CHEMISTRY

BOOKS - UNIVERSAL BOOK DEPOT 1960 CHEMISTRY (HINGLISH)

ORES, MINERALS AND METALLURGICAL EXTRACTION

Ordinary Thinking Objective Questions Occurrence

1. Metal which can be extracted from all three dolomite, magnesite and caranallite is

A. Na

B. K

C. Mg

D. Ca

Answer: C

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2. Cinnabar is an ore of

A. Hg

B. Cu

C. Pb

D. Zn

Answer: A

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3. Which one of the following is an ore of silver?

A. Argentite

B. Stibnite

C. Haematite

D. Bauxite

Answer: A

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4. Cassiterite is an ore of

A. Mn

B. Ni

C. Sb

D. Sn

Answer: D

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5. The most abundant alkaline earth metal in the earth's crust is

A. Na

B. Mg

C. Al

D. Fe

Answer: C

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6. Which one of the following is a mineral of iron.

A. Malachite

B. Cassiterite

C. Pyrolusite

D. Magnetite

Answer: D

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

I.Metal nitrates are highly unstable.

II. Metal nitrates are highly soluble in water.

A. A and B are false

B. A is false but B is true

C. A is true but B is false

D. A and B are true

Answer: B

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8. Which of the following ore does not represent the ore of iron?

A. Haematite

B. Magnetite

C. Cassiterite

D. Limonite

Answer: C

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9. Which of the following is a carbonate ore?

A. Pyrolusite

B. Malachite

C. Diaspore

D. Cassiterite

Answer: B

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10. Which is not a mineral of aluminium

A. Anhyderite

B. Bauxite

C. Corundum

D. Diaspore

Answer: A

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11. Sapphrie in mineral of

A. Cu

B. Zn

C. Al

D. Mg

Answer: C

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12. Calamine is

A. $ZnSO_4$

B. ZnO

C. $Zn(NO_3\_(2)$

D. $ZnCO_3$

Answer: D

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13. Cryolite is an ore of

A. Iron

B. Silver

C. Zinc

D. Aluminium

Answer: D

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14. The higest quantity present in the atmosphere is of

A. Oxygen

B. Hydrogen

C. Nitrogen

D. Ozone

Answer: C

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15. An important ore of zinc metal is:

A. Calamine

B. Cryolite

C. Gibsite

D. Malachite

Answer: A

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16. Corundum is

A. SrO_2

B. Al_2O_3

C. $CaCl_2$

D. Cu_2Cl_2

Answer: B

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17. A naturally occurring substance from which a metal can be profitably extracted is known as

A. Minerals

B. Ores

C. Gangue

D. Salts

Answer: D

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18. 'Chile saltpetre'' is an ore of

A. Iodine

B. Sodium

C. Bromine

D. Magnesium

Answer: D

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19. Which of the following statement is incorrect

A. Silver glance mainly contains silver sulphide

B. Gold is found in native state

C. Zinc blende mainly contain zinc chloride

D. Copper pyrites also contain Fe_2S_3

Answer: C

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20. Bauxite is an oxide mineral o f

A. Barium

B. Boron

C. Bismuth

D. Aluminium

Answer: D

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21. Which of the following is ferrous alloy?

A. Invar

B. Solder

C. Magnalium

D. Type metal

Answer: A

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22. Which one is malachite from the following

A. Cu_2S

B. $CuCO_3.Cu(OH)_2$

C. Cu_2O

D. $CuCO_3$

Answer: B

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23. Which of the following is magnetite ?

A. Fe_2O_3

B. FeS_2

C. $FeCO_3$

D. Fe_3O_4

Answer: D

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24. Aluminium is most abundant in earth crust yet it is obtained from bauxite because

A. Bauxite is avilable in larger quantity

B. Of easy extraction of aluminium from it

C. Bauxite contains maximum aluminium

D. Bauxite is less impure

Answer: A

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25. Which one of the following ores is a chloride?

A. Horn silver

B. Zincite

C. Bauxite

D. Feldspar

Answer: A

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

A. Magnesite

B. Dolomite

C. Gypsum

D. Carnallite

Answer: C

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27. The molecular formula of cryolite is

A. Fe_3O_4

B. Na_3AlF_6

C. $Na_2Al_2O_3$

D. All of these

Answer: B

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28. The ore carnallite is represented by structure:

A. $Na_2Al_2O_3$

B. Na_3AlF_6

C. $KCl.\ MgCl_26H_2O$

D. Fe_3O_4

Answer: C

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29. magnalium is an alloy of

A. $Mg + Al$

B. $Mg + Cu$

C. $Mg + Fe$

D. $Mg + Mn$

Answer: A

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30. Corundum is an ore of aluminium.

A. Copper

B. Boron

C. Aluminium

D. Sodium

Answer: C

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31. Which of the following is not an ore of Iron

A. Magnetite

B. Siderite

C. Smithsonite

D. Limonite

Answer: C

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32. Which one of the following does not occurs as sulphide ore

A. Zn

B. Cr

C. Ag

D. Fe

Answer: B

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33. Which one of the following is not a sulphide ore ?

A. Magnetite

B. Iorn pyrites

C. Copper glance

D. Sphalerite

Answer: A

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34. Commercially important ore of Lead is

A. Siderite

B. Haematite

C. Galena

D. None of these

Answer: C

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35. The salt which is least likely to be found in mineral is

A. Chloride

B. Sulphate

C. Sulphide

D. Nitrate

Answer: D

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36. Silicon is an important constituent of

A. Alloys

B. Rocks

C. Animals

D. Vegetables

Answer: B

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37. Ore pitch blende is main source of

A. Ra

B. Ce

C. Th

D. Mg

Answer: A::C

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38. The most abundant element in the earth crust is

A. Hydrogen

B. Oxygen

C. Silicon

D. Carbon

Answer: B

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39. Match the following

List I	ListII
(A) Feldspar	$(I)[Ag_3SbS_3]$
(B) Asbestors	$(II)Al_2O_3H_2O$
(C) Pyrargyrite	$(III)MgSO_4.H_2O$
(D) Diaspore	$(IV)KAlSi_3O_8$
	$(V)CaMg_3(SiO_3)_4$

A.

	(A)	(B)	(C)	(D)
(a)	IV	V	II	I

B.

	(A)	(B)	(C)	(D)
(b)	IV	V	I	II

C.

