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India's Number 1 Education App

CHEMISTRY

BOOKS - VK JAISWAL ENGLISH

METALLURGY

Level 1

1. Highly electropositive metal(s) can not be commercially extracted by carbon reduction process at high temperature because these :

A. matals combine with carbon to form covalent carbide

B. metals combine with carbon to form ionic carbide

C. ΔG_f of highly electropositive metal oxide is having low negative value

D. metal oxides are not reduced by carbon

Answer: B

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2. At $1000^\circ C$,

$$Zn_{(s)} + \frac{1}{2}O_{2(g)} \rightarrow ZnO_{(s)}, \Delta G^\circ = -360 KJ\text{mol}^{-1}$$

$$C_{(s)} + \frac{1}{2}O_{2(g)} \rightarrow CO_{(g)}, \Delta G^\circ = -460 KJ\text{mol}^{-1}$$

The correct statement is

A. ZnO is more stable than CO

B. ZnO can be reduced to Zn by C

C. ZnO and CO are formed at equal rate

D. ZnO can not be reduced to Zn by C

Answer: B

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3. Which of the following pair of ores can not be converted into corresponding metals by pyrometallurgy ?

A. Ag_2S, ZnS

B. Cu_2S, HgS

C. MnO_2, SnO_2

D. None of these

Answer: A

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4. Ellingham diagram represents change of

A. change of ΔG with temperature

B. change of ΔH with temperature

C. change of ΔG with pressure

D. change of $(\Delta G - T\Delta S)$ with temperature

Answer: A

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5. The process of the isolation of a metal by dissolving the ora in a suitable chemical regent followed by precipitaiton of the matal by a more electropositive metal is called:

A. hydrometallurgy

B. electrometallurgy

C. zone refining

D. electrorefining

Answer: A

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6. The process of the isolation of a metal by dissolving the ore in a suitable chemical reagent followed by precipitation of the metal by a more electropositive metal is called :

A. hydrometallurgy

B. electrometallurgy

C. zone refining

D. electrorefining

Answer: A

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7. In the alumino-thermite process, Al acts as :

A. an oxidising agent

B. a flux

C. solder

D. a reducing agent

Answer: D

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8. Which of the following reactions forms the basis of goldschmidt aluminothermite process ?

A. $2Al + N_2 \rightarrow 2AlN$

B. $2Al + 3Cl_2 \rightarrow 2AlCl_3$

C. $2Al + 6HCl \rightarrow 2AlCl_3 + 3H_2$

D. $2Al + Fe_2O_3 \rightarrow Al_2O_3 + 2Fe$

Answer: D

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9. The extraction of zinc from zinc blende is achieved by :

A. electrolytic reduction

B. roasting followed by reduction with carbon

C. roasting followed by reduction with another metal

D. roasting followed by self-reduction

Answer: B

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10. Thermite is a mixture of :p

A. Fe powder and Al_2O_3

B. Al powsder and Fe_2O_3

C. Cu powder and Fe_2O_3

D. Zn powder and Cr_2O_3

Answer: B

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11. If a metal has low oxygen affinity then the purification of metal may be carried out by :

A. liquation

B. distillation

C. zone refining

D. cupellation

Answer: D

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12. Why is magnesium oxide used as a refractory material?

A. Graphite

B. CaO

C. SiO

D. MgO

Answer: A

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13. Which of the following set of elements mostly occur as sulphide ores ?

A. Zn, Cu, Na

B. Zn, Cu, Pb

C. Fe, Al

D. Cu, Ag, Au

Answer: B

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14. Which one contains both Ca and Mg ?

A. Limestone

B. Dolomite

C. Chalk

D. Feldspar

Answer: B

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15. Match Column-I with Column-I and select the correct answer using the codes given below :

Column-I (Metals)	Column-II (Ores)
(A) Tin	(1) Calamine
(B) Zinc	(2) Cassiterite
(C) Titanium	(3) Cerrusite
(D) Lead	(4) Rutile

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

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

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

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

Answer: B

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

A. Carnallite

B. Magnesite

C. Dolomite

D. Gypsum

Answer: D

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17. Which one of the following is not an ore of aluminium ?

A. Bauxite

B. Corundum

C. Epsomite

D. Cryolite

Answer: C

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18. Cinnabar is an ore of

A. Zn

B. Cd

C. Hg

D. Ag

Answer: C

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19. Which of the following minerals does not contain iron ?

A. Magnetite

B. Magnesite

C. Haematite

D. Limonite

Answer: B

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20. Which one of the following types of metals is expected to occur in the native state ?

A. The alkali metals

B. The alkaline earth metals

C. The noble metals

D. The rare earth metals

Answer: C

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21. The most abundant element in earth's crust is

A. Aluminium

B. Silicon

C. Carbon

D. Oxygen

Answer: D

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22. The two most abundant metals in the earth crust are

A. Al, Zn

B. Ag, Au

C. Fe, Cu

D. Fe, Al

Answer: D

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23. A mineral is usually associated with a large amount of unwanted material called :

A. Gangue

B. Flux

C. Slag

D. Ore

Answer: A

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24. The metal which mainly occurs as oxide ore in nature is :

A. Silver

B. Lead

C. Aluminium

D. Copper

Answer: C

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25. Three most occurring elements into the earth crust are :

A. O, Si, Al

B. Si, O, Fe

C. Fe, Ca, Al

D. Si, O, N

Answer: A

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26. Froth floatation process for the concentration of sulphide ore is an illustration of the practical application of

A. adsorption

B. absorption

C. sedimentation

D. coagulation

Answer: A

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27. Froth floatation process is used for the concentration of the ore of :

A. Fe

B. Al

C. Cr

D. Cu

Answer: D

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28. Haematite ore is conentrated by:

A. gravity separation method

B. froth floatation process

C. amalgamation

D. hand picking

Answer: A

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29. Electromagnetic seperation is used in the concentration of

A. Copper pyrite

B. Bauxite

C. Cassiterite

D. Cinnabar

Answer: C

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30. Which one of the following is not a method of concentrain of ore?

A. Electromagnetic separation

B. Smelting

C. Gravity separation

D. Froth floatation process

Answer: B

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31. Chemical leaching is useful in the concentration of:

A. Copper pyrite

B. Bauxite

C. Cassiterite

D. Galena

Answer: B

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32. The ore which is concentrated wetting by oil is :

A. oxide ore

B. sulphate ore

C. carbonate ore

D. sulphide ore

Answer: D

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33. Rutile is separated from chlorapatite by :

A. Froth floatation method

B. Levigation

C. Magnetic separation method

D. Electrostatic separation method

Answer: C

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34. In the extraction of copper fromo its sulphide ore, the metal is formed by the reduction of Cu_2O with _____

A. FeS

B. CO

C. Cu_2S

D. SO_2

Answer: C

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35. Which of the following pair is incorrectly matched

A. van Arkel method-Zirconium

B. Kroll's process-Titanium

C. Froth Floatation -Cerussite

D. Distillation -Zine

Answer: C

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36. The most abundant metal in earth's crust is _____.

A. Al

B. O

C. Fe

D. Si

Answer: A

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37. Consider the following reactions :

$$2XS + 3O_2 \xrightarrow{\Delta} 2XO + 2SO_2$$

$$2XO + XS \xrightarrow{\Delta} 3'X' + SO_2$$

Then 'X' can not be :

A. Hg

B. Pb

C. Zn

D. None

Answer: C

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38. In the alumino-thermite process, Al metal acts as :

A. Oxidising agent

B. Reducing agent

C. Catalyst

D. Flux

Answer: B

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39. Extraction of aluminium from bauxite ore, reduction is carried out by :

A. carbon

B. magnesium

C. electrolysis

D. hydrogen

Answer: C

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40. Chromium is obtained by reducing connentrated chromite ore with :

A. red hot coke

B. gaseous hydrogen

C. aluminium powder

D. carbon monoxide

Answer: C

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41. The element which is recovered from electrolyte process is :

A. iron

B. lead

C. aluminium

D. zinc

Answer: C

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42. Magnesium is extracted electrolysing fused magnesium chloride containing $NaC1$and $CaC1_2$using:

A. a nickel cathode and a graphite anode

B. the iron container as anode and a nickel cathode

C. the iron container as cathode and a graphite anode

D. the nickel container as cathode and iron anode

Answer: C

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43. Copper is extracted from sulphide ore using the method :

A. carbon reduction

B. carbon monoxide reduction

C. auto reduction

D. None of these

Answer: C

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44. In the extraction of copper, metal is formed in the Bessemer converter due to reaction

A. $Cu_2S + 2Cu_2O \rightarrow 6Cu + SO_2$

B. $Cu_2S \rightarrow 2Cu + S$

C. $Fe + Cu_2O \rightarrow 2Cu + FeO$

D. $2Cu_2O \rightarrow 4Cu + O_2$

Answer: A

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45. Silica is added to roasted copper during extraction in order to remove:

A. cuprous sulphide

B. ferrous oxide

C. ferrous sulphide

D. cuprous oxide

Answer: B

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46. Calcium is extracted by the electrolysis of :

A. Fused mixture of $CaCl_2$ and CaF_2

B. $CaCl_2$ fused salt solution

C. Used mixture of $CaCl_2$ and NaF

D. $Ca_2(PO_4)_2$ fused salt solution

Answer: A

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47. Lead is mainly extracted by :

A. Carbon reduction method

B. Self-reduction method

C. Electrolytic reduction

D. Leaching with aqueous solution of NaCN followed by reduction

Answer: B

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48. In which of the following isolation no reducing agent is required

A. Mercury from cinnabar

B. Zinc from zinc blende

C. Iron from haematite

D. Aluminium from Bauxite

Answer: A

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49. Aluminium is used as a reducing agent in the reduction of :

A. Cr_2O_3

B. SnO_2

C. ZnO

D. HgO

Answer: A

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50. Bessemerisation is carried out for

A. Fe, Cu

B. Cu, Al

C. Al, Ag

D. Fe, Al

Answer: A

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51. Silver can be separated form lead by:

A. fractional crystallisation

B. amalgamation

C. cupellation

D. addition of zinc (Parke's method)

Answer: D

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52. A solution of sodium sulphate in water is electrolysed using inert electrodes, The products at the cathode and anode are respectively.

A. $O_2 : H_2$

B. O_2, Na

C. H_2, O_2

D. O_2, SO_2

Answer: C

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53. The metal A is prepared by the electrolysis of fused chloride. It reacts with hydrogen to form a colourless solid from which hydrogen is released on treatment with water the metal is

A. Al

B. Ca

C. Cu

D. Zn

Answer: B

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54. The function of fluorspar in the electrolytic reduction of alumnia dissolved in fused cryotile (Na_3AlF_6) is:

A. as a catalyst

B. to lower the temperature of the melt and to make the fused mixture very conducting

C. to decrease the rate of oxidation of carbon at the anode

D. none of the above

Answer: B

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55. In the extraction of copper from copper pyrites, iron is removed as :

A. $FeSO_4$

B. $FeSiO_3$

C. Fe_3O_4

D. Fe_2O_3

Answer: B

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56. The material mixed before ore is subjected for smelting in the extraction of iron are :

A. coke and silica

B. coke and limestone

C. limestone and silica

D. coke, limestone and silica

Answer: B

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57. The maximum temperature $1550^{\circ}C$ is obtained in the ____ region of the blast furnace used in the the extraction of iron.

A. reduction

B. fusion

C. combustion

D. slag formation

Answer: C

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58. The iron obtained from the blast furnace is called:

A. pig iron

B. cast iron

C. wrought iron

D. steel

Answer: A

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59. The metal that cannot be obtained by electrolysis of an aqueous solution of its salts is :

A. Silver

B. Magnesium

C. Copper

D. Platinum

Answer: B

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60. Impure aluminium is purified by :

A. Baeyer's process

B. Hall's process

C. Hoop's process

D. Serpeck's process

Answer: C

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61. Which is not correctly matched :

A. Spiegleisan : $Mn + Fe + C$

B. Dow's sea water process : $Ca(OH)_2$

C. Parke's process : Ag

D. Liquation : spelter (Impure Zn)

Answer: D

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62. Incorrect match is :

A. Purification of Al metal : Baeyer's method

B. Polling : Reduction of Cu_2O

C. $FeCr_2O_4$ (chromite ore) : $NaOH / Na_2CO_3$

D. Ag : Mac Arthur cyanide process

Answer: A

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63. Refining of tin cannot be done by :

A. cupellation

B. liquation

C. poling

D. electrorefining

Answer: A

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64. Which method is not correct given for refining of crude metals ?

A. Distillation : zinc and mercury

B. Liquation : tin

C. van Arkel : Zirconium

D. Mond process : lead

Answer: D

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65. Impure aluminium is purified by :

A. Hoope's process

B. Hall's process

C. Serpeck's process

D. Baeyer's process

Answer: A

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66. High purity copper metal is obtained by

A. Carbon reduction

B. hydrogen reduction

C. electrolytic reduction

D. thermite reduction

Answer: C

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67. Poling process is used

A. The removal of Cu_2O from Cu

B. The removal of Al_2O_3 from Al

C. The removal of Fe_2O_3 from Fe

D. All of these

Answer: A

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68. In zone refining methods, the molten zone

A. consists of impurities only

B. contains more impurity than the original metal

C. contains the purified metals only

D. moves to either side

Answer: B

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69. Which of the following pair is correctly matched ?

A. Copper-Oxidative refining

B. Nickel-Kroll's process

C. Mercury-Distillation

D. Lead-van Arkel method

Answer: C

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70. Formation of volatile $Ni(CO)_4$ and then its subsquent decomposition into Ni and CO makes basis of Mond's process:

$Ni + 4CO \xrightarrow{T_1} Ni(CO)_4 \xrightarrow{T_2} Ni4CO_3$

T_1 and T_2 are:

A. $100^\circ C, 50^\circ C$

B. $50^\circ C, 100^\circ C$

C. $50^\circ C, 230^\circ C$

D. $230^\circ, 50^\circ C$

Answer: C

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71. In the electrolytic refining of copper, Ag and Au are found :

A. on anode

B. in electrolyte solution

C. in anode mud

D. in cathode mud

Answer: C

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72. Electrolyte solution in electrolytic refining of lead contains :

A. H_2SiF_6 only

B. $PbSiF_6$ only

C. H_2SiF_6 in presence of gelatin

D. H_2SiF_6 and $PbSiF_6$ in presence of gelatin

Answer: D

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73. Blister copper is

A. pure copper

B. ore of copper

C. alloy of copper

D. impure copper

Answer: D

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74. Percentage of silver in German silver is

A. $2.5\ \%$

B. $1.5\ \%$

C. $10\ \%$

D. $0\ \%$

Answer: D

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75. AgCl on fusion with Na_2CO_3 forms:

A. Ag_2CO_3

B. Ag_2O

C. Ag

D. Ag_2C_2

Answer: C

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76. An alloy which does not contain copper is :

A. bronze

B. magnalium

C. brass

D. bell metal

Answer: B

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77. Stainless steel contains iron and

A. Zn

B. Cu

C. Al

D. Cr

Answer: D

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78. Railway wagon axles are made by heating rods of iron embedded in charcoal powerder. The process is known as

A. tempering

B. annealing

C. nitriding

D. case hardening

Answer: D

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79. Nitriding is a process of hardening steel by treating it in an atmosphere of

A. ammonia

B. oxygen

C. carbon dioxide

D. air

Answer: A

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80. Bassemer converter is used in the refining of :

A. pig iron

B. steel

C. wrought iron

D. cast iron

Answer: B

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81. Which of the following elements contitutes a major impurity in pig iron ?

A. Carbon

B. oxygen

C. Sulphur

D. Silicon

Answer: A

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82. Highly electropositive metal(s) can not be commercially extracted by carbon reduction process at high temperature because these :

A. metals combine with carbon to form covalent carbide

B. metals combine with carbon to form ionic carbide

C. ΔG_f of highly electropositive metal oxide is having low negative value

D. metal oxides are not reduced by carbon

Answer: B

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83. Consider the following reactions at $1000^\circ C$

(I) $Zn(s) + 1/2O_2(g) \xrightarrow{\Delta} ZnO(g), \Delta G^\circ = -360 \text{ kJ mol}^{-1}$

(II) $C(s) + 1/2O_2(g) \xrightarrow{\Delta} CO(g), \Delta G^\circ = -460 \text{ kJ mol}^{-1}$

and choose the correct statement at $1000^\circ C$

A. ZnO is more stable than CO

B. ZnO can be reduced to Zn by C

C. ZnO and CO are formed at equal rate

D. ZnO can not be reduced to Zn by C

Answer: B

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84. Which of the following pair of ores cannot be converted into corresponding metals by pyrometallurgy ?

A. Ag_2S, ZnS

B. Cu_2S, HgS

C. MnO_2, SnO_2

D. None of these

Answer: A

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85. Ellingham diagram represents change of

A. change of ΔG with temperature

B. change of ΔH with temperature

C. change of ΔG with pressure

D. change of $(\Delta G - T\Delta S)$ with temperature

Answer: A

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86. The process of the isolation of a metal by dissolving the ore in a suitable chemical reagent followed by precipitation of the metal by a more electropositive metal is called :

A. hydrometallurgy

B. electrometallurgy

C. zone refining

D. electrorefining

Answer: A

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87. The process of the isolation of a metal by dissolving the ore in a suitable chemical reagent followed by precipitation of the metal by a more electropositive metal is called :

A. hydrometallurgy

B. electrometallurgy

C. zone refining

D. electrorefining

Answer: A

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88. In the alumino-thermite process, Al acts as :

A. an oxidising agent

B. a flux

C. solder

D. a reducing agent

Answer: D

Watch Video Solution

89. Which of the following reaction forms the basis of Goldschmidt alumino-thermite process ?

A. $2Al + N_2 \rightarrow 2AlN$

B. $2Al + 3Cl_2 \rightarrow 2AlCl_3$

C. $2Al + 6HCl \rightarrow 2AlCl_3 + 3H_2$

D. $2Al + Fe_2O_3 \rightarrow Al_2O_3 + 2Fe$

Answer: D

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90. Extraction of zinc from zinc blende is achieved by:

A. electrolytic reduction

B. roasting followed by reduction with carbon

C. roasting followed by reduction with another metal

D. roasting followed by self-reduction

Answer: B

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91. Thermite is a mixture of :

A. Fe powder and Al_2O_3

B. Al powder and Fe_2O_3

C. Cu powder and Fe_2O_3

D. Zn powder and Cr_2O_3

Answer: B

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92. If a metal has low oxygen affinity then the purification of metal may be carried out by :

A. liquation

B. distillation

C. zone refining

D. cupellation

Answer: D

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93. Neutral refractory material used in furnaces is :

A. Graphite

B. CaO

C. SiO

D. MgO

Answer: A

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94. Which of the following set of elements mostly occur as sulphide ores.

A. Zn, Cu, Na

B. Zn, Cu, Pb

C. Fe, Al

D. Cu, Ag, Au

Answer: B

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95. Which one contains both Ca and Mg ?

