video Solution

57. The chemical composition of slag formed during smelting process in the extraction of Cu is





Answer: B



Watch Video Solution

58. Impurities in the zinc spelter are

A. Ag and Au

B. Cd and Pd

C. Cd and Pb

D. Cd As and Au

Answer: C



Watch Video Solution

59. Role of limestone used in re extraction

- A. Oxidation of Fe ore
- B. Reduction of Fe ore
- C. Formation of slag
- D. Purification of Fe formed

Answer: C



Watch Video Solution

60. The purest form of commercial iron is

- A. Pig iron
- B. Cast iron
- C. Wrought iron

D. Pig iron and cast iron

Answer: C



Watch Video Solution

61. Percent purity of iron in cast iron is

A. 90

B. 94

C. 97

D. 99

Answer: D



Watch Video Solution

62. Native silver metal forms a water soluble complex with a dilute aqueous solution of NaCN in the presence of

- A. Nitrogen
- B. Oxygen
- C. Carbon dioxide
- D. Argon

Answer: B



Watch Video Solution

63. Which of the following metals can be used for precipitation of silver from sodium argento cyanide solution

- A. Zn

B. Cu

C. Al

D. All

Answer: D



Watch Video Solution

64. In the Down's process at low temperature sodium extracted is more because

A. Solubility of sodium metal in fused electrolyte is less

B. Vapour pressure of sodium is more

C. Solubility of sodium in fused state is high

D. Common salt is the electrolyte used

Answer: A



Watch Video Solution

65. Aqueous sodium cyanide is used as a reagent in the metal extraction. This process is called

- A. Pyrometallurgy
- B. Electrometallurgy
- C. Hydrometallurgy
- D. None of these

Answer: C



Watch Video Solution

66. Metal is precipitated from $Au(CN)_4^{3-}$ using zinc as a precipitant. Along with Au, a complex compound of zinc is also formed as product. The 1° and 2° valencies in the complex are

A. 2, 3

B. 2, 6

C. 1, 4

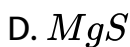
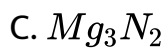
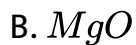
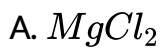
D. 2, 4

Answer: D



Watch Video Solution

67. The best electrolyte for the extraction of magnesium metal is



Answer: A



Watch Video Solution

68. Which one of the following is the mineral for tin?

A. galena

B. cerussite

C. cassiterite

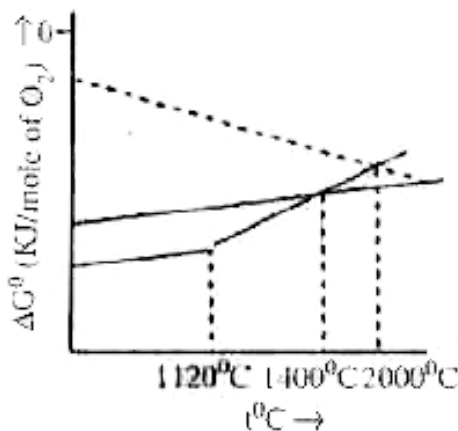
D. Anglesite

Answer: C



Watch Video Solution

69. Some statements about the below Ellingham diagram are given below



(a) At 1120°C MgO will melt

(b) At the temperatures below 1400°C , Mg can reduce Al_2O_3 and at the temperature above 1400°C Al reduces MgO

(c) At the temperature above 2000°C , carbon can reduce MgO

The correct statement is/are

- A. only a
- B. only a and c
- C. only c
- D. a, b and c

Answer: D



Watch Video Solution

70. Carbon cannot be used in the reduction of Al_2O_3 because

- A. it is an expensive proposition
- B. the enthalpy of formation of CO_2 is more than that of Al_2O_3
- C. pure carbon is not easily available

D. the enthalpy of formation of Al_2O_3

Answer: D



Watch Video Solution

71. Spinel is denoted with the formula MA_2O_4 , where 'M' is

A. Mg in + 2 state or Mn in + 2 state

B. Fe in + 2 state or Mn in + 4 state

C. Fe in + 3 state or Mg in + 2 state

D. Mg in + 2 state or Mn in + 4 state

Answer: A



Watch Video Solution

72. Magnesium present in the sea water is precipitated using 'X' and precipitated as 'Y'. Here 'X' and 'Y' are respectively