	(A)	(B)	(C)	(D)
(c)	IV	I	III	II

D.

	(A)	(B)	(C)	(D)
(d)	II	V	IV	I

Answer: B

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40. Ore of which of the following element is a metalloid?

A. As

B. Na

C. Au

D. Fe

Answer: A

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41. An example of halide ore is

A. Galena

B. Bauxite

C. Cinnabar

D. Cryolite

Answer: D

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42. Which of the following is not ore of iron is

A. Galena

B. Anglesite

C. Calamine

D. Cerrusite

Answer: C

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43. An important oxide ore if iron is

A. Haematite

B. Siderite

C. Pyrites

D. Malachite

Answer: A

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44. Which one of the following is correct

A. A mineral connot be an ore

B. An ore cannot be a mineral

C. All minerals are ores

D. All ore are minerals

Answer: D

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45. Which of the following does not contain Mg?

A. Magnetite

B. Asbestos

C. Magnesite

D. Carnallite

Answer: A

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46. The ores of aluminium and tin normally occurs in the form of

A. Sulphides

B. Oxides

C. Carbonates

D. Sulphates

Answer: B

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47. Which of the following metal is sometimes found native in nature

A. Al

B. Cu

C. Fe

D. Mg

Answer: B

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48. What is believed to be the second most common element in the universe

A. Helium

B. Hydrogen

C. Nitrogen

D. Silicon

Answer: D

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49. (iv) Metallurgy is the process of :

A. Concentraing the ore

B. Roasting the ore

C. Extracting the metal from the ore

D. Adding carbon to the ore in blast furnace

Answer: C

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50. The formula of haematite is

A. Cu

B. Al

C. Ag

D. Fe

Answer: D

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51. The formula of heamatite is

A. Fe_3O_4

B. Fe_2O_3

C. $FeCO_3$

D. FeS_2

Answer: B

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52. Which is correct

A. Aluminium : Calamine

B. Copper : Malachite

C. Magnesium : Calamine

D. Zinc : Carnellite

Answer: B

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53. Which of the following is not present in mineral

A. KNO_3

B. $CaCO_3$

C. NaCl

D. CaO

Answer: A

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54. Tintanium containing miniral found in our country is

A. Bauxite

B. Dolomite

C. Chalcopyrites

D. Elmanite

Answer: D

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55. Formula of Feldspar is

A. $K_2O.\ Al_2O_3.\ 6SiO_2$

B. $K_2O.\ Al_2O_3.\ 6Si_2.\ O_2.\ 2H_2O$

C. $Al_2O_3.\ 2SiO_2.\ 2H_2O$

D. $3MgO.4SiO_2.\ H_2O$

Answer: A

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56. The chief impurity present in bauxite is

A. SiO_2

B. Fe_2O_3

C. K_2SO_4

D. NaF

Answer: B

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57. Composition ofAzurite mineral of

A. $CuCO_3CuO$

B. $Cu(HCO_3).Cu(OH)_2$

C. $2CuCO_3.Cu(OH)_2$

D. $CuCO_3.2Cu(OH)_2$

Answer: C

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58. The ore chromite is_____.

A. $FeCr_2O_4$

B. $CoCr_2O_3$

C. $CrFe_2O_4$

D. $FeCr_2O_3$

Answer: A

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59. All ores are minerals while all minerals are not ores because :

A. The metal can't be extracted economically from all the minerals

B. Minerals are complex compounds

C. The minerals are obtained from mines

D. All of thes are correct

Answer: A

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60. Of the following substances the one which does not contain oxygen is

A. Bauxite

B. Epsom salt

C. Cryolite

D. Dolomite

Answer: C

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61. Which of the following is the abundant element in the universe

A. Nitrogen

B. Hydrogen

C. Oxygen

D. Silicon

Answer: B

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

A. Epsomite

B. Mica

C. Beryl

D. Orthoclase

Answer: A

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63. (x) Regions in which metals are found in earth is called

A. Atomophil

B. Lithophil

C. Calcophil

D. Silderophil

Answer: B

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64. Asseretion: Iton is found in the free state in nature.

Reason: Iron is highly reactive element.

A. If both assertion and reason are true and the reason is not the reason in the correct explanation of the assertion.

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

C. If the assertion is true but reasin is false

D. If assertion is false but reason is true.

Answer:

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Ordinary Thinking Objective Questions Concentration

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

$Column I$	$Column II$
(A) Cyanide process	(1) Ultrapure Ge
(B) Froth Floatation Process	(2) Dressing of ZnS
(C) Electrolytic reduction	(3) Extraction of Al
(D) Zone refining	(4) Extraction of Au
	(5) Purification of Ni

A. $\begin{matrix}(A) & (B) & (C) & (D)\\ (iv) & (ii) & (iii) & (i)\end{matrix}$

B. $\begin{matrix}(A) & (B) & (C) & (D)\\ (iv) & (ii) & (iii) & (i)\end{matrix}$

C. $\begin{matrix}(A) & (B) & (C) & (D)\\ (i) & (ii) & (iii) & (iv)\end{matrix}$

D. $\begin{matrix}(A) & (B) & (C) & (D)\\ (iii) & (iv) & (v) & (i)\end{matrix}$

Answer: A

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2. Froth floatation process is used for the concentration of

A. Oxides ores

B. Sulphide ores

C. Chloride

D. Amalgams

Answer: B

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3. In extraction of copper, we use

A. Cu_2S

B. Pyrities

C. Silver argentocyanide

D. $CuFeS_2$

Answer: D

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4. Fourth-floatation method is sussecfufl in separating impurities from oes because

A. The pure ore is lighter than water containing additives like pine oil, cresylic acid etc

B. The pure ore is soluble in water containing additives like pine oil, cresylic acid etc

C. The impurities are soluble in water containing additives like pine oil, cresylic acid etc

D. The pure ore is not as easily watted by water as by pine oil, cresylic acid etc

Answer: D

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5. Difference in density is the basis of

A. Ultrafiltration

B. Molecular sieving

C. Gracity separation

D. Molecular attraction

Answer: C

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6. The substance added in water in the froth floatation process is

A. Olive oil

B. Pine oil

C. Coconut oil

D. None of the above

Answer: B

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7. Cassiterite is concentrated by