A. Limestone

B. Dolomite

C. Chalk

D. Feldspar

Answer: B

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96. Match Column-I with Column-I and select the correct answer using the codes given below :

Column-I (Metals)	Column-II (Ores)
(A) Tin	(1) Calamine
(B) Zinc	(2) Cassiterite
(C) Titanium	(3) Cerrusite
(D) Lead	(4) Rutile

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

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

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

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

Answer: B

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

A. Carnallite

B. Magnesite

C. Dolomite

D. Gypsum

Answer: D

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98. Which one of the following is not an ore of aluminium ?

A. Bauxite

B. Corundum

C. Epsomite

D. Cryolite

Answer: C

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99. Cinnabar is the ore of :

A. Zn

B. Cd

C. Hg

D. Ag

Answer: C

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100. Which of the following minerals does not contain iron ?

A. Magnetite

B. Magnesite

C. Haematite

D. Limonite

Answer: B

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101. Which one of the following types of metals is expected to occur in the native state ?

A. The alkali metals

B. The alkaline earth metals

C. The noble metals

D. The rare earth metals

Answer: C

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102. Which one of the following elements is most abundant in earth crust ?

A. Aluminium

B. Silicon

C. Carbon

D. Oxygen

Answer: D

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103. The two most abundant metals in the earth crust are

A. Al, Zn

B. Ag, Au

C. Fe, Cu

D. Fe, Al

Answer: D

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104. A mineral is usually associated with a large amount of unwanted material called :

A. Gangue

B. Flux

C. Slag

D. Ore

Answer: A

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105. The metal which mainly occurs as oxide ore in nature is :

A. silver

B. lead

C. aluminium

D. copper

Answer: C

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106. Three most occurring elements into the earth crust are :

A. O, Si, Al

B. Si, O, Fe

C. Fe, Ca, Al

D. Si, O, N

Answer: A

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107. Froth floatation process for the concentration of sulphide ore is an illustration of the practical application of

A. adsorption

B. absorption

C. sedimentation

D. coagulation

Answer: A

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108. Froth floatation process is used for the concentration of the ore of :

A. Fe

B. Al

C. Cr

D. Cu

Answer: D

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109. Haematite ore is concentrated by

A. gravity separation method

B. froth floatation process

C. amalgamation

D. hand picking

Answer: A

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110. Electromagnetic separation is used in the concentration of :

A. Copper pyrite

B. Bauxite

C. Cassiterite

D. Cinnabar

Answer: C

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

A. Electromagnetic separation

B. Smelting

C. Gravity separation

D. Froth floatation process

Answer: B

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112. Chemical leaching is useful in the concentration of :

A. Copper pyrite

B. Bauxite

C. Cassiterite

D. Galena

Answer: B

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113. Sulphide ore is concentrated by which method?

A. oxide ore

B. sulphate ore

C. carbonate ore

D. sulphide ore

Answer: D

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114. Rutile is separated from chlorapatite by :

A. Froth floatation method

B. Levigation

C. Magnetic separation method

D. Electrostatic separation method

Answer: C

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115. In the extraction of copper fromo its sulphide ore, the metal is formed by the reduction of Cu_2O with _____

A. FeS

B. CO

C. Cu_2S

D. SO_2

Answer: C

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116. Which of the following pair is incorrectly matched ?

A. van Arkel method-Zirconium

B. Kroll's process-Titanium

C. Froth Floatation -Cerussite

D. Distillation -Zine

Answer: C

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117. The most abundant metal in earth's crust is _____.

A. Al

B. O

C. Fe

D. Si

Answer: A

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118. Consider the following reactions :

$$2XS + 3O_2 \xrightarrow{\Delta} 2XO + 2SO_2$$

$$2XO + XS \xrightarrow{\Delta} 3'X' + SO_2$$

Then 'X' can not be :

A. Hg

B. Pb

C. Zn

D. None

Answer: C

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119. In the alumino-thermite process, Al metal acts as :

A. Oxidising agent

B. Reducing agent

C. Catalyst

D. Flux

Answer: B

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120. In extraction of aluminium from bauxite ore, reduction is carried out by :

A. carbon

B. magnesium

C. electrolysis

D. hydrogen

Answer: C

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121. Chromium is obtained by reducing connentrated chromite ore with :

A. red hot coke

B. gaseous hydrogen

C. aluminium powder

D. carbon monoxide

Answer: C

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122. The element which is recovered from electrolytic process is :

A. iron

B. lead

C. aluminium

D. zinc

Answer: C

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123. Magnesium is manufactured by electrolysing fused magnesium chloride using :

A. a nickel cathode and a graphite anode

B. the iron container as anode and a nickel cathode

C. the iron container as cathode and a graphite anode

D. the nickel container as cathode and iron anode

Answer: C

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124. Copper is extracted from sulphide ore using the method :

A. carbon reduction

B. carbon monoxide reduction

C. auto reduction

D. None of these

Answer: C

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125. In the extraction of copper, metal is formed in the Bassemer converter due to reaction :

A. $Cu_2S + 2Cu_2O \rightarrow 6Cu + SO_2$

B. $Cu_2S \rightarrow 2Cu + S$

C. $Fe + Cu_2O \rightarrow 2Cu + FeO$

D. $2Cu_2O \rightarrow 4Cu + O_2$

Answer: A

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126. Silica is added to roasted copper ore during extraction in order to remove :

A. cuprous sulphide

B. ferrous oxide

C. ferrous sulphide

D. cuprous oxide

Answer: B

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127. Calcium is extracted by the electrolysis of :

A. Fused mixture of $CaCl_2$ and CaF_2

B. $CaCl_2$ fused salt solution

C. Used mixture of $CaCl_2$ and NaF

D. $Ca_2(PO_4)_2$ fused salt solution

Answer: A

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128. Lead is mainly extracted by :

A. Carbon reduction method

B. Self-reduction method

C. Electrolytic reduction

D. Leaching with aqueous solution of NaCN followed by reduction

Answer: B

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129. In which of the following metallurgy, no reducing agent is required from out side ?

A. Mercury from cinnabar

B. Zinc from zinc blende

C. Iron from haematite

D. Aluminium from Bauxite

Answer: A

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130. Aluminium is used as a reducing agent in the reduction of :

A. Cr_2O_3

B. SnO_2

C. ZnO

D. HgO

Answer: A

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131. Bessemerisation is carried out for

A. Fe, Cu

B. Cu, Al

C. Al, Ag

D. Fe, Al

Answer: A

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132. Silver can be separated form lead by:

A. fractional crystallisation

B. amalgamation

C. cupellation

D. addition of zinc (Parke's method)

Answer: D

Watch Video Solution

133. A solution of sodium sulphate in water is electrolysed using inert electrodes, The products at the cathode and anode are respectively.

A. $O_2 : H_2$

B. O_2, Na

C. H_2, O_2

D. O_2, SO_2

Answer: C

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134. The metal X is prepared by the electrolysis of fused chloride. It reacts with hydrogen to form a colourless solid from which hydrogen gas is released on treatment with water. The metal is :

A. Al

B. Ca

C. Cu

D. Zn

Answer: B

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135. The function of fluorspar in the electrolytic reduction of alumnia dissolved in fused cryotile (Na_3AlF_6) is:

A. as a catalyst

B. to lower the temperature of the melt and to make the fused mixture very conducting

C. to decrease the rate of oxidation of carbon at the anode

D. none of the above

Answer: B

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136. In the extraction of copper from copper pyrites, iron is removed as :

A. $FeSO_4$

B. $FeSiO_3$

C. Fe_3O_4

D. Fe_2O_3

Answer: B

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137. The material mixed before ore is subjected for smelting in the extraction of iron are :

A. coke and silica

B. coke and limestone

C. limestone and silica

D. coke, limestone and silica

Answer: B

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138. The maximum temperature $1550^{\circ} C$ is obtained in the ____ region of the blast furnace used in the the extraction of iron.

A. reduction

B. fusion

C. combustion

D. slag formation

Answer: C

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139. Which form of iron is extracted from blast furnance :

A. pig iron

B. cast iron

C. wrought iron

D. steel

Answer: A

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140. Which metal can not obtained by electrolysis of their aqueous salt solution ?

A. Silver

B. Magnesium

C. Copper

D. Platinum

Answer: B

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141. Impure aluminium is purified by :

A. Baeyer's process

B. Hall's process

C. Hoop's process

D. Serpeck's process

Answer: C

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142. Which is not correctly matched :

A. Spiegleisan : $Mn + Fe + C$

B. Dow's sea water process : $Ca(OH)_2$

C. Parke's process : Ag

D. Liquation : spelter (Impure Zn)

Answer: D

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143. Incorrect match is :

A. Purification of Al metal : Baeyer's method

B. Polling : Reduction of Cu_2O

C. $FeCr_2O_4$ (chromite ore) : $NaOH / Na_2CO_3$

D. Ag : Mac Arthur cyanide process

Answer: A

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144. Refining of tin cannot be done by :

A. cupellation

B. liquation

C. poling

D. electrorefining

Answer: A

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145. Which method is not correct given for refining of crude metals ?

A. Distillation : zinc and mercury

B. Liquation : tin

C. van Arkel : Zirconium

D. Mond process : lead

Answer: D

Watch Video Solution

146. Aluminium metal is purified by :

A. Hoope's process

B. Hall's process

C. Serpeck's process

D. Baeyer's process

Answer: A

Watch Video Solution

147. High purity copper metal is obtained by :

A. Carbon reduction

B. hydrogen reduction

C. electrolytic reduction

D. thermite reduction

Answer: C

Watch Video Solution

148. Poling process is used

A. The removal of Cu_2O from Cu

B. The removal of Al_2O_3 from Al

C. The removal of Fe_2O_3 from Fe

D. All of these

Answer: A

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149. In zone-refining methode the molten zone

A. consists of impurities only

B. contains more impurity than the original metal

C. contains the purified metals only

D. moves to either side

Answer: B

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150. Which of the following pair is correctly matched ?

A. Copper-Oxidative refining

B. Nickel-Kroll's process

C. Mercury-Distillation

D. Lead-van Arkel method

Answer: C

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151. Formation of $Ni(CO)_4$ and subsequent its decomposition into Ni and CO makes basis of Mond's process,

$Ni + 4CO \xrightarrow{T_1} Ni(CO)_4 \xrightarrow{T_2} Ni + 4CO, T_1$ and T_2 are :

A. $100^\circ C, 50^\circ C$

B. $50^\circ C, 100^\circ C$

C. $50^\circ C, 230^\circ C$

D. $230^\circ, 50^\circ C$

Answer: C

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152. In the elctrolysis refinin of copper, Ag and Au are found:

A. on anode

B. in electrolyte solution

C. in anode mud

D. in cathode mud

Answer: C

Watch Video Solution

153. Electrolyte solution in electrolytic refining of lead contains :

A. H_2SiF_6 only

B. $PbSiF_6$ only

C. H_2SiF_6 in presence of gelatin

D. H_2SiF_6 and $PbSiF_6$ in presence of geltatin

Answer: D

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154. Blister copper is

A. pure copper

B. ore of copper

C. alloy of copper

D. impure copper

Answer: D

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155. Percentage of silver in the alloy german silver is :

A. $2.5\ \%$

B. $1.5\ \%$

C. $10\ \%$

D. $0\ \%$

Answer: D

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156. AgCl on fusion with Na_2CO_3 forms:

A. Ag_2CO_3

B. Ag_2O

C. Ag

D. Ag_2C_2

Answer: C

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157. An alloy which does not contain copper is :

A. bronze

B. magnalium

C. brass

D. bell metal

Answer: B

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158. Stainless steel contains iron and

A. Zn

B. Cu

C. Al

D. Cr

Answer: D

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159. Axles are made by heating rods of iron embedded in charcoal powder.

The process is known as :

A. tempering

B. annealing

C. nitriding

D. case hardening

Answer: D

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160. Nitriding is a process of heating steel in atmosphere of :

A. ammonia

B. oxygen

C. carbon dioxide

D. air

Answer: A

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161. Bassemer converter is used in the refining of :

A. pig iron

B. steel

C. wrought iron

D. cast iron

Answer: B

Watch Video Solution

162. Which of the following elements contitutes a major impurity in pig iron ?

A. Carbon

B. oxygen

C. Sulphur

D. Silicon

Answer: A

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Level 2

1. Which of the following pair of ores cannot be converted into corresponding metals by pyrometallurgy ?

A. Ag_2S, ZnS

B. Cu_2S, HgS

C. MnO_2, SnO_2

D. None

Answer: A

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2. $XCl_2(\text{excess}) + Ycl_2 \rightarrow XCl_4 + Y \downarrow$,

$YO \xrightarrow[>400^\circ]{\Delta} \frac{1}{2}O_2 + Y$, Ore of Y would be :

A. Siderite

B. Cinnabar

C. Malachite

D. Hornsilver

Answer: B

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3. Sulphdies ores are converted to oxides before reduction . This is explained on the basic of which of the following ?

A. a sulphide ore cannot be reduced to metal at all

B. no reducing agent is found suitable for reducing a sulphide ore

C. the enthalpy of formation of CO_2 is more than that of CS_2

D. a metal oxide is generally less stable than the metal sulphide

Answer: D

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4. Choose the correct option the code regarding roasting process.

(I) It is the process of heating the ore in air in a reverberatory furnace to obtain the oxide.

(II) It is an exothermic process.

(III) It is used for the concentration of sulphide ore.

(Iv) It removes easily oxidisable volatile impurities present in the concentrated ore.

A. I, II and III

B. I, II and IV

C. I, III and IV

D. I, II, III and IV

Answer: B

Watch Video Solution

5. Carbon cannot be used in the reduction of $A1_2O_3$ because:

A. it is non-metal

B. the heat of formation of CO_2 is more than that of Al_2O_3

C. pure carbon is not easily available

D. the heat of formation of Al_2O_3 is too high

Answer: D

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6. On heating quicktime with coke in an electric furnace, we get

A. Ca and CO_2

B. $CaCO_3$

C. CaO

D. CaC_2

Answer: D

Watch Video Solution

7. Boron can be obtained by various methods but not by :

A. thermal decomposition of B_2H_6

B. pyrolysis of BI_3 (van Arkel)

C. reducing BCl_3 with H_2

D. electrolysis of fused BCl_3

Answer: D

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8. Select correct statement :

A. The decomposition of an oxide into oxygen and metal vapour entropy increases

B. Decomposition of an oxide is an endothermic change

C. The make ΔG° negative, temperature should be high enough so that $T\Delta S^\circ > \Delta H^\circ$

D. All are correct statements

Answer: D

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9. The oxide of a metal (R) can be reduced by the metal (P) and metal (R) can reduce the oxide of metal (Q). Then the decreasing order of the reactivity of metal (P), (Q) and (R) with oxygen is :

A. $P > Q > R$

B. $P > R > Q$

C. $R > P > Q$

D. $Q > P > R$

Answer: B

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10. Consider the following metallurgical processes :

(I) Heating impure metal with CO and distilling the resulting volatile carbonyl $(b.\ p.\ 43^{\circ}C)$ and finally decomposition at $150^{\circ} - 200^{\circ}C$ to get

the pure metal.

(II) Heating the sulphide ore in air until a part is converted to oxide and then further heating in the absence of air to let the oxide react with unchanged metal sulphide.

(III) Electrolysis of the molten electrolyte containing approximately equal amounts of the metal chloride and NaCl to obtain the metal.

The processes used for obtaining magnesium , nickel and copper are respectively.

A. (I),(II) and (III)

B. (II), (III) and (I)

C. (III), (I) and (II)

D. (II), (I) and (III)

Answer: C

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11. When alumina is heated with carbon in the atmosphere of nitrogen then product formed are

A. Al +CO

B. $Al + CO_2$

C. $Al + CO + CO_2$

D. $AlN + CO$

Answer: D

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12. MgO can be used as a refractory material because

A. It has high melting point

B. It is a good conductor of heat

C. It is a good electrical insulator

D. All of these

Answer: D

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13. Amoung the following statements, the incorrect statement is :

A. calamine and cerrusite are carbonate ores

B. rutile and cuprite are oxide ores

C. zinc blende and pyrites are sulphide ores

D. malachite and azurite are sulphate ores of Cu

Answer: D

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14. Give the correct order of initials T or F for following statements. Use T if statement is true and F if it is false.

(i) Every mineral is an ore but every ore is not a mineral

(ii) Slag is product formed during extraction of metal by combination of flux and impuritites.

(iii) Highly pure metals can be obtained by zone refining.

(iv) Carnallite is an ore of magnesium and sodium.

A. T T T F

B. FT TF

C. FT T T

D. TFTF

Answer: B

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15. Find the incorrectly matched pair ?

A. $\begin{matrix}\text{Column-I(ores)} & \text{Column-II(metals)} \\ \text{Sylvine} & (1)\text{Potassium}\end{matrix}$

B. $\begin{matrix}\text{Column-I(ores)} & \text{Column-II(metals)} \\ \text{Malachite} & (2)\text{Magnesium}\end{matrix}$

C. $\begin{matrix}\text{Column-I(ores)} & \text{Column-II(metals)} \\ \text{Cinnabar} & (3)\text{Mercury}\end{matrix}$

D. | Column-I(ores) | Column-II(metals) |
| --- | --- |
| Fluorite (Flourspar) | (4)Calcium |

Answer: B

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16. Froth floatation process used for the concentration of sulphide ore :

A. is based on the difference in wettability of different minerls

B. uses sodium ethyl xanthate, $C_2H_5OCS_2Na$ as collector

C. uses NaCN as depressant in the mixture of ZnS and PbS when ZnS forms soluble complex and PbS forms froth

D. All are correct statements

Answer: D

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17. When ZnS and PbS minearls are present together, then NaCN is added to separate them in the froth floatation process as a depressant, because :

A. $Pb(CN)_2$ is precipitated while no effect on ZnS

B. ZnS forms soluble complex $Na_2\left[Zn(CN)_4\right]$

C. PbS forms soluble complex $Na_2\left[Pb(CN)_4\right]$

D. They cannot be separated by adding NaCN

Answer: B

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18. Leaching of Ag_2S is carried out by heating it with a dilute solution of :

A. NaCN only

B. HCl

C. NaOH

D. NaCN in presence of O_2

Answer: D

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19. Leaching is commercially carried out for in the concentration of :

A. Galena

B. Argentite

C. Copper pyrites

D. Tin stone

Answer: B

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20. When ZnS and PbS minearls are present together, then NaCN is added to separate them in the froth floatation process as a depressant, because :

A. $Pb(CN)_2$ is precipitated while no effect on ZnS

B. ZnS forms soluble complex $Na_2\left[Zn(CN)_4\right]$ while PbS forms froth

C. PbS forms soluble complex $Na_2\left[Pb(CN)_4\right]$ while ZnS forms froth

D. NaCN is never added in froth floatation process

Answer: B

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21. Which of the following substance acts as collector in froth floatation method ?

A. Sodium xenate

B. Sodium pyrophosphate

C. Sodium nitroprusside

D. Sodium ethyl xanthate

Answer: D

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22. 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

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23. Formation of metallic copper from sulphide ore in te normal thermometallurgical process essentially involves which of the following reactions

A. $Cu_2S + \frac{3}{2}O_2 \rightarrow Cu_2O + SO_2, \quad Cu_2O + C \rightarrow 2Cu + CO$

B.