- A. CaCO_3 and MgCO_3
- B. CaCO_3 and $\text{Mg}(\text{OH})_2$
- C. $\text{Ca}(\text{OH})_2$ and $\text{Mg}(\text{OH})_2$
- D. $\text{Ca}(\text{OH})_2$ and MgCO_3

Answer: C



Watch Video Solution

73. Magnesium oxide is reduced in the Hansging method using

- A. Silicon
- B. Ferro-silicon

C. Coke

D. Calcium carbide

Answer: C



Watch Video Solution

74. The green mass formed when copper is exposed to moist air has the same composition as that of

A. Azurite

B. Malachite

C. Cuprite

D. Copper pyrites

Answer: B



[Watch Video Solution](#)

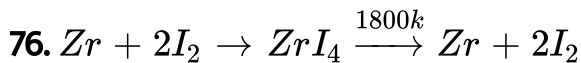
75. The process of bringing the metal or its ore into solution by the action of a suitable chemical reagent following by extraction of the metal either by electrolysis or by suitable precipitating agent is called

- A. Electrometallurgy
- B. Hydrometallurgy
- C. Electro refining
- D. Zone refining

Answer: B



[Watch Video Solution](#)



This sequence of reactions involved in

- A. Mond's process for refining of zirconium
- B. Van Arkel method for refining of zirconium
- C. Zone refining of zirconium
- D. Refining of zirconium by distillation

Answer: B



Watch Video Solution

77. Some statements about Ellingham diagram

- a) Increase in the slope of the line on +ve side indicates the phase transformation
- b) Metal Oxide decomposes on its own at the temperature when the ΔG° becomes positive
- c) Oxide of the

upper line can be reduced by the element whose oxidation is represented by the lower line The correct statement is/are

- A. only a
- B. only a and b
- C. only b and c
- D. a, b and c

Answer: D



Watch Video Solution

78. The metal that can be obtained even by the electrolysis of its aqueous salt

- A. Al

B. Zn

C. Cu

D. Na

Answer: C



Watch Video Solution

79. the most electropositive metals are isolated from their ores by

A. High temperature reduction with carbon

B. Self reduction

C. Thermal decomposition

D. Electrolysis of fused ionic salts

Answer: B



Watch Video Solution

80. In order to refine blister copper it is melted in a furnace and is stirred with green logs of wood the purpose is

- A. To expel the dissolved gases in the blister
- B. To bring the impurities to surface and oxidise them
- C. To increase the carbon content of copper
- D. To reduce the metallic oxide impurities with hydrocarbon gases liberated from the wood

Answer: D



Watch Video Solution

81. Electric furnaces are lined with magnesia because

- A. It is not affected by acids
- B. It liberates oxygen on heating
- C. It melts at very high temperature
- D. It has no effect of electricity

Answer: C



Watch Video Solution

82. The separation of lanthanoids by the ion exchange method is based on

- A. The solubility of their nitrates
- B. Size of the hydrated ions

C. Basicity of the hydroxides

D. Size of the anhydrated ions

Answer: B



Watch Video Solution

83. Metal carbonate is converted to the corresponding metal oxide usually by :

A. roasting process

B. calcination process

C. reduction process

D. oxidation process

Answer: B



[Watch Video Solution](#)

84. Blast furnace is used in the extraction of the metal

A. Copper

B. Iron

C. Zinc

D. Silver

Answer: B



[Watch Video Solution](#)

Subjective Exercise 1 Short Answer Questions

1. How do metals occur in nature? Give some examples for any two types of minerals.



Watch Video Solution

2. What is an ore? On what basis a mineral is chosen as an ore?



Watch Video Solution

3. Write the composition important of oxide and halide minerals.



Watch Video Solution

4. Write the names and composition of some sulphide and carbonate minerals.



Watch Video Solution

Subjective Exercise 2 Long Answer Questions

1. Write a note on ore dressing methods in metallurgy.



Watch Video Solution

2. Describe different furnaces used in metallurgy.



Watch Video Solution

3. What are the common methods used in the extraction of metals?



Watch Video Solution

4. Write in brief about the refining of metals.



Watch Video Solution

5. Draw a neat diagram of Reverberatory furnace and label it neatly.



Watch Video Solution

6. Draw a neat diagram of Blast furnace. Indicate different temperature zones and their names in it.



Watch Video Solution

7. Discuss the thermodynamic principles used in metallurgy.



Watch Video Solution