A. Levigation

B. Electromagnetic separation

C. Floatation

D. Liquifaction

Answer: B

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8. Copper pyrites are concentrated by

A. Electromagnetic method

B. Gravity method

C. Froth floatation process

D. All the above methods

Answer: C

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9. Iron ore is concentrated by

A. Froth floatation

B. Electrolysis

C. Roasting

D. Magnetic treatement

Answer: D

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10. An ore like zinc blends is concentrated by

A. Froth floatation

B. Magnetic separation

C. Leaching

D. Washing with water

Answer: A

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11. Magnetic separation is used for increasing concentration of the following

A. Horn silver

B. Calcite

C. Haematite

D. Magnesite

Answer: C

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12. Bauxite ore is concentrated by

A. Froth floatation

B. Electromagnetic separation

C. Chemical separation

D. Hydruali separation

Answer: C

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13. Leaching is a process of

A. Reduction

B. Concentration

C. Refining

D. Oxidation

Answer: B

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14. Gravity seperation process may be used for the concentration of

A. Calamine

B. Haematite

C. Chalcopyrites

D. Bauxite

Answer: B

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15. Which one of the following ores is best concentrated by froth floatation method ?

A. Galena

B. Cassiterite

C. Magnetite

D. Malachite

Answer: A

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16. Cyanide proces is used for the extraction of

A. Au

B. Ag

C. Both (a) and (b)

D. Cu

Answer: A

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17. The function of potassium ethyl xanthate in froth floatation process is to make the ore

A. Attracted towards water

B. Water repellant

C. Lighter

D. Heavier

Answer: B

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18. The method of concentrating the ore which makes use of the difference in density between ore and impurities is called

A. Levigation

B. Leaching

C. Magentic separation

D. Liquifaction

Answer: A

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19. An ore of tin containing $FeCrO_4$ is concentrated by ____.

A. Magenetic separation

B. Froth floatation

C. Electrostatic method

D. Gravity separation

Answer: A

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20. Froth floatation process for the concentration of Cu illustrates the practical application of

A. adsorption

B. Absorption

C. Coagulation

D. Sedimentation

Answer: A

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21. One of the following metals froms a volatile corbony1 compound and this property is taken advantage of its extraction. This metal is

A. Iron

B. Nickel

C. Cobalt

D. Tungsten

Answer: B

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22. Which of the following metal is the most difficult to extract from its oxide?

A. Cs

B. Ag

C. Zn

D. Mg

Answer: C

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23. In the metallurgy of zinc, flux is not used because

A. Zinc ore has no impurities

B. Zinc is volatile hence easily separated

C. Zinc reacts with flux

D. Flux is volatile

Answer: B

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24. Ore like magnetite or tungstates in tin ores are concentrated by

A. Froth floatation

B. Magnetic separation

C. Gravity separation

D. Electrostatic separation

Answer: B

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25. Assertion : Gold is recoverd from its solution containing aurocyanide complex its solution containing.

Reason : Zinc is more electropositive htan gold.

A. If both assertion and reason are true and the reason is not the correct explanation of the assertion

B. If both assertion and reason are true but and reason is the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If the assertion and reason both are false

Answer: A

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26. Assertion : Zinc is used for the recovery of silver from the complex $\left[Ag(CN)_2\right]^-$

Reason : Zinc is more electropositive than silver and is a better reducing agent.

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

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

C. If assertion is true but reason is false.

D. If the assertion and reason both are false

Answer: A

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27. Asserton : Ethyl xantyhate is used as a collector in froth floatation process.

Reason : Collectors depress the loatation property of one of the componenets of the ore and thus help in the separation of different minerals present in the same ore.

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

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

C. If assertion is true but reason is false.

D. If the assertion and reason both are false

Answer: C

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28. Assertion : Levigation is used for the separation of oxide ores from impurities

Reason : Ore particles are removeed by wahing in a current of water

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

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

C. If assertion is true but reason is false.

D. If the assertion and reason both are false

Answer: C

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29. Statement-I : Wolframite impurities are separated from cassiterite by electromagnetic separation

Statement-II : Cassiterite being magnetic is attached by the magnet and forms a separate heap.

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

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

C. If assertion is true but reason is false.

D. If the assertion and reason both are false

Answer: C

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Ordinary Thinking Objective Questions Roasting Calcination

1. Which of the following srtatement above the advantage of masting of sulphide are before reduction is not true?

A. Carbon and hydrongen are suitable reducing agents for metal sulphides

B. The $\Delta_r G^0$ of the sulphide is greater than those for CS_2 and H_2S

C. The $\Delta_r G^0$ is negative for roasting for sulphide ore to oxide

D. Reasting of the sulphide to the oxide is thermodynamially feasible

Answer: A

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2. The following reaction take place in the blast in the proparation of impure iron identify the reaction pertatining to the formetion of the slag

A. $CaO(s) + SiO_2(s) \rightarrow CaSiO_3(s)$

B. $2C(s) + O_2(g) \rightarrow 2CO(g)$

C. $Fe_2O_3(s) + 3CO(g) \rightarrow 2Fe(I) + 3CO_2(g)$

D. $CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$

Answer: A

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3. In the exteraction of copper from its sulphide ore, the metal is fanally obtained by the reduction of caprous oxide with

A. Cooper (I) sulphide (Cu_2S)

B. Sulphure dioxide (SO_2)

C. Iron sulphide (FeS)s

D. Carbon monoxide (CO)

Answer: A

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4. Flux is used to remove

A. Acidic impurities

B. Basic impurities

C. All impurities from ores

D. Both (a) and (b)

Answer: D

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5. Heating of pyrites in air for oxidation of sulphur is called Heating of ore in presene of air to remove sulphure impurities is called

A. Roasting

B. Calcination

C. Smelting

D. Slagging

Answer: A

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6. The cheap and having hight melting point compound used in furnace is

A. PbO

B. CaO

C. HgO

D. ZnO

Answer: B

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7. Calcination is the process of heating the ore

A. In a blas furnace

B. In absence of air

C. In Presence of air

D. None of these

Answer: B

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8. Thomas slag is

A. $CaSiO_3$

B. $Ca_3(PO_4)_2$

C. $MnSiO_3$

D. $CaCO_3$

Answer: B

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9. (iii) Which is not a basic flux ?