$Cu_2S + \frac{3}{2}O_2 \rightarrow Cu_2O + SO_2, \quad 2Cu_2O + Cu_2S \rightarrow 6Cu + SO_2$

C. $Cu_2S + 2O_2 \rightarrow CuSO_4, \quad CuSO_4 + Cu_2S \rightarrow 3Cu + 2SO_2$

D.

$Cu_2S + \frac{3}{2}O_2 \rightarrow Cu_2O + SO_2, \quad Cu_2O + CO \rightarrow 2Cu + CO_2$

Answer: B

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24. There are following extraction process of silver but not:

A. as a side product in electrolytic refining of copper

B. Parke's process in which Zn is used to extract silver by solvent extraction from molten lead

C. by reaction of silver sulphide with KCN and then reaction of soluble complex with Zn

D. by heating $Na\left[Ag(CN)_2\right]$

Answer: D

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25. In the extraction of aluminium

Process X: employed for red bauxite to remove iron oxide (main impurity)

Process Y: (Serpeck's process): used for while bauxite to remove Z (main impurity) then,

Select correct option for the process X and impurity Z.

A. X=Hall and Heroult's process and $Z = SiO_2$

B. X=Baeyer's process and $Z = SiO_2$

C. X=Serpeck's process and Z= iron oxide

D. X=Baeyer's process and Z = iron oxide

Answer: B

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26. Give the correct order of initials T or F for following statements. Use T if statements is true and F if it is false.

(i) In gold schmidt thermite process aluminium acts as a reducing agent.

(ii) Mg is extracted by electrolysis of aq. solution of $MgCl_2$.

(iii) Extraction of Pb is possible by carbon reduction method

(iv) Red Bauxite is purified by Serpeck's process.

A. T T T F

B. TF FT

C. F T T T

D. TFTF

Answer: D

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27. $FeCr_2O_4$(chromite) is converted to Cr by following steps :

Chromite $\xrightarrow{I} Na_2CrO_4 \xrightarrow{II} Cr_2O_3 \xrightarrow{III} Cr$

Reagents in $I, II,$ and III step might be :

A.

I-Step	II-Step	III-Step
$Na_2CO_3/\text{air}, \Delta$	C	C

B.

I-Step	II-Step	III-Step
$NaOH/\text{air}, \Delta$	$C\Delta$	$Al\Delta$

C.

I-Step	II-Step	III-Step
$Na_2CO_3/\text{air}, \Delta$	$C\Delta$	$C\Delta$

D.

I-Step	II-Step	III-Step
$conc.\ H_2SO_4\Delta$	$NH_4Cl\Delta$	$C\Delta$

Answer: B

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28. The electrolysis of pure alumina is not feasible because :

A. it is bad conductor of electricity and its fusion temperature is high

B. it is volatile in nature

C. it is decomposed when fused

D. it is amphoteric

Answer: A

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29. Which of the following reaction does not occur in Bessemer's converter ?

A. $2Cu_2S + 5O_2 \rightarrow 2CuSO_4 + 2CuO$

B. $2Cu_2S + 3O_2 \rightarrow 2Cu_2O + 2SO_2 \uparrow$

C. $2CuFeS_2 + O_2 \rightarrow Cu_2S + 2FeS + SO_2$

D. $FeO + SiO_2 \rightarrow FeSiO_3$

Answer: C

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30. what products are formed during the electrolysis of concentrated aqueous solution of sodium chloride?

(I) Cl_2(g) at anode (II) NaOH (aq) (III) H_2(g) At cathode

A. I only

B. I and II only

C. I and III only

D. I, II and III

Answer: D

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31. During the electrolysis of carnallite, $MgCl_2$ is decomposed and not KCl. This is because of :

A. lower decomposition voltage of $MgCl_2$ than that of KCl

B. reverse reaction $MgCl_2 + 2K \rightarrow Mg + 2KCl$ if KCl is decomposed under other experimental condition

C. both (a) and (b)

D. none of the above

Answer: C

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32. Aluminium oxide is not reduced by chemical reactions due to

A. Beeyer's process

B. Goldschmidt's aluminothermite process

C. Hall's process

D. van Arkel process

Answer: B

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33. Incorrect statement in electrolysis of Al_2O_3 by Hall-Heroult process is :

A. Cryolite $Na_3[AlF_6]$ lowers the m.pt. of Al_2O_3 and increases its electrical conductivity

B. Al is obtained at cathode and CO_2 at anode

C. Li_2CO_3 can be used in place of cryolite (Na_3AlF_6)

D. MgF_2 can be used in place of flourspare (CaF_2)

Answer: D

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34. In the leaching of Ag_2S with $NaCN$, a stream air is also passed. It is because of

A. reversible nature of eaction between Ag_2S and NaCN

B. to oxide Na_2S formed into Na_2SO_4 and sulphur

C. both (a) and (b)

D. none of the above

Answer: C

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35. In van Arkel method, if I_2 is introduced at 1700 K over impure metal, the product will be :

A. Iodide of the metal

B. No reaction takes place

C. Impurities react with iodine

D. None of these

Answer: A

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

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

D. Greater solubility of the impurity in the molten state than in the solid

Answer: D

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37. Blister copper is refined by stirring moltem impure metal with green logs of wood because such a wood liberated hydrocarbon gases like (CH_4). The process X is called _____ and the Metal contains impurity of Y is ____:

A. X=cupellation, $Y = CuO_2$

B. X=polling, $Y = Cu_2O$

C. X=polling, Y= CuO

D. X=cupellation, Y=CuO

Answer: B

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38. The anode mud in the electrolytic refining of silver contains :

A. Zn, Cu, Ag, Au

B. Zn, Ag, Au

C. Cu, Ag, Au

D. Au only

Answer: D

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39. The method of electrolytic refining is not suitable in the extraction of

A. Aluminium

B. Copper

C. Mercury

D. Silver

Answer: C

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40. Match Column-I with Column-II

Column-I	Column-II
(P) Nitriding	(I) Process of heating steel to redness and then cooling it very slowly
(Q) Annealing	(II) Process of heating steel in presence of NH_3 and producing hard coating of Iron Nitride on the surface of steel
(R) Tempering	(III) Process of heating steel to redness and then cooling it suddenly by plunging it into water or oil
(S) Quenching	(IV) Process of heating quenched steel to a temperature well below redness and then cooling it slowly

A. $\begin{matrix} P & Q & R & S \\ II & I & III & IV \end{matrix}$

B. $\begin{matrix} P & Q & R & S \\ II & I & IV & III \end{matrix}$

C. $\begin{matrix} P & Q & R & S \\ I & II & IV & III \end{matrix}$

D. $\begin{matrix} P & Q & R & S \\ I & II & III & IV \end{matrix}$

Answer: B

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41. Softening of lead means:

A. conversion of lead to PbO

B. conversion of lead to Pb_3O_4

C. removal of impurities (metallic) from lead

D. washing lead with HNO_3 followed by alkali solution

Answer: C

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42. In the purification of impure Ni by Mond's process, metal is purified by

A. electrolytic reduction

B. Vapour phase thermal decomposition

C. Thermite reduction

D. Carbon reduction

Answer: B

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43. Correct match is :

A. Bayer's method $-Na_2CO_3$

B. Matte $-98\,\%\,Cu_2S + 2\,\%\,FeS$

C. van Arkel method - AgCI

D. Thomas slag - Raw material for cement industry

Answer: B

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44. Which of the following pair of ores cannot be converted into corresponding metals by pyrometallurgy ?

A. Ag_2S, ZnS

B. Cu_2S, HgS

C. MnO_2, SnO_2

D. None

Answer: A

Watch Video Solution

45. $XCl_2(\text{excess}) + Ycl_2 \rightarrow XCl_4 + Y \downarrow$,

$YO \xrightarrow[>400^\circ]{\Delta} \frac{1}{2}O_2 + Y$, Ore of Y would be :

A. Siderite

B. Cinnabar

C. Malachite

D. Hornsilver

Answer: B

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46. A sulphide ore is first converted into its oxide before reduction. This is done because :

A. a sulphide ore cannot be reduced to metal at all

B. no reducing agent is found suitable for reducing a sulphide ore

C. the enthalpy of formation of CO_2 is more than that of CS_2

D. a metal oxide is generally less stable than the metal sulphide

Answer: D

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47. Choose the correct code regarding Roasting process.

(I) It is the process of heating ore in air to obtain the oxide

(II) It is an exothermic process

(III) It is used for hydrated oxide and oxysalt ore

(IV) It is used after the concentration of ore

A. I, II and III

B. I, II and IV

C. I, III and IV

D. I, II, III and IV

Answer: B

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48. Carbon cannot be used in the reduction of Al_2O_3 because :

A. it is non-metal

B. the heat of formation of CO_2 is more than that of Al_2O_3

C. pure carbon is not easily available

D. the heat of formation of Al_2O_3 is too high

Answer: D

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49. On heating quick lime with coke in an electric furnace, we get :

A. Ca and CO_2

B. $CaCO_3$

C. CaO

D. CaC_2

Answer: D

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50. Boron can be obtained by various methods but not by :

A. thermal decomposition of B_2H_6

B. pyrolysis of BI_3 (van Arkel)

C. reducing BCl_3 with H_2

D. electrolysis of fused BCl_3

Answer: D

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51. Select correct statement :

A. The decomposition of an oxide into oxygen and metal vapour entropy increases

B. Decomposition of an oxide is an endothermic change

C. The make ΔG° negative, temperature should be high enough so that $T\Delta S^\circ > \Delta H^\circ$

D. All are correct statements

Answer: D

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52. The oxide of a metal (R) can be reduced by the metal (P) and metal (R) can reduce the oxide of metal (Q). Then the decreasing order of the reactivity of metal (P), (Q) and (R) with oxygen is :

A. $P > Q > R$

B. $P > R > Q$

C. $R > P > Q$

D. $Q > P > R$

Answer: B

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53. Consider the following metallurgical processes :

(I) Heating impure metal with CO and distilling the resulting volatile carbonyl (b.p. $43^\circ C$) and finally decomposition at $150^\circ - 200^\circ C$ to get the pure metal

(II) Heating the sulphide ore in air until a part is converted to oxide and

then further heating in the absence of air to let the oxide react with unchanged metal sulphide

(III) Electrolysis of the molten electrolyte containing approximately equal amounts of the metal chloride and NaCl to obtained the metal

The processes used for obtaining magnesium, nickel and copper are respectively :

A. (I),(II) and (III)

B. (II), (III) and (I)

C. (III), (I) and (II)

D. (II), (I) and (III)

Answer: C

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54. When alumina is heated with carbon in nitrogen atmosphere, the products are :

A. Al +CO

B. $Al + CO_2$

C. $Al + CO + CO_2$

D. $AlN + CO$

Answer: D

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55. MgO is used as a refractory material because :

A. It has high melting point

B. It is a good conductor of heat

C. It is a good electrical insulator

D. All of these

Answer: D

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56. Amoung the following statements, the incorrect statement is :

A. calamine and cerrusite are carbonate ores

B. rutile and cuprite are oxide ores

C. zinc blende and pyrites are sulphide ores

D. malachite and azurite are sulphate ores of Cu

Answer: D

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57. Give the correct order of initials T or F for following statements. Use T if statement is true and F if it is false.

(i) Every mineral is an ore but every ore is not a mineral

(ii) Slag is product formed during extraction of metal by combination of flux and impuritites.

(iii) Highly pure metals can be obtained by zone refining.

(iv) Carnallite is an ore of magnesium and sodium.

A. T T T F

B. FT TF

C. FT T T

D. TFTF

Answer: B

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58. Find the incorrectly matched pair ?

Column-I (ores)	Column-II (metals)
(a) Sylvine	(1) Potassium
(b) Malachite	(2) Magnesium
(c) Cinnabar	(3) Mercury
(d) Fluorite (Flourspar)	(4) Calcium

A. Column-I(ores) Sylvine Column-II(metals) (1)Potassium

B. Column-I(ores) Malachite Column-II(metals) (2)Magnesium

C. Column-I(ores) Column-II(metals)
Cinnabar (3)Mercury

D. Column-I(ores) Column-II(metals)
Fluorite (Flourspar) (4)Calcium

Answer: B

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59. Froth floatation process used for the concentration of sulphide ore :

A. is based on the difference in wettability of different minerls

B. uses sodium ethyl xanthate, $C_2H_5OCS_2Na$ as collector

C. uses NaCN as depressant in the mixture of ZnS and PbS when ZnS forms soluble complex and PbS forms froth

D. All are correct statements

Answer: D

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60. When ZnS and PbS minearls are present together, then NaCN is added to separate them in the froth floatation process as a depressant, because :

A. $Pb(CN)_2$ is precipitated while no effect on ZnS

B. ZnS forms soluble complex $Na_2\left[Zn(CN)_4\right]$

C. PbS forms soluble complex $Na_2\left[Pb(CN)_4\right]$

D. They cannot be separated by adding NaCN

Answer: B

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61. Leaching of Ag_2S is carried out by heating it with a dilute solution of:

A. NaCN only

B. HCl

C. NaOH

D. NaCN in presence of O_2

Answer: D

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62. Leaching is commercially carried out for in the concentration of :

A. Galena

B. Argentite

C. Copper pyrites

D. Tin stone

Answer: B

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63. $NaCN$ is sometimes added in the froth flotation process as a depressant when ZnS and PbS minerals are expected because :

A. $Pb(CN)_2$ is precipitated while no effect on ZnS

B. ZnS forms soluble complex $Na_2\left[Zn(CN)_4\right]$ while PbS forms froth

C. PbS forms soluble complex $Na_2\left[Pb(CN)_4\right]$ while ZnS forms froth

D. NaCN is never added in froth floatation process

Answer: B

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64. Which of the following substance acts as collector in froth floatation method ?

A. Sodium xenate

B. Sodium pyrophosphate

C. Sodium nitroprusside

D. Sodium ethyl xanthate

Answer: D

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65. 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

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66. Formation of metallic copper from the sulphide ore in the commercial metallurgical process involves.

A. $Cu_2S + \frac{3}{2}O_2 \rightarrow Cu_2O + SO_2, \quad Cu_2O + C \rightarrow 2Cu + CO$

B.

$Cu_2S + \frac{3}{2}O_2 \rightarrow Cu_2O + SO_2, \quad 2Cu_2O + Cu_2S \rightarrow 6Cu + SO_2$

C. $Cu_2S + 2O_2 \rightarrow CuSO_4, \quad CuSO_4 + Cu_2S \rightarrow 3Cu + 2SO_2$

D.

$Cu_2S + \frac{3}{2}O_2 \rightarrow Cu_2O + SO_2, \quad Cu_2O + CO \rightarrow 2Cu + CO_2$

Answer: B

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67. There are following extraction process of silver but not:

A. as a side product in electrolytic refining of copper

B. Parke's process in which Zn is used to extract silver by solvent extraction from molten lead

C. by reaction of silver sulphide with KCN and then reaction of soluble complex with Zn

D. by heating $Na\left[Ag(CN)_2\right]$

Answer: D

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68. In the extraction of aluminium

Process X : applied for red bauxite to remove iron oxide (chief impurity)

Process Y : (Serpeck's process) : applied for white bauxite to remove Z (chief impurity) then, process X and impurity Z are :

A. X=Hall and Heroult's process and $Y = SiO_2$

B. X=Baeyer's process and $Y = SiO_2$

C. `X=Serpeck's process and Y= iron oxide

D. X=Baeyer's process and Y = iron oxide

Answer: B

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69. Give the correct order of initials T or F for following statements. Use T if statement is true and F if it is false.

(i) In Gold schmidt thermite process aluminium acts as a reducing agent.

(ii) Mg is extracted by electrolysis of aq. Solution of $MgCl_2$

(iii) Extraction of Pb is possible by carbon reduction method

(iv) Red Bauxite is purified by Serpeck's process

A. T T T F

B. TF FT

C. F T T T

D. TFTF

Answer: D

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70. $FeCr_2O_4$ (chromite) is converted to Cr by following steps :

Crhormite $\xrightarrow{I} NaCrO_4 \xrightarrow{II} Cr_2O_3 \xrightarrow{III} Cr$

Reagents in I, II and III step might be :

A. $\begin{matrix} \text{I-Step} & \text{II-Step} & \text{III-Step} \\ Na_2CO_3/\text{air}, \Delta & C & C \end{matrix}$

B. $\begin{matrix} \text{I-Step} & \text{II-Step} & \text{III-Step} \\ NaOH/\text{air}, \Delta & C\Delta & Al\Delta \end{matrix}$

C. $\begin{matrix} \text{I-Step} & \text{II-Step} & \text{III-Step} \\ Na_2CO_3/\text{air}, \Delta & C\Delta & C\Delta \end{matrix}$

D. $\begin{matrix} \text{I-Step} & \text{II-Step} & \text{III-Step} \\ conc.\ H_2SO_4\Delta & NH_4Cl\Delta & C\Delta \end{matrix}$

Answer: B

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71. The electrolysis of pure alumina is not feasible because :

A. it is bad conductor of electricity and its fusion temperature is high

B. it is volatile in nature

C. it is decomposed when fused

D. it is amphoteric

Answer: A

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72. Which of the following reaction does not occur in Bessemer's converter ?

A. $2Cu_2S + 5O_2 \rightarrow 2CuSO_4 + 2CuO$

B. $2Cu_2S + 3O_2 \rightarrow 2Cu_2O + 2SO_2 \uparrow$

C. $2CuFeS_2 + O_2 \rightarrow Cu_2S + 2FeS + SO_2$

D. $FeO + SiO_2 \rightarrow FeSiO_3$

Answer: C

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73. what products are formed during the electrolysis of concentrated aqueous solution of sodium chloride?

(I) Cl_2(g) at anode (II) NaOH (aq) (III) H_2(g) At cathode

A. I only

B. I and II only

C. I and III only

D. I, II and III

Answer: D

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74. During the electrolysis of carnallite, $MgCl_2$ is decomposed and not KCl. This is because of :

A. lower decomposition voltage of $MgCl_2$ than that of KCl

B. reverse reaction $MgCl_2 + 2K \rightarrow Mg + 2KCl$ if KCl is decomposed under other experimental condition

C. both (a) and (b)

D. none of the above

Answer: C

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75. Aluminium oxide is not reduced by chemical reactions due to

A. Beeyer's process

B. Goldschmidt's aluminothermite process

C. Hall's process

D. van Arkel process

Answer: B

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76. Incorrect statement in electrolysis of Al_2O_3 by Hall-Heroult process is :

A. Cryolite $N_3[AlF_5]$ lowers the m.pt. of Al_2O_3 and increases its electrical conductivity

B. Al is obtained at cathode and CO_2 at anode

C. Li_2CO_3 can be used in place of cryolite (Na_3AlF_6)

D. MgF_2 can be used in place of flourspare (CaF_2)

Answer: D

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77. In the leaching of Ag_2S with NaCN, a stream of air is also passed. It is because of :

A. reversible nature of eaction between Ag_2S and NaCN

B. to oxide Na_2S formed into Na_2SO_4 and sulphur

C. both (a) and (b)

D. none of the above

Answer: C

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78. In van Arkel method, if I_2 is introduced at 1700 K over impure metal, the product will be :

A. Iodide of the metal

B. No reaction takes place

C. Impurities react with iodine

D. None of these

Answer: A

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

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

D. Greater solubility of the impurity in the molten state than in the solid

Answer: D

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80. Blister copper is refined by stirring molten impure metal with green logs of wood because such a wood liberates hydrocarbon gases (like CH_4). This process X is called _____ and the metal contains impurities of Y is _____ .

A. X=cupellation, $Y = CuO_2$

B. X=polling, $Y = Cu_2O$

C. X=polling, Y= CuO

D. X=cupellation, Y=CuO

Answer: B

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81. The anode mud in the electrolytic refining of silver contains :

A. Zn, Cu, Ag, Au

B. Zn, Ag, Au

C. Cu, Ag, Au

D. Au only

Answer: D

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82. The method of electrolytic refining is not suitable in the extraction of

A. Aluminium

B. Copper

C. Mercury

D. Silver

Answer: C

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83. Match Column-I with Column-II

Column-I	Column-II
(P) Nitriding	(I) Process of heating steel to redness and then cooling it very slowly
(Q) Annealing	(II) Process of heating steel in presence of NH_3 and producing hard coating of Iron Nitride on the surface of steel
(R) Tempering	(III) Process of heating steel to redness and then cooling it suddenly by plunging it into water or oil
(S) Quenching	(IV) Process of heating quenched steel to a temperature well below redness and then cooling it slowly

A. $\begin{matrix} P & Q & R & S \\ II & I & III & IV \end{matrix}$

B. $\begin{matrix} P & Q & R & S \\ II & I & IV & III \end{matrix}$

C. $\begin{matrix} P & Q & R & S \\ I & II & IV & III \end{matrix}$

D. $\begin{matrix} P & Q & R & S \\ I & II & III & IV \end{matrix}$

Answer: B

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84. Softening of lead means :

A. conversion of lead to PbO

B. conversion of lead to Pb_3O_4

C. removal of impurities (metallic) from lead

D. washing lead with HNO_3 followed by alkali solution

Answer: C

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85. In the purification of impure Ni by Mond's process, metal is purified by

A. electrolytic reduction

B. Vapour phase thermal decomposition

C. Thermite reduction

D. Carbon reduction

Answer: B

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86. Correct match is :

A. Bayer's method $-Na_2CO_3$

B. Matte $-98\ \%\ Cu_2S + 2\ \%\ FeS$

C. van Arkel method - AgI

D. Thomas slag - Raw material for cement industry

Answer: B

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Level 3 Passive 1

1. For a sponaneous reaction, the free energy change must be negative, $\Delta G = \Delta H - T\Delta S$, ΔH is the enthalpy change during the reaction. T is the absolute temperature, and ΔS is the change in entropy during the reaction. Consider a reaction such as the formation of an oxide

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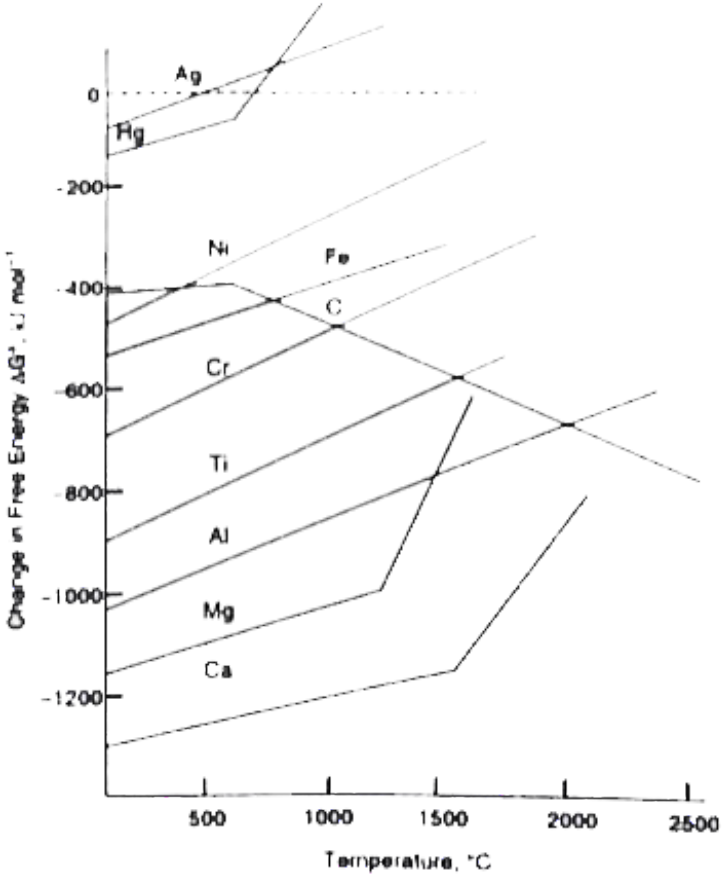
free energy change increases with the increase in temperature.

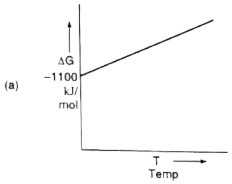
The free energy changes that occur when one mole of common reactant (in this case dioxygen) is used may be plotted graphically aginst temperature for a number of reactions of metals to their oxides. The following plot is called an Ellingham diagram for metal oxide. Understanding of Ellingham diagram is extremely important for the efficient extraction of metals.



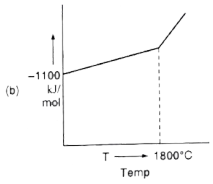
For the conversion of Ca(s) to Ca(s) which of the following represent the

ΔG vs. T ?

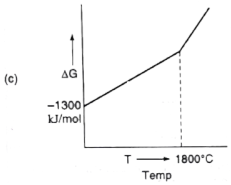
A.



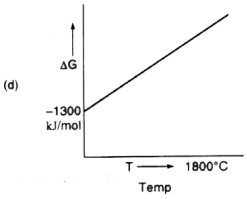
B.



C.



D.



Answer: C

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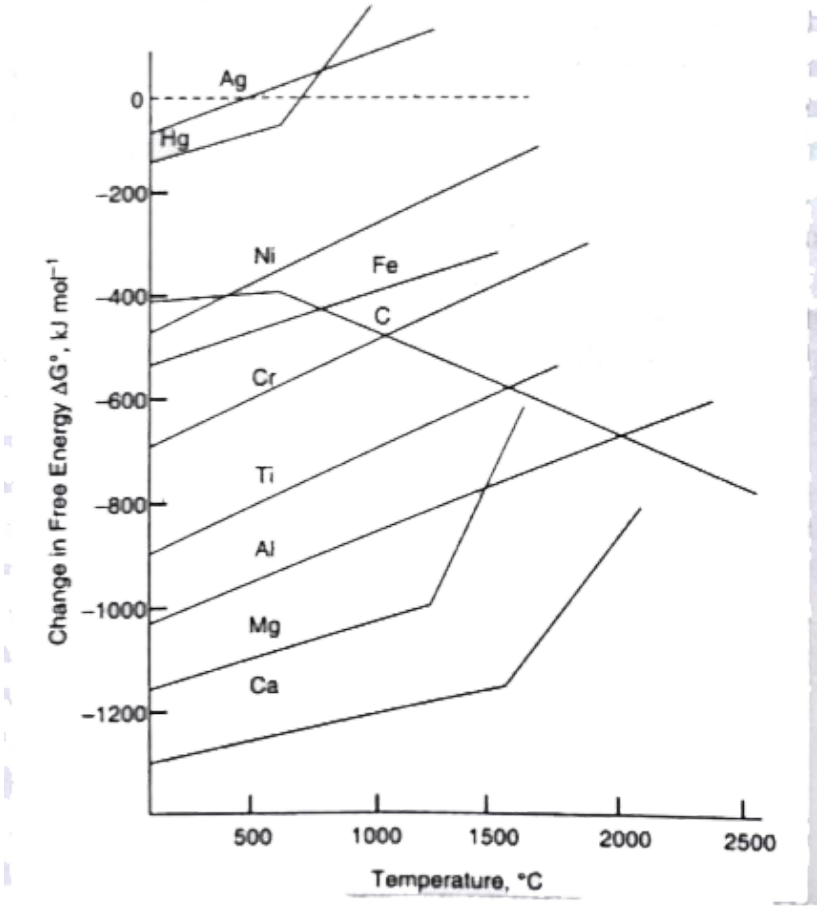

Free energy change of Hg and Mg for the convertion to oxides the slpe of ΔG vsT has been changed above the boiling points of the given metal because :

A. above the boiling point of the metal entropy is increased

B. above the boiling point of the metal the entropy is decreased

C. above the boiling point of the metal the entropy change is equal to zero

D. All of these

Answer: A

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3. For a sponaneous reaction, the free energy change must be negative, $\Delta G = \Delta H - T\Delta S$, ΔH is the enthalpy change during the reaction. T is the absolute temperature, and ΔS is the change in entropy during the reaction. Consider a reaction such as the formation of an oxide

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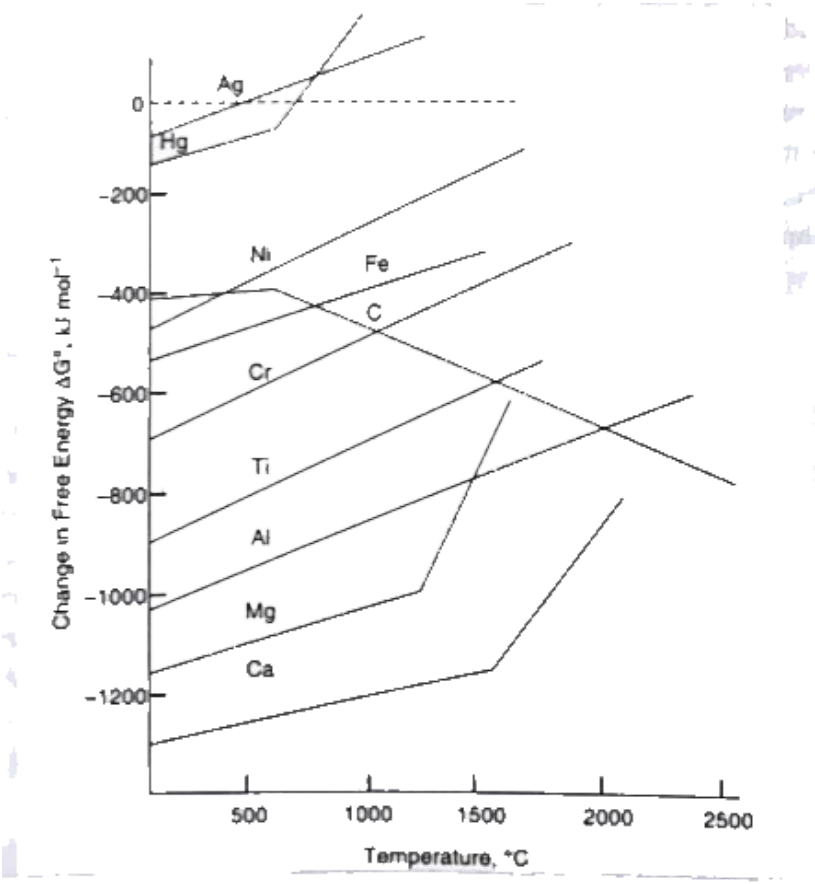

Which of the following elements can be prepared by heating the oxide above $400^{\circ} C$?

A. Hg

B. Mg

C. Fe

D. Al

Answer: A

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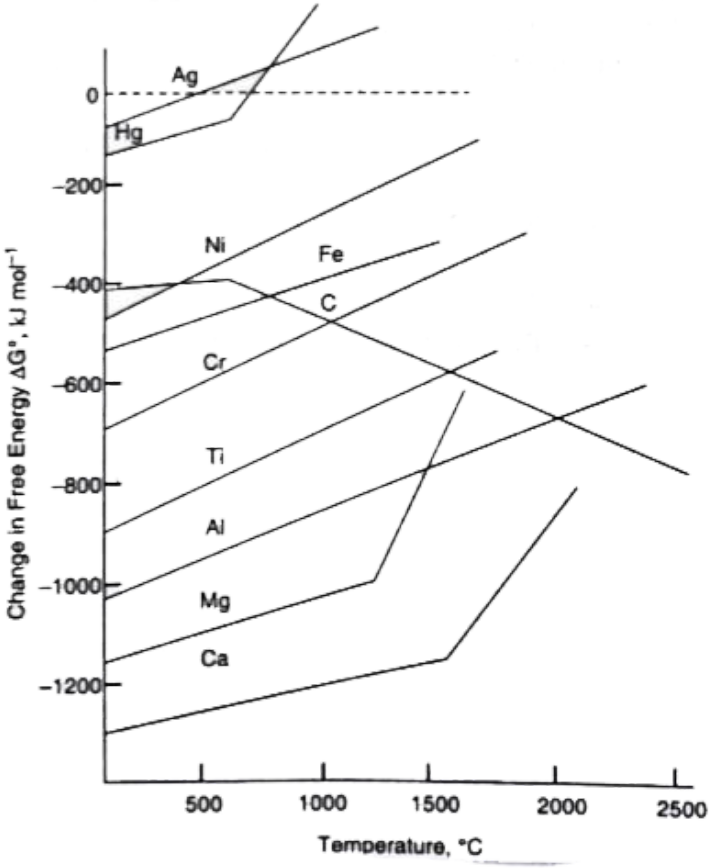

As per the Ellingham diagram of oxides which of the following conclusion is true ?

A. Al reduces Fe_2O_3, whereas MgO cannot be reduced by Al at $1500^\circ C$

B. Fe reduces Al_2O_3, whereas MgO cannot be reduced by Al at $1500^\circ C$

C. Al reduces Fe_2O_3, whereas MgO cannot be reduced by Ca at $1500^\circ C$

D. Al can reduce both Fe_2O_3 and MgO to the corresponding metal at $1500^\circ C$

Answer: A

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5. For a sponaneous reaction, the free energy change must be negative, $\Delta G = \Delta H - T\Delta S$, ΔH is the enthalpy change during the reaction. T is the absolute temperature, and ΔS is the change in entropy during the reaction. Consider a reaction such as the formation of an oxide

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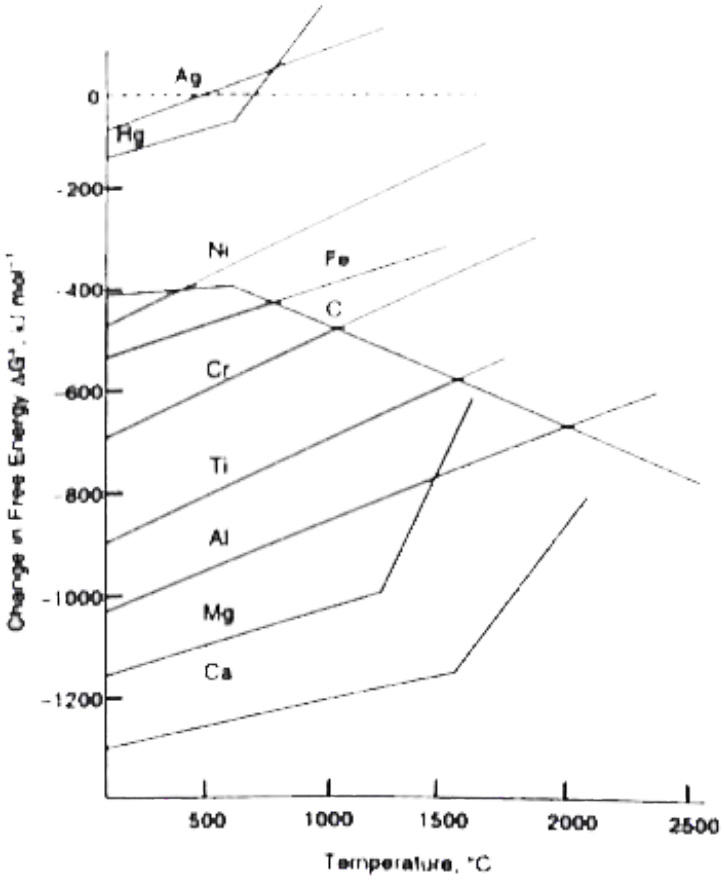

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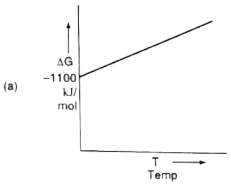
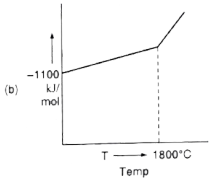
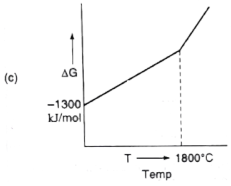


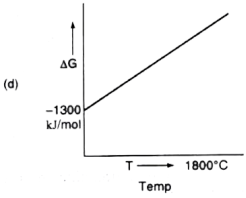
B.



C.



D.