A. $CaCO_3$

B. Lime

C. SiO_2

D. CaO

Answer: C

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10. (f) In the manufacture of iron from haematite, limestone is added to act as ____.

A. A reducing agent

B. Flux

C. Slag

D. Gangue

Answer: B

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11. The sunstance which is mixed with the ore for removel of impurities is termed

A. Slag

B. Gangue

C. Flux

D. Catalyst

Answer: C

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12. During extraction of Fe, slag obtained is

A. FeO

B. $FeSiO_3$

C. $MgSiO_3$

D. $CaSiO_3$

Answer: D

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13. Refractory metals are used in construction of furnances because

A. They can withstand high temperature

B. They are chemically inert

C. Their melting point is high

D. None of these

Answer: A

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14. Calcination is used in matallurgy for removal of

A. Water and sulphide

B.

C. Water and CO_2

D. H_2O and H_2S

Answer: B

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15. Roasting is done in

A. Blast furnace

B. Open hearth furnace

C. Electric furnance

D. None of these

Answer: A

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16. Flux is used to remove

A. Silica

B. Metal oxide

C. all impurites from ores

D. Silica and undersirable metal oxide

Answer: D

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17. Smetling is done in

A. Blast furnace

B. Muffle furnace

C. Open-hearth furnance

D. Electric furnace

Answer: A

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18. In metallurgy , flux is a substance used to convert_____.

A. Infusible impurities to fusible meterial

B. Soluable impurities to isoluble impurities

C. Fusible impurities to infusible impurities

D. Mineral into silicate

Answer: A

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19. The role of calcination in metallurgical operation is

A. To remove moisture

B. To decompose carbonate

C. To drive off organic matter

D. To achieve all the above

Answer: D

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20. Roasting is generally carried out in ____mineral.

A. Oxides ores

B. Silicate ores

C. Sulphide ores

D. Carbonates ores

Answer: C

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21. Smelting is termed to the proces in which

A. The ore is heated in the absence of air

B. Ore is cold

C. The ore is heated in the presence of air

D. Ore is melted

Answer: D

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22. When limestone is heated strongly, it gives off CO_2. In matallurgy this process is known as

A. Calcination

B. Roasting

C. Smelting

D. Ore dressing

Answer: A

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23. A Substance which reacts with gangue to form fusible material is called

A. Flux

B. Catalyst

C. Ore

D. Slag

Answer: A

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24. The purpose of smelting an ore is

A. To oxidise it

B. To reduce it

C. To remove vapourisable impurities

D. To obtain an alloy

Answer: B

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25. The underlying of blast furnace is made of

A. Graphite bricks

B. Silica bricks

C. Fire-clay cricks

D. Basic bricks

Answer: C

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26. Reverberatory furnace is epmloyed in the metallurgincal process mainly for

A. Reduction of oxide ores

B. Smelting of sulphide ores

C. Conversion of chloriode to sulphate

D. Getting magnetic materials

Answer: A

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27. The impurities associated with the ore after mining are collectively called

A. Slag

B. Flux

C. Gangue

D. Ore

Answer: C

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28. Complex is formed in the extraction of

A. Na

B. Cu

C. Ag

D. Fe

Answer: C

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29. The reaction $2ZnS + 3O_2 \rightarrow 2ZnO + 2SO_2$ in the metallurgical process of zinc is called

A. Calcination

B. Cupellation

C. Smelting

D. Roasting

Answer: D

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30. When a metal is to be extracted from its ore, if the gangue associated with the ore is silica, then

A. An acidic flux is needed

B. A basic flux is needed

C. Both acidic and basic flux are needed

D. Neither of them is needed

Answer: B

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31. Which of the following substance can be used for drying neutral or basic gases?

A. $CaCO_3$

B. Na_2CO_3

C. $NaHCO_3$

D. CaO

Answer: D

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32. Which metal is used as a reducing agent in smelting

A. C

B. Al

C. Zn

D. None of these

Answer: D

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33. Which of the following faction is of no significance for roasting sulphide ores to the oxide and not subjecting the sulphide ores in carbon reduction directly ?

A. CO_2 is thermodynamically more stable than CS_2

B. Metal sulphides are less stable than the corresponding oxides

C. CO_2 is more volatile than CS_2

D. Metal sulphides are thermodynamically more stable than CS_2

Answer: B

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34. Matte contains mainly

A. Cu_2S and FeS

B. CuS and Fe_2S_3

C. Fe

D. Cu_2S

Answer: A

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35. The first step in the extraction of Cu from copper pyrites is

A. Reduction by carbon

B. Eeletrolysis of ore

C. Roasting of ore in O_2

D. Magnetic separation

Answer: C

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36. When copper pyrites is roasted in excess of air, a mixture of $CuO + FeO$ is formed. FeO is present as impurity. This can be removed as slag during reduction of CuO. The flux added to form slag is

A. SiO_2 which is an acidic flux

B. Lime stone, which is a basic flux

C. SiO_2 which is basic flux

D. CaO, which is basic flux

Answer: A

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37. In blast furnace, the highest temperature is in

A. Reduction zone

B. Slag zone

C. Fusion zone

D. Combustion zone

Answer: D

Watch Video Solution

38. In a lime kiln, to get higher yield of CO_2 the measure that can be taken is :

A. To remove CaO

B. To add more $CaCO_3$

C. To maintain high temperature

D. To pump out CO_2

Answer: A

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39. Which of the following reactions taking place in the blast furnace during extraction of iron is endothermie ?

A. $CaCO_3 \rightarrow CaO + CO_2$

B. $2C + O_2 \rightarrow 2CO$

C. $C + O_2 \rightarrow CO_2$

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

Answer: A

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40. Which of the following fluxes is used to remove acidic impurities in metallurgical process?