Answer: C

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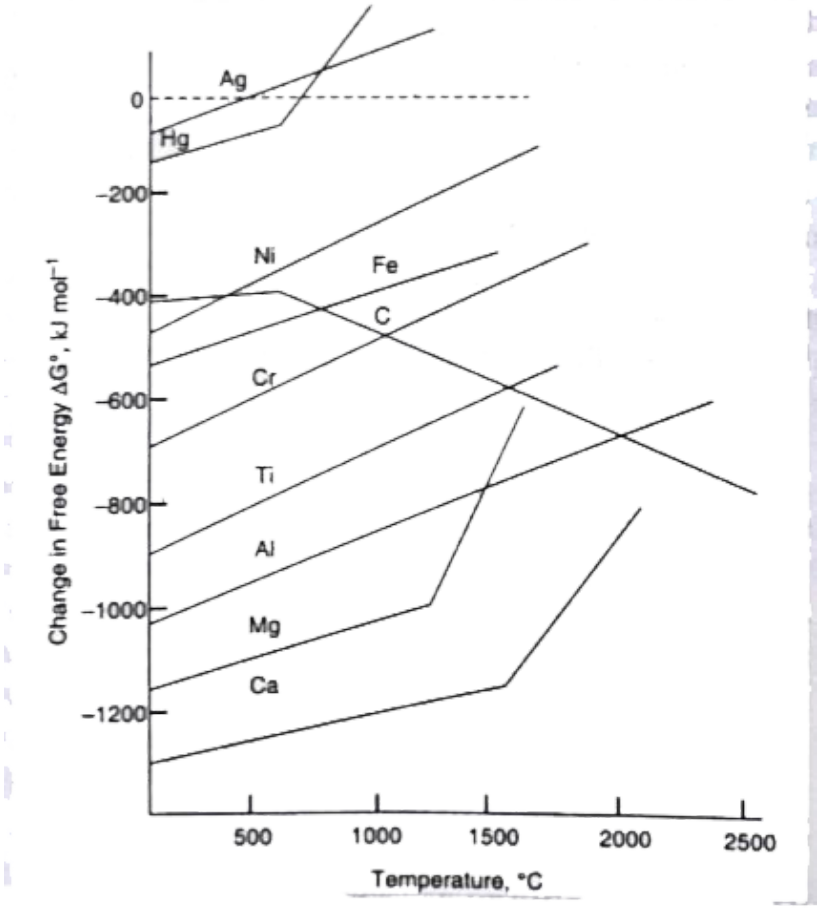

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D. All of these

Answer: A

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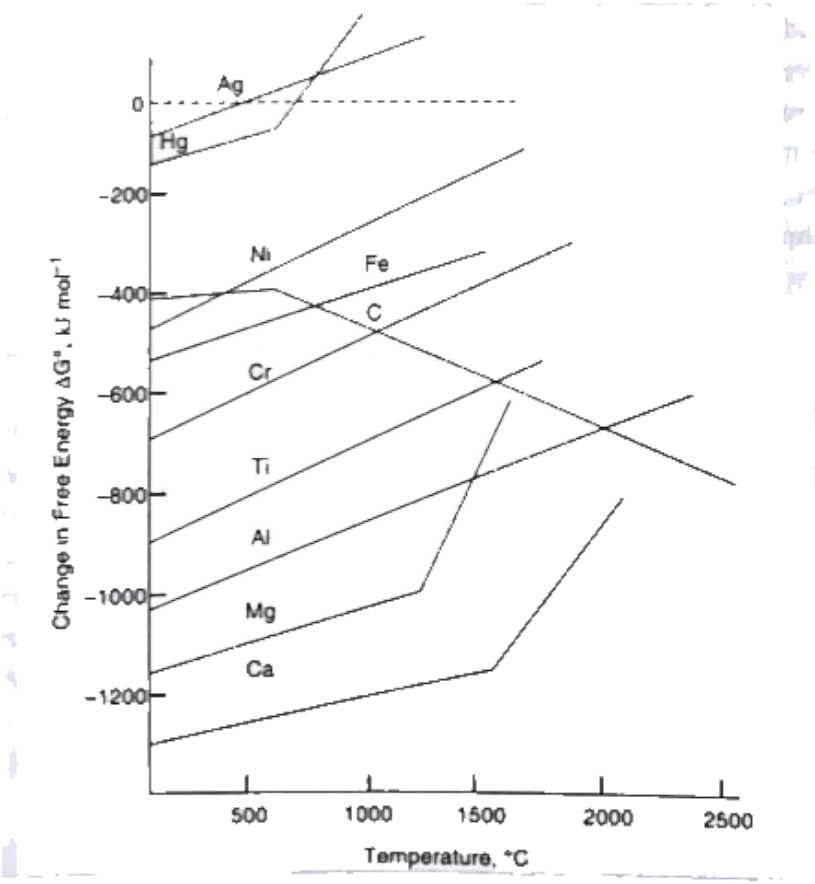
7. For a sponaneous reaction, the free energy change must be negative, $\Delta G = \Delta H - T\Delta S$, ΔH is the enthalpy change during the reaction. T is the absolute temperature, and ΔS is the change in entropy during the reaction. Consider a reaction such as the formation of an oxide

$M + O_2 \rightarrow MO$

Dioxygen is used up in the course of this reaction. Gases have a more random structure (less ordered) than liquid or solids. Consequently gases have a higher entropy than liquids and solids. In this reaction S (entropy or randomness) decreases, hence ΔS is negative. Thus, if the temperature is raised then $T\Delta S$ becomes more negative,Since, $T\Delta S$ is

substracted in the equation, then ΔG becomes less negative. Thus, the free energy change increases with the increase in temperature.

The free energy changes that occur when one mole of common reactant (in this case dioxygen) is used may be plotted graphically aginst temperature for a number of reactions of metals to their oxides. The following plot is called an Ellingham diagram for metal oxide. Understanding of Ellingham diagram is extremely important for the efficient extraction of metals.



Which of the following elements can be prepared by heating the oxide above $400^{\circ} C$?

A. Hg

B. Mg

C. Fe

D. Al

Answer: A

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8. For a sponaneous reaction, the free energy change must be negative, $\Delta G = \Delta H - T\Delta S$, ΔH is the enthalpy change during the reaction. T is the absolute temperature, and ΔS is the change in entropy during the reaction. Consider a reaction such as the formation of an oxide

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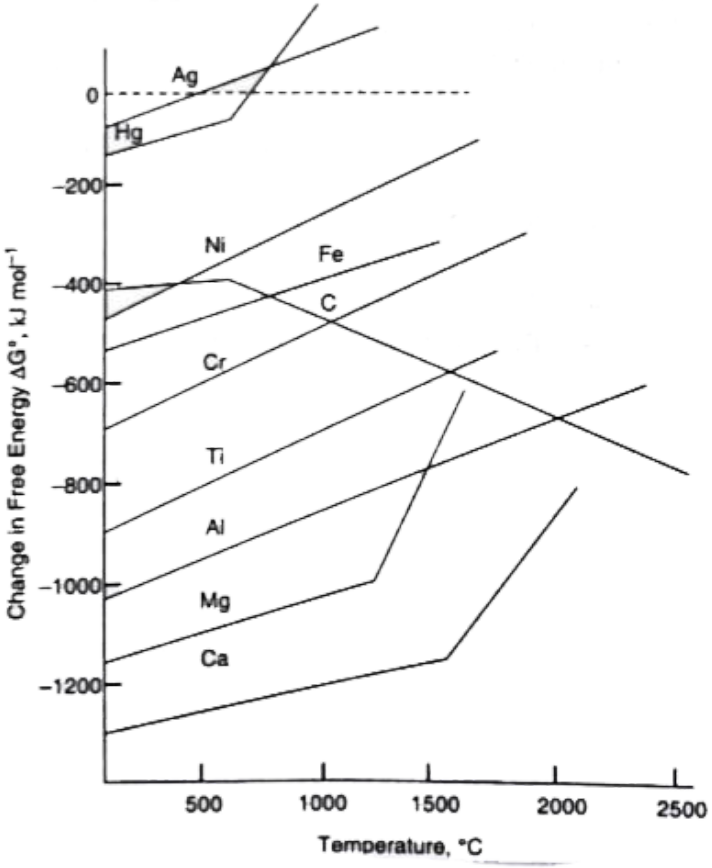

As per the Ellingham diagram of oxides which of the following conclusion is true ?

A. Al reduces Fe_2O_3, whereas MgO cannot be reduced by Al at $1500^\circ C$

B. Fe reduces Al_2O_3, whereas MgO cannot be reduced by Al at $1500^\circ C$

C. Al reduces Fe_2O_3, whereas MgO cannot be reduced by Ca at $1500^\circ C$

D. Al can reduce both Fe_2O_3 and MgO to the corresponding metal at $1500^\circ C$

Answer: A

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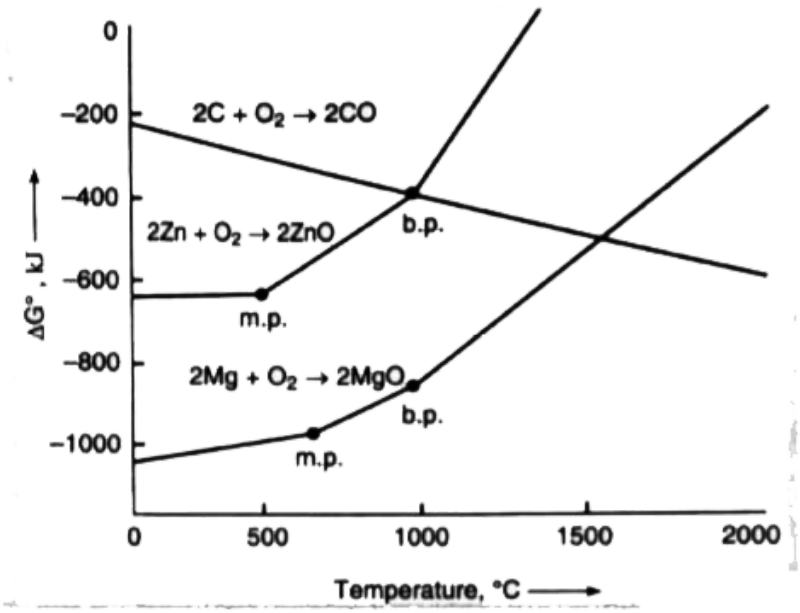
Level 3 Passive 2

1. The ellingham diagram for zinc, magnesium and carbon coverting into correspondingoxides is shown below.



At what temperature, zinc and carbon have equal affinity for oxygen ?

A. $1000^\circ C$

B. $1500^\circ C$

C. $500^\circ C$

D. $1200^\circ C$

Answer: A

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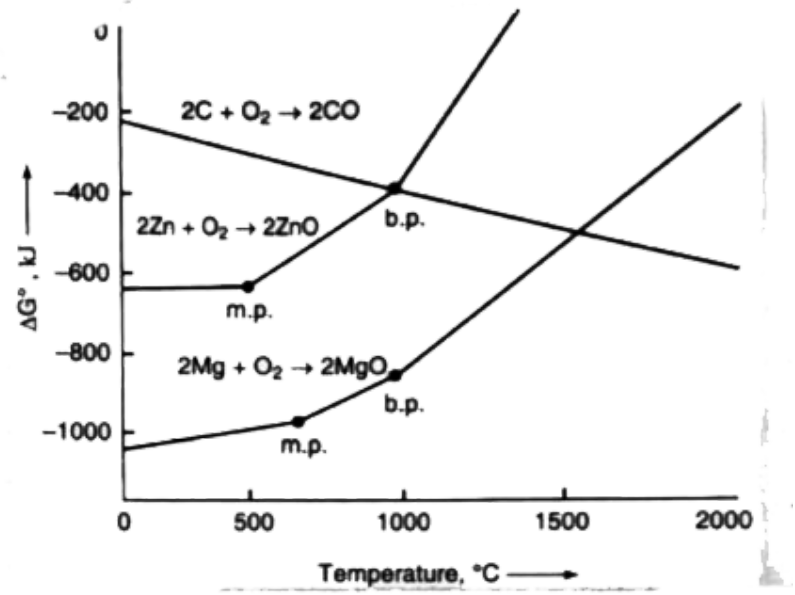
2. The ellingham diagram for zinc, magnesium and carbon coverting into correspondingoxides is shown below.



To make the following reduction process spontaneous, temperature should be :

$ZnO + C \rightarrow Zn + CO$

A. $1000^\circ C$

B. $> 1100^\circ C$

C. $< 500^\circ C$

D. $< 1000^\circ C$

Answer: B

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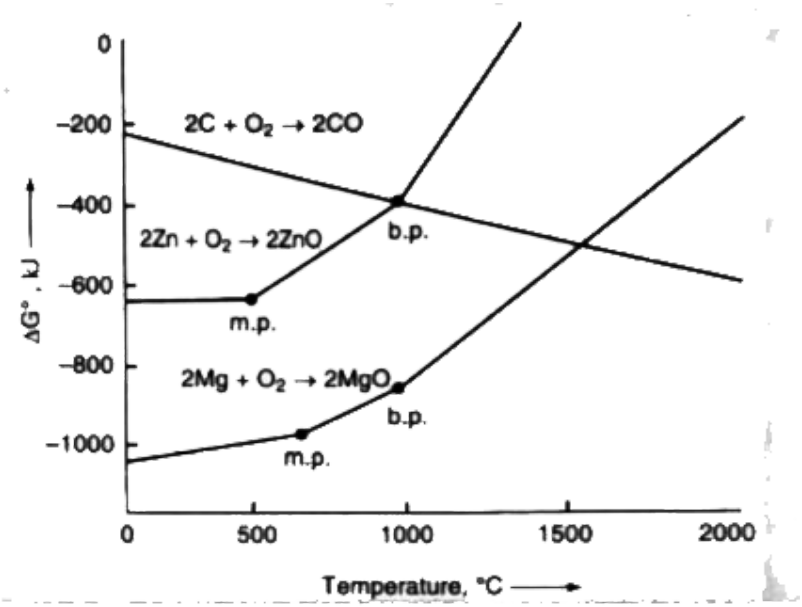
3. The ellingham diagram for zinc, magnesium and carbon coverting into correspondingoxides is shown below.



At $1100^\circ C$, which reaction is spontaneous to a maximum extent ?

A. $MgO + C \rightarrow Mg + CO$

B. $ZnO + C \rightarrow Zn + CO$

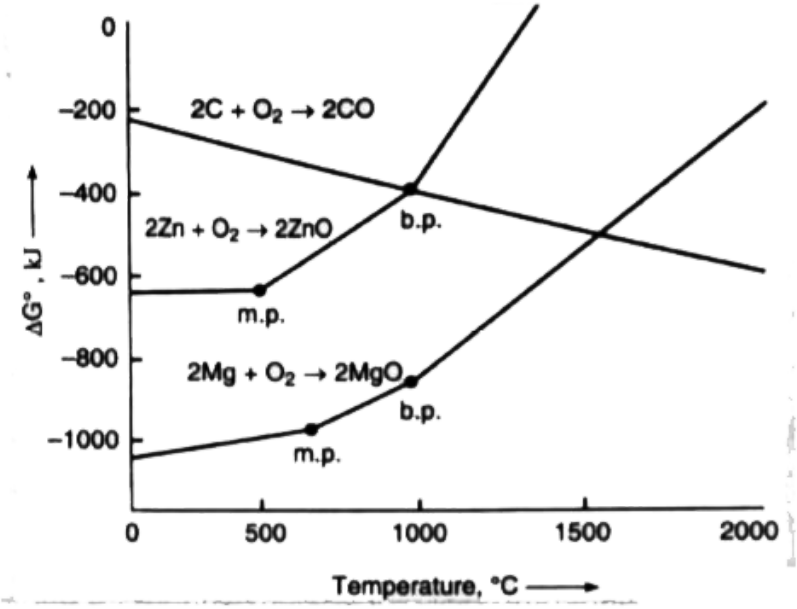
C. $MgO + Zn \rightarrow Mg + ZnO$

D. $ZnO + Mg \rightarrow MgO + Zn$

Answer: D

Watch Video Solution

4. The ellingham diagram for zinc, magnesium and carbon coverting into correspondingoxides is shown below.



At what temperature, zinc and carbon have equal affinity for oxygen ?

A. $1000^{\circ} C$

B. $1500^{\circ} C$

C. $500^{\circ} C$

D. $1200^{\circ} C$

Answer: A

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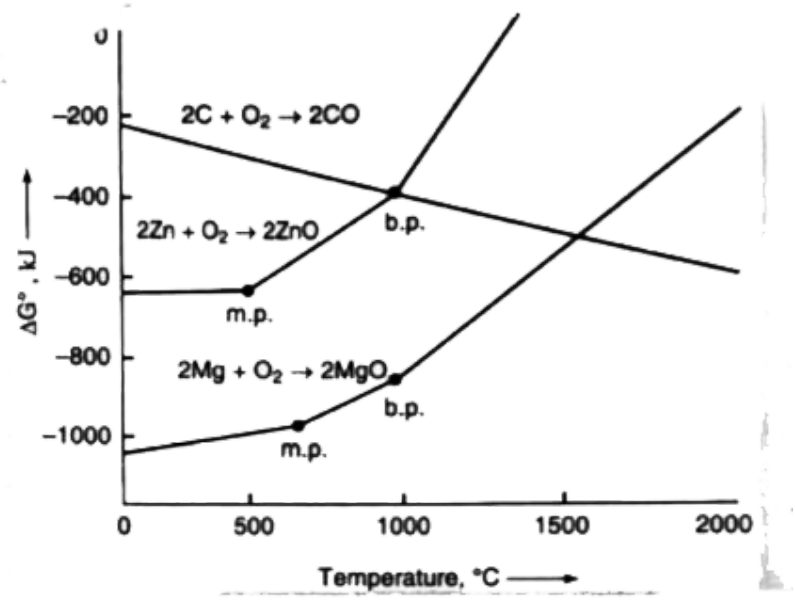
5. The ellingham diagram for zinc, magnesium and carbon coverting into correspondingoxides is shown below.



To make the following reduction process spontaneous, temperature should be :

$ZnO + C \rightarrow Zn + CO$

A. $1000^{\circ} C$

B. $> 1100^{\circ} C$

C. $< 500^{\circ} C$

D. $< 1000^{\circ} C$

Answer: B

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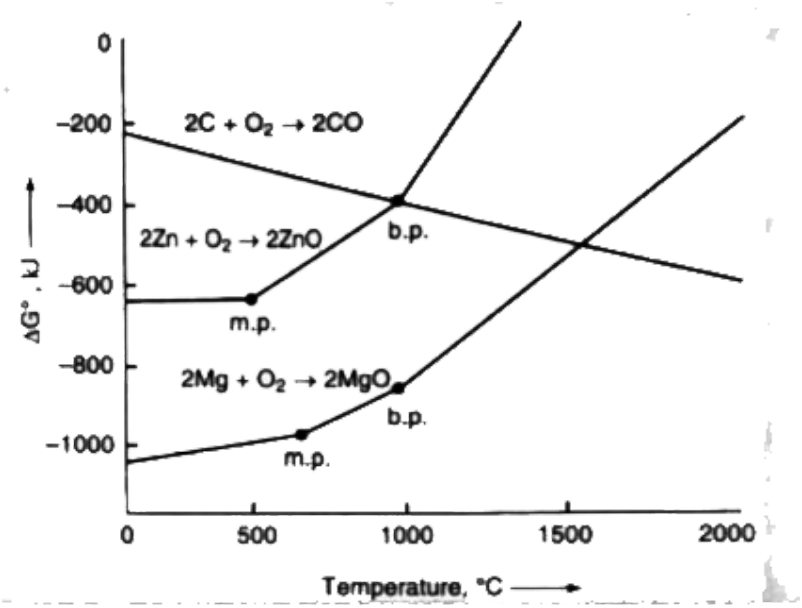
6. The ellingham diagram for zinc, magnesium and carbon coverting into correspondingoxides is shown below.



At $1100^\circ C$, which reaction is spontaneous to a maximum extent ?

A. $MgO + C \rightarrow Mg + CO$

B. $ZnO + C \rightarrow Zn + CO$

C. $MgO + Zn \rightarrow Mg + ZnO$

D. $ZnO + Mg \rightarrow MgO + Zn$

Answer: D

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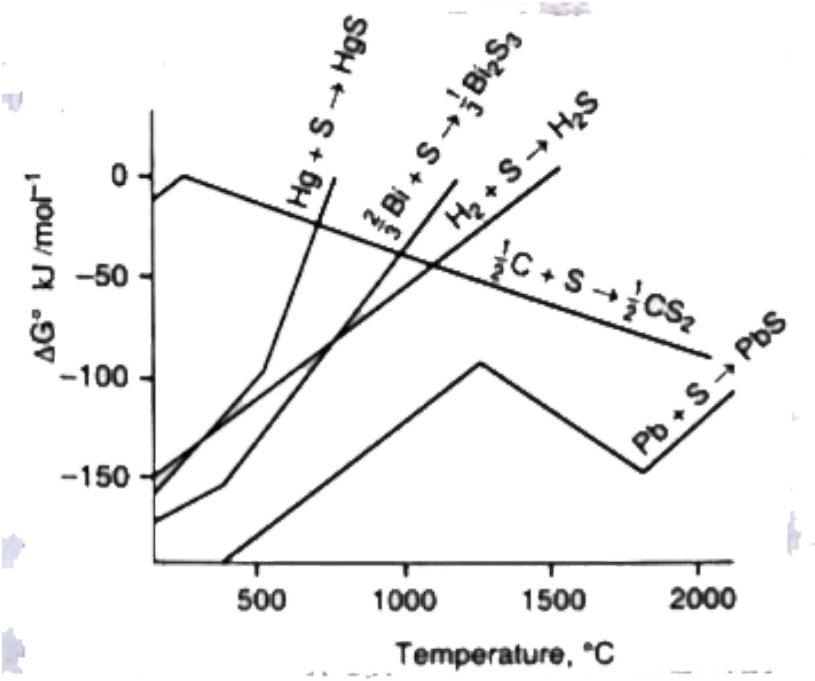
Level 3 Passive 3

1. The Ellingham diagram for a number of metallic sulphides is shown below.



Formation of which of the sulphides is most spontaneous ?

A. HgS

B. Bi_2S_3

C. PbS

D. CS_2

Answer: C

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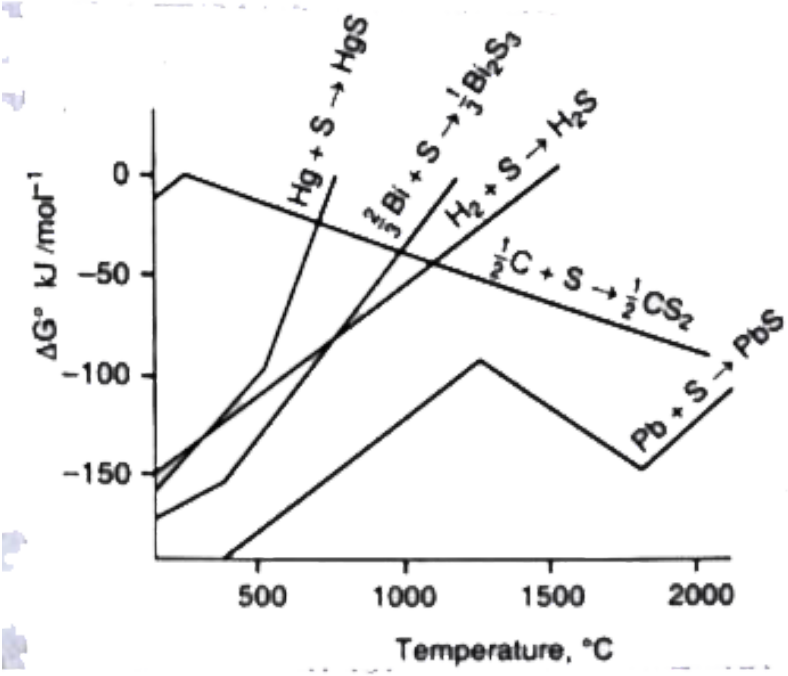
2. The Ellingham diagram for a number of metallic sulphides is shown below.



Which sulphide occurs to minimum extent in nature ?

A. HgS

B. H_2S

C. Bi_2S_3

D. CS_2

Answer: D

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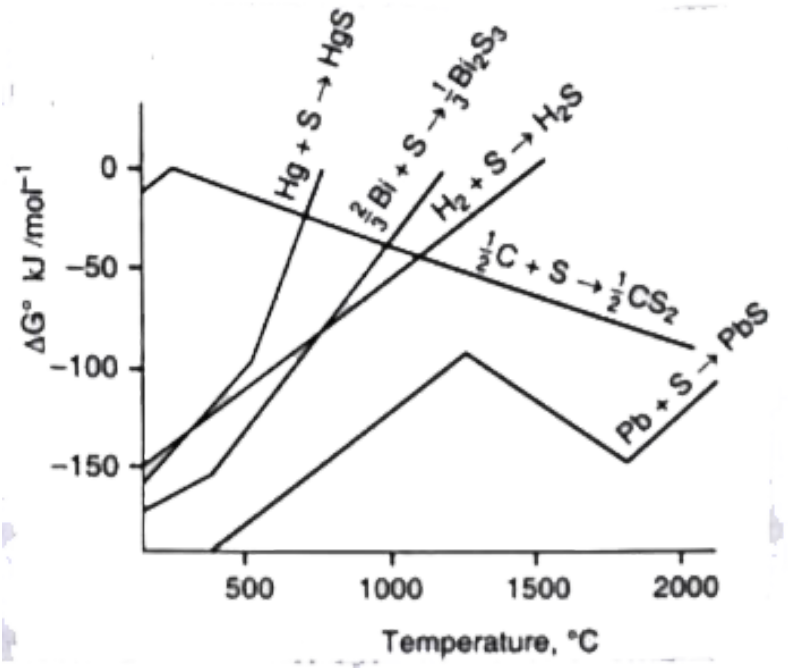
3. The Ellingham diagram for a number of metallic sulphides is shown below.



Which of the following sulphides can not be reduced to metal by H_2 at about $1000^\circ C$?

A. HgS

B. PbS

C. Bi_2S_3

D. All of these

Answer: B

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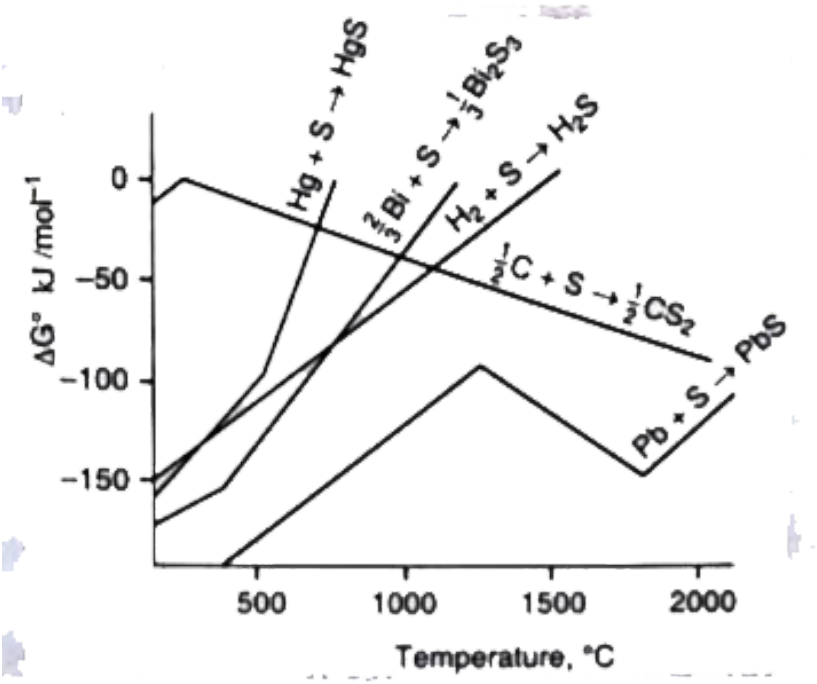
4. The Ellingham diagram for a number of metallic sulphides is shown below.



Formation of which of the sulphides is most spontaneous ?

A. HgS

B. Bi_2S_3

C. PbS

D. CS_2

Answer: C

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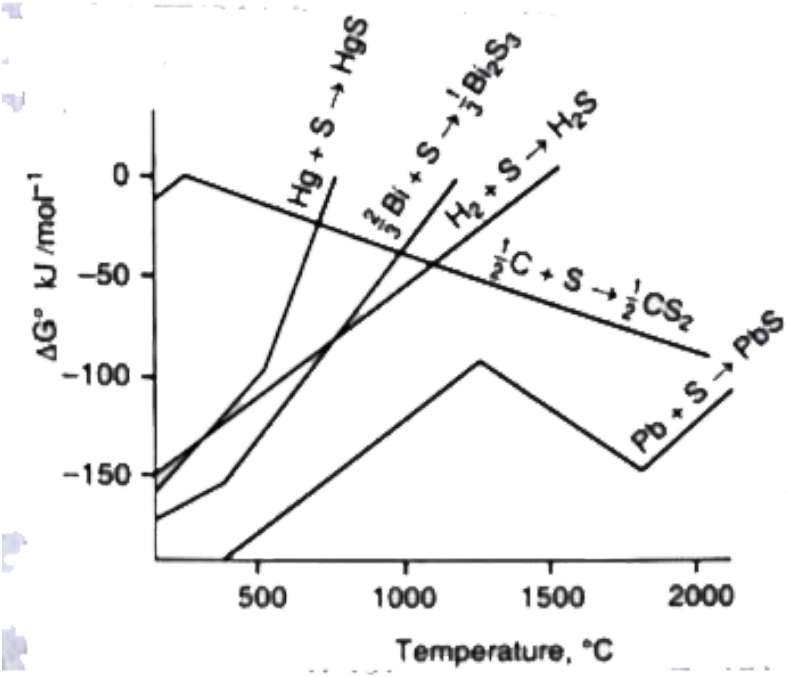
5. The Ellingham diagram for a number of metallic sulphides is shown below.



Which sulphide occurs to minimum extent in nature ?

A. HgS

B. H_2S

C. Bi_2S_3

D. CS_2

Answer: D

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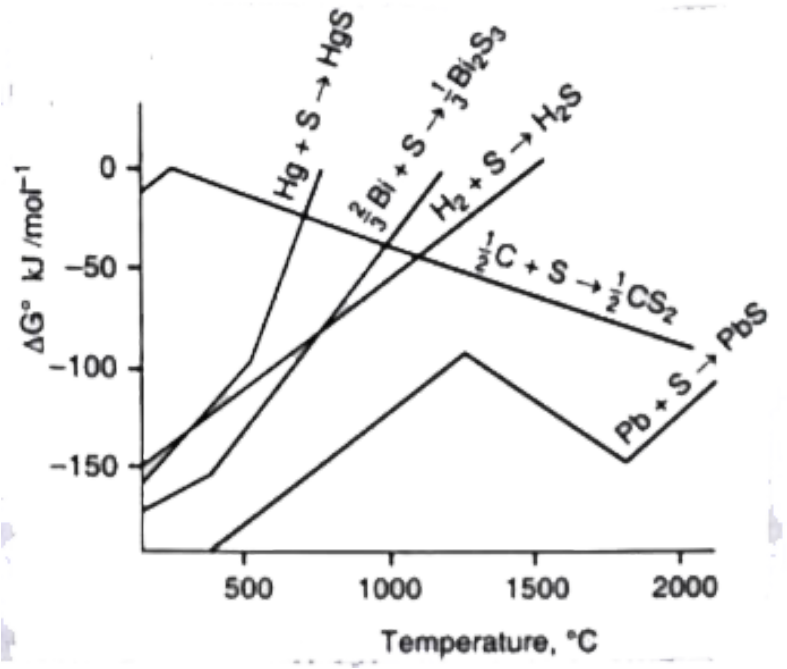
6. The Ellingham diagram for a number of metallic sulphides is shown below.



Which of the following sulphides can not be reduced to metal by H_2 at about $1000^\circ C$?

A. HgS

B. PbS

C. Bi_2S_3

D. All of these

Answer: B

Watch Video Solution

Level 3 Passive 4

1. Magnesium is a valuable, light weight metal used as a structural material as well as in alloys, batteries, and in chemical synthesis. Although magnesium is plentiful in Earth's crust, it is mainly found in the sea water (after sodium). There is about 1.3 g of magnesium in every kilogram of sea water. The process for obtaining magnesium from sea water employs all three types of reactions, i.e., precipitation, acid-base, and redox-reactions. Precipitation reaction involves formation of :

A. insoluble $MgCO_3$ by adding Na_2CO_3

B. insoluble $Mg(OH)_2$ by adding $Ca(OH)_2$

C. insoluble in $MgSO_4$ by adding Na_2SO_4

D. insoluble $MgCl_2$ by adding NaCl

Answer: B

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2. Magnesium is a valuable, light weight metal used as a structural material as well as in alloys, batteries, and in chemical synthesis. Although magnesium is plentiful in Earth's crust, it is mainly found in the sea water (after sodium). There is about 1.3 g of magnesium in every kilogram of sea water. The process for obtaining magnesium from sea water employs all three types of reactions, i.e., precipitation, acid-base, and redox-reactions. Acid-base reaction involves reaction between :

A. $MgCO_3$ and HCl

B. $Mg(OH)_2$ and H_2SO_4

C. $Mg(OH)_2$ and HCl

D. $MgCO_3$ and H_2SO_4

Answer: C

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3. Magnesium is a valuable, light weight metal used as a structural material as well as in alloys, batteries, and in chemical synthesis. Although magnesium is plentiful in Earth's crust, it is mainly found in the sea water (after sodium). There is about 1.3 g of magnesium in every kilogram of sea water. The process for obtaining magnesium from sea water employs all three types of reactions, i.e., precipitation, acid-base, and redox-reactions. Redox reaction takes place (in the extraction of Mg) :

A. in the electrolytic cell when fused $MgCl_2$ is subjected to electrolysis

B. when fused $MgCO_3$ is heated

C. When fused $MgCO_3$ is strongly heated

D. none of the above

Answer: A

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4. Magnesium is a valuable, light weight metal used as a structural material as well as in alloys, batteries, and in chemical synthesis. Although magnesium is plentiful in Earth's crust, it is mainly found in the sea water (after sodium). There is about 1.3 g of magnesium in every kilogram of sea water. The process for obtaining magnesium from sea water employs all three types of reactions, i.e., precipitation, acid-base, and redox-reactions. Redox reaction takes place (in the extraction of Mg) :

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B. when fused $MgCO_3$ is heated

C. When fused $MgCO_3$ is strongly heated

D. none of the above

Answer: A

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Level 3 Passive 5

1. Dow's process of extraction of Mg involves extraction of Mg from sea water. Sea water is concentrated in sun-light and is then treated with slaked lime. Magnesium hydroxide is heated in a stream of HCl to give $MgCl_2$ which is electrolysed to discharge Mg. The mixture is in the ratio 35% $MgCl_2 + 50\,\% \, NaCl + 15\,\% \, CaCl_2$. NaCl and $CaCl_2$ are added to lower the fusion temperature and to increases the conductance.

$Mg^{2+} + Ca(OH)_2 \rightarrow Mg(OH)_2 + Ca^{2+}$

$Mg(OH)_2 + 2HCl \rightarrow MgCl_2 + 2H_2O(l)$

Electrolysis of fused $MgCl_2 \Leftrightarrow Mg^{2+} + 2Cl$

$Mg^{2+} + 2e^- \rightarrow Mg$(At Cathode)

$2Cl^- \rightarrow Cl_2 + 2e^-$ (At Anode)

Mg electrolysed is protected from atmospheric oxidation by a blanket of inert gases.

In the hydrated chloride of Mg the value of x is :

A. 6

B. 4

C. 8

D. 10

Answer: A

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$Mg^{2+} + 2e^- \rightarrow Mg$(At Cathode)

$2Cl^- \rightarrow Cl_2 + 2e^-$ (At Anode)

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inert gases.

Molten mixture contains Mg^{2+}, Na^{+} and Ca^{2+} but at cathode only Mg^{2+} is discharged because :

A. Standar reduction potential of Mg^{2+} is least among the three

B. Standard oxidation potential of Mg is the least among the three

C. Discharge potential of Mg^{2+} is highest

D. None of these

Answer: B

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Molten mixutre of NaCl and $CaCl_2$ is added to the heated $MgCl_2$ because :

A. $MgCl_2.xH_2O + \text{dry } HCl \xrightarrow{973-1223K}$ Partially dehydrated $MgCl_2$ and molten mixture $(NaCl + CaCl_2)$ makes it fully dehydrated

B. $CaCl_2$ is dehydrating agent

C. $(CaCl_2 + NaCl)$ lowers the melting point of $MgCl_2$

D. None of these

Answer: C

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4. Dow's process of extraction of Mg involves extraction of Mg from sea water. Sea water is concentrated in sun-light and is then treated with slaked lime. Magnesium hydroxide is heated in a stream of HCl to give $MgCl_2$ which is electrolysed to discharge Mg. The mixture is in the ratio 35% $MgCl_2 + 50\,\% \, NaCl + 15\,\% \, CaCl_2$. NaCl and $CaCl_2$ are added to lower the fusion temperature and to increases the conductance.

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A. Standarard reduction potential of Mg^{2+} is least among the three

B. Standard oxidation potential of Mg is the least among the three

C. Discharge potential of Mg^{2+} is highest

D. None of these

Answer: B

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6. Dow's process of extraction of Mg involves extraction of Mg from sea water. Sea water is concentrated in sun-light and is then treated with slaked lime. Magnesium hydroxide is heated in a stream of HCl to give $MgCl_2$ which is electrolysed to discharge Mg. The mixture is in the ratio 35% $MgCl_2 + 50\,\% NaCl + 15\,\% CaCl_2$. NaCl and $CaCl_2$ are added to lower the fusion temperature and to increases the conductance.