A. Silica

B. Lime stone

C. Sodium chloride

D. Purification of Fe formed

Answer: B

Watch Video Solution

41. How is limestone used in Fe extraction?

A. Oxidation of Fe ore

B. Reduction of Fe ore

C. Formation of slag

D. Purification of Fe formed

Answer: C

Watch Video Solution

42. A metal obtained directly by roasting of its sulphide ore is

A. Cu

B. Pb

C. Hg

D. Zn

Answer: C

Watch Video Solution

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

A. Oxidation

B. Reduction

C. Decmposition

D. Sublimation

Answer: D

Watch Video Solution

44. Which statement is correct

A. Gangues are carefully chosen to combine with the slag present in the ore to produce easily fusible flux to carry away the impurities

B. Slags are carefully chosen to combine with the flux present in the ore to produce easily fusible gangue to carry away the impurities

C. Gangues are carefully chosen to combine with the flux present in the ore to produce easily fusible slag to carry away the impurities

D. Fluxes are carefully chosen to combine with the gangue present in the ore to produce easily fusible slag to carry away the impurities

Answer: D

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45. Blast furnace is employed in the smelting of oxide ore with coke and flux in the metallurgy of

A. Iron

B. Copper

C. Lead

D. All the above

Answer: D

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Ordinary Thinking Objective Questions Reduction To Free Metal

1. Aluminium is extracted from Alumina (Al_2O_3) by electrolysis of a molten mixture of

A. $Al_2O_3 + HF + NaAlF_4$

B. $Al_2O_3 + CaF_2 + NaAlF_4$

C. $Al_2O_3 + Na_3AlF_6 + CaF_2$

D. $Al_2O_3 + KF + Na_3AlF_6$

Answer: C

Watch Video Solution

2. The metal oxide which cannot be reduced to metal by carbon is

A. Al_2O_3

B. PbO

C. ZnO

D. Fe_2O_3

Answer: A

Watch Video Solution

3. In the exteraction of copper from its sulphide ore, the metal is fanally obtained by the reduction of caprous oxide with

A. Iron (II) sulphide

B. Carbon monoxide

C. Copper (I) sulphide

D. Sulphur dioxide

Answer: C

Watch Video Solution

4. Which one of the following is used in the extraction of alumininum by electronlytic process

A. Al_2O_3

B. $Al(OH)_3$

C. $AlCl_3$

D. $Al_2(SO_4)_3$

Answer: A

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5. The common method for the extraction of metals from oxide ores involves _____.

A. Carbon reduction

B. Reduction by aluminium

C. Reduction by hydrogen

D. Electrolytic reduction

Answer: A

Watch Video Solution

6. Which of the following metals are extracted by electrolytic reduction?

A. Cu

B. Al

C. Fe

D. Ag

Answer: B

Watch Video Solution

7. The electrolytic method of reduction is employed for the preparation of metals that

A. Are weakly electropositive

B. Are moderately electropositive

C. Are strongly electropositive

D. Form oxides

Answer: C

Watch Video Solution

8. Aluminothermic process is used for metallurgy of

A. Pb

B. Ag

C. Al

D. None of these

Answer: D

Watch Video Solution

9. Which metal can't be obtained from electrolysis

A. Cu

B. Mg

C. Cr

D. Ni

Answer: C

Watch Video Solution

10. According to Ellingham diagram the oxidation reaction of carbon and carbon monoxide may be used to reduce which one of the following oxides at the lowest temperature?

A. Al_2O_3

B. Cu_2O

C. MgO

D. ZnO

Answer: B

Watch Video Solution

11. From the Ellingham graphs of cabron, which of the following staement is false?

A. CO_2 is more stable then CO at less than 983 K

B. CO reduces Fe_2O_3 to Fe at less than 983 K

C. CO is less stable than CO_2 at more than 983 K

D. CO reduces Fe_2O_3 to Fe in the reduction zone of Blast furnace

Answer: C

Watch Video Solution

12. Which one of the following metals is extracted by carbon reduction process –

A. Copper

B. Iron

C. Aluminium

D. Magnesium

Answer: B

Watch Video Solution

13. Which of the following metals cannot be extracted by carbon reduction process?

A. Pb

B. Al

C. Hg

D. Zn

Answer: B

Watch Video Solution

14. In blast furnace, iron oxide is reduced by

A. Silica

B. CO

C. Carbon

D. Lime stone

Answer: B

Watch Video Solution

15. High purity copper metal is obtained by

A. Carbon reduction

B. Hydrogen reduction

C. Electrolytic reduction

D. Thermite reduction

Answer: C

Watch Video Solution

16. The metal extracted by electrolysis of its fused salt is:-

A. Iron

B. Lead

C. Sodium

D. Copper

Answer: C

Watch Video Solution

17. Electrometallurgical process is used to extract

A. Fe

B. Pb

C. Na

D. Ag

Answer: C

Watch Video Solution

18. In the metallurgical extraction of zince from ZnO the reducting agent used is

A. Carbon monoxide

B. Sulphure dioxide

C. Carbon dioxide

D. Nitric oxide

Answer: A

Watch Video Solution

19. Chemical reduction is not suitable for convering

A. Bauxite into aluminium

B. Cuprite into copper

C. Haematite into iron

D. Zinc oxide into zinc

Answer: A

Watch Video Solution

20. Carbon reduction process is used for the extraction of

A. Hg

B. Zn

C. Cr

D. Fe

Answer: D

Watch Video Solution

21. The auto reduction process is not used in the metallurgy of

A. Hg

B. Cu

C. Pb

D. Fe

Answer: D

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22. Heating with carbon in absence of air is known as

A. Reduction

B. Carbon-reduction

C. Smelting

D. Roasting

Answer: B

Watch Video Solution

23. Bauxide ore is made up of $Al_2O_3 + SiO_2 + TiO_2 + Fe_2O_3$. This ore is treated with conc. $NaOH$ solution at $500K$ and 35 bar pressure for a few hours and filtered hot. In the filtrate, the species present are

A. $NaAl(OH)_4$ only

B. $Na_2Ti(OH)_6$ only

C. $NaAl(OH)_4$ and Na_2SiO_3 both

D. Na_2SiO_3 only

Answer: A

Watch Video Solution

24. Thermite process is used to extract metals

A. When their oxides can't be reduced by carbon

B. When their carbonates do not yield oxides by thermal decomposition

C. When their sulphides cant's be converted into oxides by roasting

D. When their melting points are very high

Answer: A

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25. Aluminium is prepared in large quantities by

A. Heating cryolite in alimited equantity of air

B. Reducing alumininum oxide with coke

C. Reducing aluminium oxide with sodium

D. Electrolysing alumininum oxide dissolved in fused electrolyte

Answer: D

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26. Which of the following processes does not involve a catalyst ?