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Molten mixutre of NaCl and $CaCl_2$ is added to the heated $MgCl_2$ because :

A. $MgCl_2.xH_2O + \text{dry } HCl \xrightarrow{973-1223K}$ Partially dehydrated $MgCl_2$ and molten mixture $(NaCl + CaCl_2)$ makes it fully dehydrated

B. $CaCl_2$ is dehydrating agent

C. $(CaCl_2 + NaCl)$ lowers the melting point of $MgCl_2$

D. None of these

Answer: C

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Level 3 Passive 6

1. $FeCr_2O_4 + NaOH + \text{air} \rightarrow (A) + Fe_2O_3$

$(A) + (B) \rightarrow Na_2Cr_2O_7$

$Na_2Cr_2O_7 + X \xrightarrow{\Delta} Cr_2O_3$

$Cr_2O_3 + Y \xrightarrow{\Delta} Cr$

Compound (A) and (B) are :

A. Na_2CrO_4, H_2SO_4

B. $Na_2Cr_2O_7, HCl$

C. Na_2CrO_5, H_2SO_4

D. $Na_4\left[Fe(OH)_6\right], H_2SO_4$

Answer: A

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2. $FeCr_2O_4 + NaOH + \text{air} \rightarrow (A) + Fe_2O_3$

$(A) + (B) \rightarrow Na_2Cr_2O_7$

$Na_2Cr_2O_7 + X \xrightarrow{\Delta} Cr_2O_3$

$Cr_2O_3 + Y \xrightarrow{\Delta} Cr$

(X) and (Y) are :

A. C and Al

B. Al and C

C. C in both

D. Al in both

Answer: A

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3. $FeCr_2O_4 + NaOH + \text{air} \rightarrow (A) + Fe_2O_3$

$(A) + (B) \rightarrow Na_2Cr_2O_7$

$Na_2Cr_2O_7 + X \xrightarrow{\Delta} Cr_2O_3$

$Cr_2O_3 + Y \xrightarrow{\Delta} Cr$

Na_2CrO_4 and Fe_2O_3 are separated by :

A. dissolving in conc. H_2SO_4

B. dissolving in NH_3

C. dissolving in H_2O

D. dissolving in dil. HCl

Answer: C

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4. $FeCr_2O_4 + NaOH + \text{air} \rightarrow (A) + Fe_2O_3$

$(A) + (B) \rightarrow Na_2Cr_2O_7$

$Na_2Cr_2O_7 + X \xrightarrow{\Delta} Cr_2O_3$

$Cr_2O_3 + Y \xrightarrow{\Delta} Cr$

Compound (A) and (B) are :

A. Na_2CrO_4, H_2SO_4

B. $Na_2Cr_2O_7, HCl$

C. Na_2CrO_5, H_2SO_4

D. $Na_4\left[Fe(OH)_6\right], H_2SO_4$

Answer: A

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5. $FeCr_2O_4 + NaOH + \text{air} \rightarrow (A) + Fe_2O_3$

$(A) + (B) \rightarrow Na_2Cr_2O_7$

$Na_2Cr_2O_7 + X \xrightarrow{\Delta} Cr_2O_3$

$Cr_2O_3 + Y \xrightarrow{\Delta} Cr$

(X) and (Y) are :

A. C and Al

B. Al and C

C. C in both

D. Al in both

Answer: A

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6. $FeCr_2O_4 + NaOH + \text{air} \rightarrow (A) + Fe_2O_3$

$(A) + (B) \rightarrow Na_2Cr_2O_7$

$Na_2Cr_2O_7 + X \xrightarrow{\Delta} Cr_2O_3$

$Cr_2O_3 + Y \xrightarrow{\Delta} Cr$

Na_2CrO_4 and Fe_2O_3 are separated by :

A. dissolving in conc. H_2SO_4

B. dissolving in NH_3

C. dissolving in H_2O

D. dissolving in dil. HCl

Answer: C

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Level 3 Passive 7

1. Electrolysis is an important technique for extraction of metals, and each ion of the solution needs a minimum voltage to get discharged and this value is expressed in terms of discharge potential. For some metal ions the discharge potentials follow the order given below :

$Li^+ > K^+ > Ca^{2+} > Na^+ > Mg^{2+} > Al^{3+} > Zn^{2+} > Fe^{2+} > Ni^{2+}$

For some anions the discharge potentials are in the order :

$SO_4^{2-} > NO_3^- > OH^- > Br^- > I^-$

When aqueous solution of cupric bromide is electrolyzed the product obtained at cathode will be :

A. Cu

B. H_2

C. Br_2

D. O_2

Answer: A

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2. Electrolysis is an important technique for extraction of metals, and each ion of the solution needs a minimum voltage to get discharged and this value is expressed in terms of discharge potential. For some metal ions the discharge potentials follow the order given below :

$Li^+ > K^+ > Ca^{2+} > Na^+ > Mg^{2+} > Al^{3+} > Zn^{2+} > Fe^{2+} > Ni^{2+}$

For some anions the discharge potentials are in the order :

$SO_4^{2-} > NO_3^- > OH^- > Br^- > I^-$

The product formed at anode and cathode, when dilute H_2SO_4 is electrolysed are :

A. SO_2, H_2

B. SO_3, H_2

C. $H_2S_2O_8, H_2$

D. O_2, H_2

Answer: D

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3. Electrolysis is an important technique for extraction of metals, and each ion of the solution needs a minimum voltage to get discharged and this value is expressed in terms of discharge potential. For some metal ions the discharge potentials follow the order given below :

$Li^+ > K^+ > Ca^{2+} > Na^+ > Mg^{2+} > Al^{3+} > Zn^{2+} > Fe^{2+} > Ni^{2+}$

For some anions the discharge potentials are in the order :

$SO_4^{2-} > NO_3^- > OH^- > Br^- > I^-$

A mixture containing chlorides of sodium, calcium and zinc is electrolysed in presence f wate. The product obtained at cathode will be :

A. Na

B. H_2

C. Ca

D. Cl_2

Answer: B

Watch Video Solution

4. Electrolysis is an important technique for extraction of metals, and each ion of the solution needs a minimum voltage to get discharged and this value is expressed in terms of discharge potential. For some metal ions the discharge potentials follow the order given below :

$Li^+ > K^+ > Ca^{2+} > Na^+ > Mg^{2+} > Al^{3+} > Zn^{2+} > Fe^{2+} > Ni^{2+}$

For some anions the discharge potentials are in the order :

$SO_4^{2-} > NO_3^- > OH^- > Br^- > I^-$

When conc. H_2SO_4 is electrolysed with high current using Pt electrodes, the product obtained at anode is :

A. SO_2

B. SO_3

C. O_2

D. $H_2S_2O_8$

Answer: D

Watch Video Solution

5. Electrolysis is an important technique for extraction of metals, and each ion of the solution needs a minimum voltage to get discharged and this value is expressed in terms of discharge potential. For some metal ions the discharge potentials follow the order given below :

$$Li^+ > K^+ > Ca^{2+} > Na^+ > Mg^{2+} > Al^{3+} > Zn^{2+} > Fe^{2+} > Ni^{2+}$$

For some anions the discharge potentials are in the order :

$$SO_4^{2-} > NO_3^- > OH^- > Br^- > I^-$$

When aqueous solution of cupric bromide is electrolyzed the product obtained at cathode will be :

A. Cu

B. H_2

C. Br_2

D. O_2

Answer: A

Watch Video Solution

6. Electrolysis is an important technique for extraction of metals, and each ion of the solution needs a minimum voltage to get discharged and this value is expressed in terms of discharge potential. For some metal ions the discharge potentials follow the order given below :

$Li^+ > K^+ > Ca^{2+} > Na^+ > Mg^{2+} > Al^{3+} > Zn^{2+} > Fe^{2+} > Ni^{2+}$

For some anions the discharge potentials are in the order :

$SO_4^{2-} > NO_3^- > OH^- > Br^- > I^-$

The product formed at anode and cathode, when dilute H_2SO_4 is electrolysed are :

A. SO_2, H_2

B. SO_3, H_2

C. $H_2S_2O_8, H_2$

D. O_2, H_2

Answer: D

Watch Video Solution

7. Electrolysis is an important technique for extraction of metals, and each ion of the solution needs a minimum voltage to get discharged and this value is expressed in terms of discharge potential. For some metal ions the discharge potentials follow the order given below :

$Li^+ > K^+ > Ca^{2+} > Na^+ > Mg^{2+} > Al^{3+} > Zn^{2+} > Fe^{2+} > Ni^{2+}$

For some anions the discharge potentials are in the order :

$SO_4^{2-} > NO_3^- > OH^- > Br^- > I^-$

A mixture containing chlorides of sodium, calcium and zinc is electrolysed in presence f wate. The product obtained at cathode will be :

A. Na

B. H_2

C. Ca

D. Cl_2

Answer: B

Watch Video Solution

8. Electrolysis is an important technique for extraction of metals, and each ion of the solution needs a minimum voltage to get discharged and this value is expressed in terms of discharge potential. For some metal ions the discharge potentials follow the order given below :

$Li^+ > K^+ > Ca^{2+} > Na^+ > Mg^{2+} > Al^{3+} > Zn^{2+} > Fe^{2+} > Ni^{2+}$

For some anions the discharge potentials are in the order :

$SO_4^{2-} > NO_3^- > OH^- > Br^- > I^-$

When conc. H_2SO_4 is electrolysed with high current using Pt electrodes, the product obtained at anode is :

A. SO_2

B. SO_3

C. O_2

D. $H_2SO_2O_8$

Answer: D

Watch Video Solution

One Or More Answers Is Are Correct

1. Which of the following metal (s) is /are commercially extracted by self reduction method from their correspoindign ore ?

A. Cu

B. Fe

C. Pb

D. Hg

Answer: A::C::D

Watch Video Solution

2. Which of the following process makes the ore porous ?

A. Roasting

B. Calcination

C. Reduction

D. Distillation

Answer: A::B

Watch Video Solution

3. Which of the following ores is / are oxide ore (s) ?

A. Tinstone

B. Bauxite

C. Cryolite

D. Carnallite

Answer: A::B

Watch Video Solution

4. Roasting of copper pyrites is done:

A. to remove moisture

B. to oxidise free sulphur

C. to decompose pyrite into Cu_2S and FeS

D. to remove volatile organic impurities

Answer: A::B::C::D

Watch Video Solution

5. Which of the following is a correct statement ?

A. Calamine is the ore of zinc

B. Pyrolusite is the ore of manganese

C. Cassiterite is the ore of tin

D. Calcite is the ore of calcium

Answer: A::B::C::D

Watch Video Solution

6. In which of the following pairs, both the minerals are oxides ?

A. Sylvine, saltpetre

B. Casseterite, litharge

C. Siderite, corundum

D. Cuprite, tinstone

Answer: B::D

Watch Video Solution

7. Which of the following mineral does not contain sodium ?

A. Trona

B. Borax

C. Epsomite

D. Cerussite

Answer: C::D

Watch Video Solution

8. Which of the following pair consists of ore of the same metal ?

A. Bauxite, Limonite

B. Haematite,Siderite

C. Cinnabar, Cassiterite

D. Galena, Cerrusite

Answer: B::D

Watch Video Solution

9. The process by which ligher earthly particles are made free from heavier particles by washing with water is called

A. gravity separation method

B. Levigation

C. Hydraulic washing

D. Leaching

Answer: A::B::C

Watch Video Solution

10. Roasting 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

Answer: A::B::D

Watch Video Solution

11. The chemical treatment of the ore for concentration is done in the case of :

A. aluminium

B. silver

C. copper

D. gold

Answer: A::B::D

Watch Video Solution

12. Froth floatation :

A. is a physical method of separating mineral from the gangue

B. is a method to concentrate the ore depending on the difference in wetability of gangue and the ore

C. is used for the sulphide ores

D. is a method in which impurities sink to the bottom

Answer: A::B::C::D

Watch Video Solution

13. Which of the following reaction (s) occur during calcination ?

A. $CaCO_3 \rightarrow CaO + CO_2$

B. $4FeS_2 + 11O_2 \rightarrow 2Fe_2O_3 + 8SO_2$

C. $2Al(OH)_3 \rightarrow Al_2O_3 + 3H_2O$

D. $CuS + CuSO_4 \rightarrow 2Cu + 2SO_2$

Answer: A::C

Watch Video Solution

14. Amphoteric nature of aluminium is employed in which of the following process for extraction of aluminium ?

A. Baeyer's process

B. Hall's process

C. Serpeck's process

D. Dow's process

Answer: A::B

Watch Video Solution

15. Which of the following is true for calcination of metal ore ?

A. It makes the ore more porous

B. The ore is heated to a temperature when fusion just begins

C. Hydrated salts lose their water of crystallisation

D. Impurities of S, As and Sb are removed in the form of their volatile oxides

Answer: A::C

Watch Video Solution

16. The difference (s) between roasting and calcination is / are :

A. roasting is highly endothermic while calcination is not

B. partial fusion occurs in calcination but not in roasting

C. calcination is performed in limited amount of air but roasting employs excess air

D. combustion reaction occur in roasting but not in calcination

Answer: C::D

Watch Video Solution

17. The etraction of metals from oxide ores involves

A. Reduction with carbon

B. Reduction with aluminium

C. Electrolyte reduction

D. Reduction with CO

Answer: A::B::C::D

Watch Video Solution

18. Metals which can be extracted by smelting process are :

A. Pb

B. Fe

C. Zn

D. Al

Answer: A::B::C

Watch Video Solution

19. Of the following reduction processes, correct processes are :

A. $Fe_2O_3 + C \rightarrow Fe$

B. $ZnO + C \rightarrow Zn$

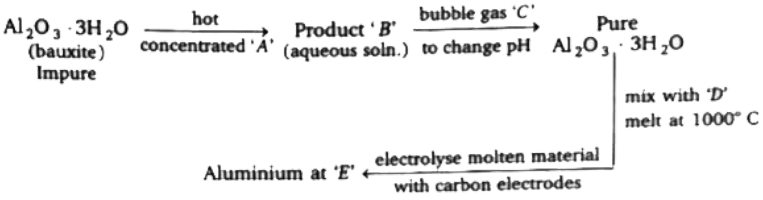
C. $Ca_3(PO_4)_2 + C \rightarrow P$

D. $PbO + C \rightarrow Pb$

Answer: A::B::C::D

Watch Video Solution

20. In the extraction of aluminium metal, one of the process is summarised as follows :



A.

I	II	III	IV	V
$NaOH$	Al^{3+}	HF	Na_3AlF_6	Cathode

B.

I	II	III	IV	V
$NaOH$	$NaAlO_2$	CO_2	NaF	Anode

C.

I	II	III	IV	V
H_2SO_4	$Al_2(SO_4)_3$	NH_3	Na_3AlF_6	Cathode

D.

I	II	III	IV	V
$NaOH$	$NaAlO_2$	CO_2	Na_3AlF_6	Cathode

Answer: D

Watch Video Solution

21. During the production of iron and steel.

A. The oxide ore is primarily reduced to iron by solid coke according to the reaction

$$2Fe_2O + 3C \rightarrow 4Fe + 3CO_2$$

B. The oxide ore is reduced by the carbon monoxide according to the reaction

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

C. Major silica impurities are removed as calcium silicate slag by addition of a fluxing agent limestone

D. The silicate slag is used in manufacturing cement

Answer: B::C::D

Watch Video Solution

22. The smelting of iron in a blast furnace involves, which of the following process(es)?

A. combustion

B. reduction

C. slag formation

D. sublimation

Answer: A::B::C

Watch Video Solution

23. For which of the following metals can be extracted by aluminothermic process ?

A. Manganese

B. Iron

C. Chromium

D. Magnesium

Answer: A::B::C

Watch Video Solution

24. For which of the following metal, the carbon reduction cannot be used ?

A. Lead

B. Manganese

C. Tungsten

D. Iron

Answer: B::C

Watch Video Solution

25. The advantage(s) of using carbon to reduce a number of oxides and other compounds are :

A. easy availability of coke

B. low cost of carbon

C. tendency of carbon to show catenation

D. pressence of carbon lowers the melting point of the oxides

Answer: A::B

Watch Video Solution

26. The disadvantage of carbon reduction method are :

A. high temperature needed which is expensive and requires the use of a blast furnace

B. many metals combine with carbon forming carbides

C. carbon combines with oxgen to form poisonous CO

D. carbon cannot be used with highly electropositive metals

Answer: A::B

Watch Video Solution

27. Which of the following metal (s) is /are commercially extracted by self reduction method from their correspoindign ore ?

A. Copper

B. Mercury

C. Lead

D. Silver

Answer: A::B::C

Watch Video Solution

28. Which of the following is / are correctly matched ?

A.	Column-I(Metals)	Calumn-II(Process used for extraction)
	Titanium	Kroll process
B.	Column-I(Metals)	Calumn-II(Process used for extraction)
	Aluminium	Baeyer process
C.	Column-I(Metals)	Calumn-II(Process used for extraction)
	Chromium	Thermite process

D.

Column-I(Metals)	Calumn-II(Process used for extraction)
Silver	Mac-Arthur cyanide process

Answer: A::C::D

Watch Video Solution

29. The funciton of adding cryolite in the electrolytic reduction of alumina by Hall-Heroult process is to :

A. dissolve alumina

B. lower the melting point of alumina

C. lower the fuel bill

D. increase the elctrical conductivity of alumina

Answer: A::B::C::D

Watch Video Solution

30. Which of the following reduction reactions are actually employed in commercial extraction of metals ?

A. $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$

B. $Cr_2O_3 + 2Al \rightarrow Al_2O_3 + 2Cr$

C. $2Na\left[Au(CN)_2\right] + Zn \rightarrow Na_2\left[Zn(CN)_4\right] + 2Au$

D. $Cu_2S + PB \rightarrow Cu + PbS \downarrow$

Answer: B::C

Watch Video Solution

31. The main reaction occuring in blast furnance during extraction of iron from haematite ore .....

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

B. $FeO + SiO_2 \rightarrow FeSiO_3$

C. $Fe_2O_3 + C \rightarrow 2Fe + 3CO$

D. $CaO + SiO_2 \rightarrow CaSiO_3$

Answer: A::D

Watch Video Solution

32. Which of the following are true for electrolytic extraction of aluminimum ?

A. Cathode material contains graphite

B. Anode material contains graphite

C. Cathode reacts away forming CO_2

D. Anode reacts away forming CO_2

Answer: A::B::D

Watch Video Solution

33. Select correct statement regrading silver extraction//purification process.

A. When the lead-silver alloy is rich in silver, lead is removed by the curpellation process

B. When the lead-silver alloy is ich in lead, lead is removed by parke's or pattinson's process

C. Zinc forms an alloy with lead, from which lead is separated by distillation

D. Zinc forms an alloy with silver, from which zinc is separated by distillation

Answer: A::B::D

Watch Video Solution

34. Aluminothermy used for on 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 exothermic

Answer: A::D

Watch Video Solution

35. Highly electropositive metal(s) can not be commercially extracted by carbon reduction process at high temperature because these :

A. Metals combine with carbon to form carbides

B. Metals do not react with carbon

C. Metal oxides are not reduced by carbon

D. Loss of metal is more by vaporisation

Answer: A::D

Watch Video Solution

36. Which of the following reaction in the blast furnace is / are endothermic ?

A. $C(s) + O_2(g) \Leftrightarrow CO_2(g)$

B. $CO_2(g) + C(s) \Leftrightarrow 2CO(g)$

C. $CaCO_3(s) \Leftrightarrow CaO(s) + CO_2(g)$

D. $Fe_2O_3(s) + 3CO(g) \Leftrightarrow 2Fe(l) + 3CO_2(g)$

Answer: B::C

Watch Video Solution

37. The funace lining in steel manufacture consists of :

A. CaO

B. SiO_2

C. MgO

D. $CaCO_3$

Answer: A::C

Watch Video Solution

38. Pick up the correct statement(s) :

A. All minerals are ores

B. All minerals cannot be an ore

C. All ores are minerals

D. The minerals from which metals can be extracted profitably are called ores

Answer: B::C::D

Watch Video Solution

39. Which of the following metal (s) is /are commercially extracted by self reduction method from their correspoindign ore ?