A. Haber's process

B. Thermite process

C. Ostwald process

D. Contact process

Answer: B

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27. Identify the reaction that does not take place in a blast furnace

A. $2Fe_2O_3 + 3C \rightarrow 4Fe + 3CO_2$

B. $CO_2 + C \rightarrow 2CO$

C. $CaCO_3 \rightarrow CaO + CO_2$

D. $CaO + SiO_2 \rightarrow CaSiO_3$

Answer: C

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28. In aluminium extraction by Bayer process, alumina is extracted from bauxite by sodium hydroxide at high temperatures and pressures

$Al_2O_3(s) + 2OH^- \rightarrow 2Al_2O_2^-(aq) + H_2O(l)$

Solid impurities such as Fe_2O_3 and SiO_2 are removed and then $Al(OH)_4^-$ is reprecipitated

$2Al(OH)_4^- \rightarrow Al_2O_{3.3}H_2O(g) + 2OH^-(aq)$

In the industrical world :

A. Carbon dioxide is added to precipitate the alumina

B. Temerature and pressure are dropped and the supersaturated soluttion seeded

C. Both (a) and (b) are practised

D. The water is evaporated

Answer: C

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29. Iron is obtained on a large scale from Fe_2O_3 by

A. Reduction with Al

B. Reduction with CO

C. Reduction with H_2

D. Reduction with sodium

Answer: B

Watch Video Solution

30. To obtain chromium from chromic oxide (Cr_3O_3) the method used is

A. Alumino-thermic process

B. Electrolytic reduction

C. Carbon reduction

D. Carbon monoxide reduction

Answer: A

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31. Assertion:- Leaching is a process of concentration of some specific ores.

Reason:- Leaching involves treatement of the ore with a suitable reagent so as to make it soluble while impurities remains insoluble.

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

B. If boht assretion and reasons are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer:

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Ordinary Thinking Objective Questions Refining Of Crude Metal

1. Which method of purification is represented by the following equations

$$Ti + 2I_2 \xrightarrow{523K} TiI_4 \xrightarrow{1700K} Ti + 2I_2$$

A. Cupellation

B. Poling

C. Van Arkel

D. Lime stone

Answer: C

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

A. Mond's process

B. Van-Arkel process

C. Amalgamation process

D. Liquation

Answer: C

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3. Zone refining is used for purification of :

A. Cu

B. Au

C. Ge

D. Ag

Answer: C

Watch Video Solution

4. Silver obtained from argentiferrous lead containing lead impurity is purified by

A. Distillation

B. Froth floatation

C. Cupellation

D. Treatment of KCN

Answer: C

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5. In electrolytic refining of metals, electrolysis of an aqueous solution of its complex salt is done with impure metal as anode and a strip of pure metal as cathode. This method cannot be used for the refining of the metal

A. Silver

B. Copper

C. Aluminium

D. Zinc

Answer: D

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6. In the electrolytic refining of a metal, the impure metal is made the _____

A. Cathode

B. Anode

C. Electrolytic bath

D. None of these

Answer: B

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7. A metal which is refined by poling is

A. Sodium

B. Blister copper

C. Zinc

D. Silver

Answer: B

Watch Video Solution

8. Which metallurgy involves leaching

A. Au

B. Ag

C. Both (a) and (b)

D. None of these

Answer: C

Watch Video Solution

9. Zone refining is a method to obtain

A. Very high temperature

B. Ultra pure Al

C. Ultra pure metals

D. Ultra pure oxides

Answer: C

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10. The temperature of the slag zone in the metallurgy of iron using blast furnace is

A. $1500 - 1600^{\circ} C$

B. $400 - 700^{\circ} C$

C. $800 - 1000^{\circ} C$

D. $1200 - 1500^{\circ} C$

Answer: C

Watch Video Solution

11. Hydro-metallurgical process of extraction of metals is based on

A. Complex formation

B. Hydrolysis

C. Dehydration

D. Dehydrogenation

Answer: A

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12. Assertion : Coke and flux are used in smelting.

Reason : The phenomenon in which ore is mixed with suitable flux and coke is heated to fusion is known as smelting.

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

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

C. If assertion is true but reason is false.

D. If the assertion and reason both are false

Answer: B

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Critical Thinking Objective Questions

1. Method used for obtaining highly pure silicon used as a semiconductor material is

A. Oxidation

B. Electrochemical

C. Crystallization

D. Zone refining

Answer: D

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

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

B. Greater mobility of the pure metal than that of the impurity

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

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

Answer: A

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3. Identify the alloy containing a non metal as a constituent in it

A. Inver

B. Steel

C. Bell metal

D. Bronze

Answer: B

Watch Video Solution

4.

$$(Ag+Pb)alloy \xrightarrow{\text{Melt and add zinc}} (Ag+Pb+Zn)\text{melt} \xrightarrow{\text{Cool}} \frac{LayerX}{LayerY}$$

Select correct statements based on above scheme:

A. Layer X contains Zn and Ag

B. Layer Y contains Pb and Ag but amont of silver in this layer is smaller than in layer X

C. X and Y are immiscible layer

D. All are correct statements

Answer: D

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

A. Sodium-alumino silicatea

B. Zinc cobaltate

C. Basic copper carbonate

D. Prussian blue

Answer: A

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6. Wolframite ore is separated from tinstone ore by the process of

A. Roasting

B. Electromagnetic

C. Smelting

D. Calcination

Answer: B

Watch Video Solution

7. Black Jack is an ore of

A. Cr

B. Sn

C. Zn

D. Ni

Answer: C

Watch Video Solution

8. The process of ore dressing is carried out to

A. Remove the silicenous mineral

B. Add flux to the mineral

C. Convert the ore to oxide

D. Remove the poisonous impurities

Answer: A

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9. The bicabonates of group 2 metals are

A. Easily oxidized by air

B. Stable only in solution

C. Unstable in solution

D. Stable to heat in solid state

Answer: B

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10. Which is correct

A. Galena : Mg_2CO_3

B. Cassiterite : $CaCO_3MgCO_3$

C. Dolomite : SnO_2

D. Magnesite : $MgCO_3$

Answer: D

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11. The incorrect statement among the following is

A. Hydrogen is used to reduce NiO

B. Zirconium is refined by van Arkel method

C. The sulphide ore galena is concentrated by forth floatation

D. In the metallurgy of iron, the flux used is SiO_2

Answer: D

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12. The reduction of zinc oxide with coke occurs at temperature

A. Greater than that for CuO

B. Less than that for CuO

C. Less than that for Ag_2O

D. Equal to that for CuO

Answer: A

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13. 'Elektron'' is an alloy of

A. Mg and Zn

B. Fe and Mg

C. Ni and Zn

D. Al and Zn

Answer: A

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14. The important advantage(s) of Lintz and Donawitz (L.D.) process for the manufacture of steel is (are)

A. The process is very quick

B. Operation costs are low

C. Better quality steel is obtained

D. Scrap iron can be used

Answer: A::C::D

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

A. Fe

B. Zn

C. Mg

D. Cu

Answer: C

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Jee Section Only One Choice Correct Answer

1. Copper can be extracted from

A. Kupfemickel

B. Dolomite

C. Galena

D. Malachite

Answer: D

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2. The metallurgical process in which a metal is obtained in a fused state is called

A. Smelting

B. Roasting

C. Calcination

D. Forth floatation

Answer: A

Watch Video Solution

3. which of the following is not an ore

A. Bauxite

B. Malachite

C. Zinc blende

D. Pig iron

Answer: D

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4. In the metallurgy of iron, when limestone is added to the blast furnace,the calcium ions end up in

A. Slag

B. Gangue

C. Calcium metal

D. $CaCO_3$

Answer: A

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5. In the aluminothermite process, aluminium is

A. An oxidizing agent

B. A flux

C. A reducing agent

D. A solder

Answer: C

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6. The metallic luster exhibited by sodium is explained by

A. Diffusion of sodium ions

B. Oscillations of loose electrons

C. Excitation of free proton

D. Exsitence of body centered cubic lattice

Answer: B

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

A. Cryolite

B. Mica

C. Feldespar

D. Fluorspar

Answer: D

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8. Among the following statements, the incorrect one is :

A. Calamine and siderite are carbonates

B. Argentite and cuprite are oxides

C. Zinc blende and pyrites are sulphides

D. Malachite and azurite are ores of copper

Answer: B

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9. The chemical processes in the production of steel from haematite ore involve

A. Reduction

B. Oxidation

C. Reduction following by oxidation

D. Oxidation following by reduction

Answer: D

Watch Video Solution

10. Electrolytic reduction of alumina to aluminium by Hall-Heroult process is carried out:

A. In the presence of NaCl

B. In the presence of fluorite

C. In the prescnce of cryolite which forms a melt with lower melting temperature

D. In the presence of cryolite which forms a melt with higher melting temperature

Answer: C

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

A. Fused salt electrolysis

B. Self reduction

C. Aqueous solution electrolysis

D. Thermite reduction

Answer: A

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12. In the process of extraction of gold.

Roasted gold ore $+CN^- + H_2O \xrightarrow{O_2} [X] + OH^-$

$[X] + Zn \rightarrow [Y] + Au$

Identify the complexes $[X]$ and $[Y]$.

A. $X = \left[Au(CN)_2\right]^-, Y = \left[Zn(CN)_4\right]^{2-}$

B. $X = \left[Au(CN)_4\right]^{3-}, Y = \left[Zn(CN)_4\right]^{2-}$

C. $X = \left[Au(CN)_2\right]^-, Y = \left[Zn(CN)_6\right]^{4-}$

D. $X = \left[Au(CN)_4\right]^{3-}, Y = \left[Zn(CN)_6\right]^{2-}$

Answer: A

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13. By which process Pb and Sn are extracted respectively are:

A. Carbon reduction : Self reduction

B. Self reduction : Carbon reduction

C. Electrolytic reduction : Cyanide process

D. Cyanide process : Electrolytic reduction

Answer: B

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14. A sodium salt on treatment with $MgCl_2$ gives white precipitate only on heating. The anion of the sodium salt is :

A. HCO_3^-

B. CO_3^{2-}

C. NO_3^-

D. SO_4^{2-}

Answer: A

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

A. Electrolytic reduction

B. Roasting followed by reduction with carbon

C. Roasting following by reduction with another metal

D. Roasting following by self-reduction

Answer: B

Watch Video Solution

16. In the cyanide extraction process of silver from argentite ore, the oxidising and reducing agents are

A. O_2 and CO respectively

B. O_2 and Zn dust resper

C. HNO_3 and Zn dust respectively

D. HNO_3 and CO respectively

Answer: B

Watch Video Solution

17. Sulfide ores are common for the metals.

A. $Ag.\ Cu$ and Pb

B. $Ag.\ Cu$ and Sn

C. $Ag.\ Mg$ and Pb

D. $Al.\ Cu$ and Pb

Answer: A

Watch Video Solution

18. In the correct of the Hall-Heroult process for the extraction of Al, which of the following statements is false ?

A. CO and CO_2 are produced in this proess

B. Al_2O_3 is mixture and bring conductivity

C. Al^{3+} is reduced at the cothode to from al

D. Na_3AlF_6 serves as the electrolyte

Answer: D

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19. Which one of the following ores is best concentrated by froth flotation method:

A. Siderite

B. Galena

C. Malachite

D. Magnetite

Answer: B

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Jee Section More Than One Choice Correct Answer

1. In the electrolysis of alumina, cryolite is added to

A. Lower the melting point of alumian

B. Increase the electrical conductivity

C. Minimise the anode effect

D. Remove impurities from alumina

Answer: A::B

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2. Out of the following matals that cannot be obtained by electrolysis of the aquenous solution of their salts is

A. Ag

B. Mg

C. Cu

D. Al

Answer: B::D

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3. Extraction of metal from the ore cassiterite involves

A. Carbon reduction of an oxide ore

B. Self-reduction of a sulphide ore

C. Removal of copper impurity

D. Removal of iron impurity

Answer: A::D

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4. The carbon-based reduction method is NOT used for the extraction of

A. Tin from SnO_2

B. Iron from Fe_2O_3

C. Aluminium from Al_2O_3

D. Magnesium from $MgCO_3, CaCO_3$

Answer: C::D

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5. Upon heating with Cu_2S the reaction (s) that give copper metal is /are

A. $CuFeS_3$

B. CuO

C. Cu_2O

D. $CuSO_4$

Answer: B::C::D

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6. Copper is purified by electrolytic refining of blister copper. The correct statement(s) about this process is (are)

A. Impure Cu stirp is used as cathode

B. Acidified aqueous $CuSO_4$ is used as electrolyte

C. Pure Cu deposits at cathode

D. Impurities settle as anode-mud

Answer: B::C::D

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7. Auto-reduction process is used for the extraction of :

A. Cu

B. Hg

C. Al

D. Fe

Answer: A::B

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Jee Section Reasoning Type Questions

1. $Al(OH)_3$ is amphoteric is nature.