A. Cu

B. Fe

C. Pb

D. Hg

Answer: A::C::D

Watch Video Solution

40. Which of the following process makes the ore porous ?

A. Roasting

B. Calcination

C. Reduction

D. Distillation

Answer: A::B

Watch Video Solution

41. Which of the following ores is / are oxide ore (s) ?

A. Tinstone

B. Bauxite

C. Cryolite

D. Carnallite

Answer: A::B

Watch Video Solution

42. Roasting of copper pyrites is done:

A. to remove moisture

B. to oxidise free sulphur

C. to decompose pyrite into Cu_2S and FeS

D. to remove volatile organic impurities

Answer: A::B::C::D

Watch Video Solution

43. Which of the following is a correct statement ?

A. Calamine is the ore of zinc

B. Pyrolusite is the ore of manganese

C. Cassiterite is the ore of tin

D. Calcite is the ore of calcium

Answer: A::B::C::D

Watch Video Solution

44. In which of the following pairs, both the minerals are oxides ?

A. Sylvine, saltpetre

B. Casseterite, litharge

C. Siderite, corundum

D. Cuprite, tinstone

Answer: B::D

Watch Video Solution

45. Which of the following mineral does not contain sodium ?

A. Trona

B. Borax

C. Epsomite

D. Cerrusite

Answer: C::D

Watch Video Solution

46. Which of the following pair consists of ore of the same metal ?

A. Bauxite, Limonite

B. Haematite,Siderite

C. Cinnabar, Cassiterite

D. Galena, Cerrusite

Answer: B::D

Watch Video Solution

47. The process (es) by which lighter earthy particles are freed from the heavier particles using water is / are :

A. gravity separation method

B. Levigation

C. Hydraulic washing

D. Leaching

Answer: A::B::C

Watch Video Solution

48. Roasting 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

Answer: A::B::D

Watch Video Solution

49. The chemical treatment of the ore for concentration is done in the case of :

A. aluminium

B. silver

C. copper

D. gold

Answer: A::B::D

Watch Video Solution

50. Froth floatation :

A. is a physical method of separating mineral from the gangue

B. is a method to concentrate the ore depending on the difference in wetability of gangue and the ore

C. is used for the sulphide ores

D. is a method in which impurities sink to the bottom

Answer: A::B::C::D

Watch Video Solution

51. Which of the following reaction(s) occurs during calcination?

A. $CaCO_3 \rightarrow CaO + CO_2$

B. $4FeS_2 + 11O_2 \rightarrow 2Fe_2O_3 + 8SO_2$

C. $2Al(OH)_3 \rightarrow Al_2O_3 + 3H_2O$

D. $CuS + CuSO_4 \rightarrow 2Cu + 2SO_2$

Answer: A::C

Watch Video Solution

52. Amphoteric nature of aluminium is employed in which of the following process for extraction of aluminium ?

A. Baeyer's process

B. Hall's process

C. Serpeck's process

D. Dow's process

Answer: A::B

Watch Video Solution

53. Which of the following is true for calcination of metal ore ?

A. It makes the ore more porous

B. The ore is heated to a temperature when fusion just begins

C. Hydrated salts lose their water of crystallisation

D. Impurities of S, As and Sb are removed in the form of their volatile oxides

Answer: A::C

Watch Video Solution

54. The difference (s) between roasting and calcination is / are :

A. roasting is highly endothermic while calcination is not

B. partial fusion occurs in calcination but not in roasting

C. calcination is performed in limited amount of air but roasting employs excess air

D. combustion reaction occur in roasting but not in calcination

Answer: C::D

Watch Video Solution

55. The etraction of metals from oxide ores involves

A. Reduction with carbon

B. Reduction with aluminium

C. Electrolyte reduction

D. Reduction with CO

Answer: A::B::C::D

Watch Video Solution

56. Metals which can be extracted by smelting process are :

A. Pb

B. Fe

C. Zn

D. Al

Answer: A::B::C

Watch Video Solution

57. Of the following reduction processes, correct processes are :

A. $Fe_2O_3 + C \rightarrow Fe$

B. $ZnO + C \rightarrow Zn$

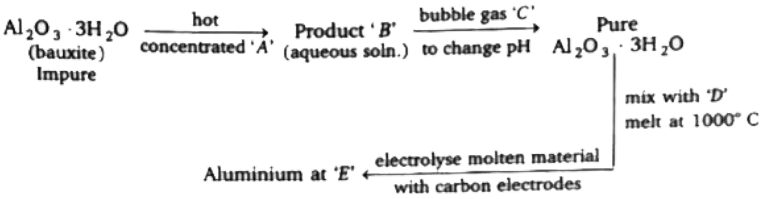
C. $Ca_3(PO_4)_2 + C \rightarrow P$

D. $PbO + C \rightarrow Pb$

Answer: A::B::C::D

Watch Video Solution

58. In the extraction of aluminium metal, one of the process is summarised as follows :



A. $\begin{matrix} I & II & III & IV & V \\ NaOH & Al^{3+} & HF & Na_3AlF_6 & \text{Cathode} \end{matrix}$

B. $\begin{matrix} I & II & III & IV & V \\ NaOH & NaAlO_2 & CO_2 & NaF & \text{Anode} \end{matrix}$

C. $\begin{matrix} I & II & III & IV & V \\ H_2SO_4 & Al_2(SO_4)_3 & NH_3 & Na_3AlF_6 & \text{Cathode} \end{matrix}$

D. $\begin{matrix} I & II & III & IV & V \\ NaOH & NaAlO_2 & CO_2 & Na_3AlF_6 & \text{Cathode} \end{matrix}$

Answer: D

Watch Video Solution

59. During the production of iron and steel.

A. The oxide ore is primarily reduced to iron by solid coke according to the reaction

$$2Fe_2O + 3C \rightarrow 4Fe + 3CO_2$$

B. The oxide ore is reduced by the carbon monoxide according to the reaction

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

C. Major silica impurities are removed as calcium silicate slag by addition of a fluxing agent limestone

D. The silicate slag is used in manufacturing cement

Answer: B::C::D

Watch Video Solution

60. The smelting of iron in a blast furnace involves the following processes :

A. combustion

B. reduction

C. slag formation

D. sublimation

Answer: A::B::C

Watch Video Solution

61. For which of the following metals can be extracted by aluminothermic process ?

A. Manganese

B. Iron

C. Chromium

D. Magnesium

Answer: A::B::C

Watch Video Solution

62. For which of the following metal, the carbon reduction cannot be used ?

A. Lead

B. Manganese

C. Tungsten

D. Iron

Answer: B::C

Watch Video Solution

63. The advantage(s) of using carbon to reduce a number of oxides and other compounds are :

A. easy availability of coke

B. low cost of carbon

C. tendency of carbon to show catenation

D. pressence of carbon lowers the melting point of the oxides

Answer: A::B

Watch Video Solution

64. The disadvantage of carbon reduction method are :

A. high temperature needed which is expensive and requires the use of a blast furnace

B. many metals combine with carbon forming carbides

C. carbon combines with oxgen to form poisonous CO

D. carbon cannot be used with highly electropositive metals

Answer: A::B

Watch Video Solution

65. Which of the following metal (s) is /are commercially extracted by self reduction method from their correspoindign ore ?

A. Copper

B. Mercury

C. Lead

D. Silver

Answer: A::B::C

Watch Video Solution

66. Which of the following is / are correctly matched ?

A.	Column-I(Metals)	Calumn-II(Process used for extraction)
	Titanium	Kroll process
B.	Column-I(Metals)	Calumn-II(Process used for extraction)
	Aluminium	Baeyer process
C.	Column-I(Metals)	Calumn-II(Process used for extraction)
	Chromium	Thermite process

D.	Column-I(Metals)	Calumn-II(Process used for extraction)
	Silver	Mac-Arthur cyanide process

Answer: A::C::D

Watch Video Solution

67. The funciton of adding cryolite in the electrolytic reduction of alumina by Hall-Heroult process is to :

A. dissolve alumina

B. lower the melting point of alumina

C. lower the fuel bill

D. increase the elctrical conductivity of alumina

Answer: A::B::C::D

Watch Video Solution

68. Which of the following reduction reactions are actually employed in commercial extraction of metals ?

A. $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$

B. $Cr_2O_3 + 2Al \rightarrow Al_2O_3 + 2Cr$

C. $2Na\left[Au(CN)_2\right] + Zn \rightarrow Na_2\left[Zn(CN)_4\right] + 2Au$

D. $Cu_2S + PB \rightarrow Cu + PbS \downarrow$

Answer: B::C

Watch Video Solution

69. The main reaction occuring in blast furnance during extraction of iron from haematite ore .....

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

B. $FeO + SiO_2 \rightarrow FeSiO_3$

C. $Fe_2O_3 + C \rightarrow 2Fe + 3CO$

D. $CaO + SiO_2 \rightarrow CaSiO_3$

Answer: A::D

Watch Video Solution

70. Which of the following are true for electrolytic extraction of aluminimum ?

A. Cathode material contains graphite

B. Anode material contains graphite

C. Cathode reacts away forming CO_2

D. Anode reacts away forming CO_2

Answer: A::B::D

Watch Video Solution

71. Select correct statement regarding silver extraction process .

A. When the lead-silver alloy is rich in silver, lead is removed by the curpellation process

B. When the lead-silver alloy is ich in lead, lead is removed by parke's or pattinson's process

C. Zinc forms an alloy with lead, from which lead is separated by distillation

D. Zinc forms an alloy with silver, from which zinc is separated by distillation

Answer: A::B::D

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72. 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 exothermic

Answer: A::D

Watch Video Solution

73. Highly electropositive metals can not be extracted by carbon reduction process because these :

A. Metals combine with carbon to form carbides

B. Metals do not react with carbon

C. Metal oxides are not reduced by carbon

D. Loss of metal is more by vaporisation

Answer: A::D

Watch Video Solution

74. Which of the following reaction in the blast furnace is / are endothermic ?

A. $C(s) + O_2(g) \Leftrightarrow CO_2(g)$

B. $CO_2(g) + C(s) \Leftrightarrow 2CO(g)$

C. $CaCO_3(s) \Leftrightarrow CaO(s) + CO_2(g)$

D. $Fe_2O_3(s) + 3CO(g) \Leftrightarrow 2Fe(l) + 3CO_2(g)$

Answer: B::C

Watch Video Solution

75. The funace lining in steel manufacture consists of :

A. CaO

B. SiO_2

C. MgO

D. $CaCO_3$

Answer: A::C

Watch Video Solution

76. Pick up the correct statement(s) :

A. All minerals are ores

B. All minerals cannot be an ore

C. All ores are minerals

D. The minerals from which metals can be extracted profitably are called ores

Answer: B::C::D

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Match The Column

1. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I (Main ore of metal)	Column-II (Process involved in commercial extraction pure metal)
(A) Cinnabar	(P) Froth floatation method
(B) Chalcopyrite	(Q) Roasting
(C) Bauxite	(R) Distillation
(D) Argentite	(S) Leaching
	(T) Calcination

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2. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I

may have the matching with one or more than one entries of column-II.

Column-I (Statements)	Column-II (Corresponding metals)
(A) Hydrometallurgy applied in commercial extraction of metal	(P) Ag
(B) Carbon reduction applied in commercial extraction in metal	(Q) Zn
(C) Aqueous salt solution is used in electrolytic Refining method	(R) Sn
(D) Metal present in anode mud of refining of crude copper	(S) Au
	(T) Cu

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3. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Haematite	(P) Self reduction
(B) Copper pyrites	(Q) Roasting
(C) Carnalite	(R) Electrolytic reduction
(D) Bauxite	(S) Calcination
	(T) Reduction by carbon monoxide (mainly) as well as carbon at different temperature.

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4. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Ca	(P) Found as its native state
(B) Zn	(Q) Found as its sulphide
(C) Cr	(R) Found as its carbonate
(D) Ag	(S) Found as its oxide

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5. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Ilmentie	(P) Iron
(B) Dolomite	(Q) Magnesium
(C) Carnallite	(R) Potassium
(D) Chromite	(S) Titanium
	(T) Calcium

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6. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Cuprite	(P) Sulphate ore
(B) Cerussite	(Q) Carbonate ore
(C) Kainite	(R) Oxide ore
(D) Calamine	(S) Chloride ore

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7. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Poling	(P) Titanium
(B) Cupellation	(Q) Copper
(C) Electro-refining	(R) Silver
(D) van Arkel method	(S) Tin

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8. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II	
(A) Metal which occur in the native state in nature is	(P)	Hg
(B) The oxides of metal that can be commercially reduced by Aluminothermic reduction process is	(Q)	Ti
(C) van Arkel method is used for preparing ultrapure metal of	(R)	Cr
(D) Auto reduction process is employed for the sulphide ore of	(S)	Ag

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9. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Mond's process	(P) $Cr_2O_3 + 2Al \xrightarrow{\Delta} 2Cr + Al_2O_3$
(B) van Arkel process	(Q) $TiCl_4 + 2Mg \xrightarrow{\Delta} Ti + 2MgCl_2$
(C) Thermite process	(R) $Ni(CO)_4 \xrightarrow{\Delta} Ni + 4CO$
(D) Kroll's process	(S) $ZrI_4 \xrightarrow{\Delta} Zr + 2I_2$

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10. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I (Metal)	Column-II (Process involved in commercial extraction from their ore)
(A) Pb	(P) Bessemerisation
(B) Cu	(Q) Roasting
(C) Zn	(R) Pyrometallurgy
(D) Fe (Steel)	(S) Self-reduction method

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11. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I (Main ore of metal)	Column-II (Process involved in commercial extraction pure metal)
(A) Cinnabar	(P) Froth floatation method
(B) Chalcopyrite	(Q) Roasting
(C) Bauxite	(R) Distillation
(D) Argentite	(S) Leaching
	(T) Calcination

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12. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I (Statements)	Column-II (Corresponding metals)
(A) Hydrometallurgy applied in commercial extraction of metal	(P) Ag
(B) Carbon reduction applied in commercial extraction in metal	(Q) Zn
(C) Aqueous salt solution is used in electrolytic Refining method	(R) Sn
(D) Metal present in anode mud of refining of crude copper	(S) Au
	(T) Cu

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13. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
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(B) Copper pyrites	(Q) Roasting
(C) Carnalite	(R) Electrolytic reduction
(D) Bauxite	(S) Calcination
	(T) Reduction by carbon monoxide (mainly) as well as carbon at different temperature.

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14. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Ca	(P) Found as its native state
(B) Zn	(Q) Found as its sulphide
(C) Cr	(R) Found as its carbonate
(D) Ag	(S) Found as its oxide

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15. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Ilmentie	(P) Iron
(B) Dolomite	(Q) Magnesium
(C) Carnallite	(R) Potassium
(D) Chromite	(S) Titanium
	(T) Calcium

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16. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Cuprite	(P) Sulphate ore
(B) Cerussite	(Q) Carbonate ore
(C) Kainite	(R) Oxide ore
(D) Calamine	(S) Chloride ore

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17. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Poling	(P) Titanium
(B) Cupellation	(Q) Copper
(C) Electro-refining	(R) Silver
(D) van Arkel method	(S) Tin

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18. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Metal which occur in the native state in nature is	(P) Hg
(B) The oxides of metal that can be commercially reduced by Aluminothermic reduction process is	(Q) Ti
(C) van Arkel method is used for preparing ultrapure metal of	(R) Cr
(D) Auto reduction process is employed for the sulphide ore of	(S) Ag

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19. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.

Column-I	Column-II
(A) Mond's process	(P) $Cr_2O_3 + 2Al \xrightarrow{\Delta} 2Cr + Al_2O_3$
(B) van Arkel process	(Q) $TiCl_4 + 2Mg \xrightarrow{\Delta} Ti + 2MgCl_2$
(C) Thermite process	(R) $Ni(CO)_4 \xrightarrow{\Delta} Ni + 4CO$
(D) Kroll's process	(S) $ZrI_4 \xrightarrow{\Delta} Zr + 2I_2$

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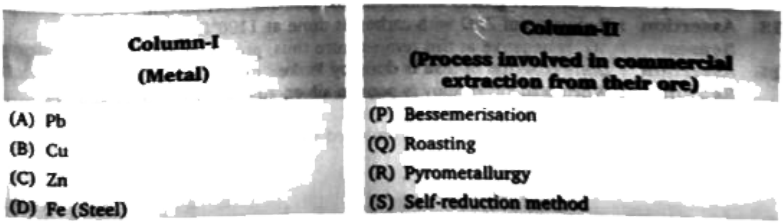
20. Column-I and Column-II contains four entries each. Entries of column-I are to be matched with some entries of column-II. Each entry of column-I may have the matching with one or more than one entries of column-II.



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Assertion Reason Type Questions

1. Assertion : $PbSiF_6 + H_2SiF_6 +$ gelatine is taken as electrolyte in electrolytic refining of lead.

Reason : Discharge potential of Pb^{2+} is less than H^+.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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2. Assertion : Nitriding is the process of heating steel in presence of N_2 to form iron nitrides.

Reason : The surface of steel becomes hard after nitriding process.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: D

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3. Assertion : Ores are generally converted into oxides, prior to reduction.

Reason : Metal oxides can be easily reduced.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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4. Assertion : In the extraction of Ag, complex $Na[Ag(CN)_2]$ is reacted with Zn.

Reason : Zn is d-block transition metal.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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5. Assertion : Thermite mixture $Fe_2O_3 + Al$ (powder) is used in the welding.

Reason : Al is a good reductant.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: B

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6. Assertion : In froth floatation process sodium ethyl xanthate is used as collector.

Reason : Sulphide ores are water soluble.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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7. Assertion : Cryolite is used in electrolytic extraction of Al from alumina. It dissolves alumina.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: A

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8. Assertion: $CuFeS_2$ is concentrated by froath floatation method

Reason : $CuFeS_2$ is main ore of copper.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: B

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9. Assertion : In the electrolytic reduction of Al_2O_3, cryolite is used.

Reason : Cryolite is an ore of aluminium.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: B

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10. Assertion : Wrought iron is more malleable and ductile than steel.

Reason : It contains slightly less percentage of carbon.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: A

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11. Assertion : Lead, tin and bismuth are purified by liquation method.

Reason : Lead, tin and bismuth have low m.p. as compared to impurities.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: A

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12. Assertion : Al_2O_3 is converted into Al by reduction with carbon at high temp.

Reason : Carbon has greater affinity for oxygen than aluminium.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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13. Assertion : Reduction of ZnO with carbon is done at $1100^\circ C$.

Reason : At this temperature, ΔG° is negative and the process is spontaneous.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: A

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14. Assertion : Desilverisation of lead is done by Parke's method ΔG.

Reason : When lead-silver alloy is poor in silver, zinc is added to molten ore.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: A

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15. Statement-I : All the ores are mineral

Statement-II : Most of the ores contains metals in combined state

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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16. Assertion : $PbSiF_6 + H_2SiF_6 +$ gelatine is taken as electrolyte in electrolytic refining of lead.

Reason : Discharge potential of Pb^{2+} is less than H^{+}.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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17. Assertion : Nitriding is the process of heating steel in presence of N_2 to form iron nitrides.

Reason : The surface of steel becomes hard after nitriding process.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: D

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18. Assertion : Ores are generally converted into oxides, prior to reduction.

Reason : Metal oxides can be easily reduced.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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19. Assertion : In the extraction of Ag, complex $Na[Ag(CN)_2]$ is reacted with Zn.

Reason : Zn is d-block transition metal.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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20. Assertion : Thermite mixture $Fe_2O_3 + Al$ (powder) is used in the welding.

Reason : Al is a good reductant.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: B

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21. Assertion : In froth floatation process sodium ethyl xanthate is used as collector.

Reason : Sulphide ores are water soluble.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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22. Assertion: $CuFeS_2$ is concentrated by froath floatation method

Reason : $CuFeS_2$ is main ore of copper.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: B

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23. Assertion : In the electrolytic reduction of Al_2O_3, cryolite is used.

Reason : Cryolite is an ore of aluminium.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: B

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24. Assertion : Wrought iron is more malleable and ductile than steel.

Reason : It contains slightly less percentage of carbon.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: A

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25. Assertion : Lead, tin and bismuth are purified by liquation method.

Reason : Lead, tin and bismuth have low m.p. as compared to impurities.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: A

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26. Assertion : Al_2O_3 is converted into Al by reduction with carbon at high temp.

Reason : Carbon has greater affinity for oxygen than aluminium.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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27. Reduction of ZnO with carbon is done at $1100^{\circ} C$.

Reason : ΔG° is negative at this temperature thus, process is spontaneous.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: A

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28. Assertion : Desilverisation of lead is done by Parke's method.

Reason : When lead-silver alloy is poor in silver, zinc is added to molten ore.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: A

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29. Assertion : All the ores are mineral. ltbr. Reason : Ores contains metals in combined state.

A. If both assetion and reason are CORRECT, and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT the CORRECT explanation of the assertion

C. If assertion is CORRECT but reason is INCORRECT

D. If assertion is INCORRECT but reason is CORRECT

Answer: C

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