$Al - O$ and $O - H$ bonds can be borken with equal ease in $Al(OH)_3$.

A. Statement 1 is true, statement 2 is true : statement 2 is a correct explanation for statement 1

B. Statement 1 is true, statement 2 is true , statement 2 is not a correct explanation for statement 1

C. Statement 1 is true, stetament 2 is false

D. Statement 1 is true, statement 2 is statement 2 is true

Answer: C

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2. Statement 1 : The air in electrolytic cell for the extraction of magnesium is replaced by coal gas.

Statement 2 : Magnesium is affected by air.

A. Statement 1 is true, statement 2 is true : statement 2 is a correct explanation for statement 1

B. Statement 1 is true, statement 2 is true , statement 2 is not a correct explanation for statement 1

C. Statement 1 is true, stetament 2 is false

D. Statement 1 is true, statement 2 is statement 2 is true

Answer: B

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3. Statement 1 : The tin obtained after smelting of black tin is known as block tin.

Statement 2 : The tin can be cast into ingots or black.

A. Statement 1 is true, statement 2 is true : statement 2 is a correct explanation for statement 1

B. Statement 1 is true, statement 2 is true , statement 2 is not a correct explanation for statement 1

C. Statement 1 is true, stetament 2 is false

D. Statement 1 is true, statement 2 is statement 2 is true

Answer: A

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4. All metals cannot be obtained by carbon reduction.

Carbon is a very strong reducing agent.

A. Statement 1 is true, statement 2 is true : statement 2 is a correct explanation for statement 1

B. Statement 1 is true, statement 2 is true , statement 2 is not a correct explanation for statement 1

C. Statement 1 is true, stetament 2 is false

D. Statement 1 is true, statement 2 is statement 2 is true

Answer: A

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5. Statement-1:Al is used as a reducing agent in aluminothermy.

Statement-2: Al has a lower melting point than Fe, Cr and Mn

A. Statement 1 is true, statement 2 is true : statement 2 is a correct explanation for statement 1

B. Statement 1 is true, statement 2 is true , statement 2 is not a correct explanation for statement 1

C. Statement 1 is true, stetament 2 is false

D. Statement 1 is true, statement 2 is statement 2 is true

Answer: B

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Jee Section Comprehension Type Questions Passage I

1. Copper is the most noble of first row transition metals and occurs in small deposits in serveral countries. Ores of copper include chalcanthite $(CuSO_4.5H_2O)$, atacanite $\left[Cu_2Cl(OH)_3\right]$, cuprite (Cu_2O), copper glance (Cu_2S), and malachite $\left[Cu_2(OH)_2CO_3\right]$. However, $80\,\%$ of the world copper production comes from the ore chalcopyrite $(CuFeS_2)$. The extraction of copper from chalcopyrite involves partial roasting, removal of iron and self-reduction.

Partial roasting of chalcopyrite produces

A. Cu_2S and FeO

B. Cu_2O and FeO

C. Cus and Fe_2O_2

D. Cu_2O and Fe_2O_2

Answer: A

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2. Copper is the most noble of the first row transition metals and occurs in small deposits in several countries. Ors of copper include chalcanthite $(CuSO_4.5H_2O)$, atacamite $\left(Cu_2Cl(OH)_3\right)$, cuprite (Cu_2O), copper glance (Cu_2S) and malachite $\left(Cu_2(OH)_2CO_3\right)$. However , $80\,\%$ of the world copper production comes from the ore chalcopyrite $(CuFeS_2)$. the extraction of copper from chalcopyrite involves partial roasting, removla of iron and self- reduction.

Iron is removed from chalcopyrite as

A. FeO

B. FeS

C. Fe_2O_3

D. $FeSiO_3$

Answer: D

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3. Copper is the most noble of the first row transition metals and occurs in small deposits in several countries. Ors of copper include chalcanthite $(CuSO_4.5H_2O)$, atacamite $\left(Cu_2Cl(OH)_3\right)$, cuprite (Cu_2O), copper glance (Cu_2S) and malachite $\left(Cu_2(OH)_2CO_3\right)$. However , $80\,\%$ of the world copper production comes from the ore chalcopyrite $(CuFeS_2)$. the extraction of copper from chalcopyrite involves partial roasting, removla of iron and self- reduction.

In self- reduction, the reducing species is

A. S

B. O^{2-}

C. S^{2-}

D. SO_2

Answer: C

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4. Silver metal is extracted by cyanide process from silver glance (Ag_2S). The ore is concentrated through forth floatation process. The concentrated ore is then leached and solution is treated with reducing agent to get spongy silver which is then purified by fusion with an oxidsing agent followed by electrolysis. Which of the following statement about electrolytic refining of silver is not true

A. Anode consists of impure silver

B. Cathode of impure silver

C. Electrolytic solution consists of $AgNO_3$ and nitric acid

D. Electrolytic consists of $AgNO_3$ and hydrochloric acid

Answer: D

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5. Silver metal is extracted by cyanide process from silver glance (Ag_2S). The ore is concentrated through forth floatation process. The concentrated ore is then leached and solution is treated with reducing agent to get spongy silver which is then purified by fusion with an oxidsing agent followed by electrolysis. Leaching of Ag_2S is carried out by heating it with a dilute solution of

A. NaCN alone

B. NaCN in presence of O_2

C. HCl

D. NaOH

Answer: B

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6. Silver metal is extracted by cyanide process from silver glance (Ag_2S). The ore is concentrated through forth floatation process. The concentrated ore is then leached and solution is treated with reducing agent to get spongy silver which is then purified by fusion with an oxidsing agent followed by electrolysis.

A. Silver is precipitated from an aqueous solution of sodium argntocyanide by adding

B. Zinc dust

C. Copper powder

D. Sodium amalgam

Answer: A

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Jee Section Integer Type Questions

1. Among the following metals how many metals are extracted by self-reduction method from their respective ores. (Give total number).Hg , Zn, Cu, Al, Mg , Pb, Fe, Sn

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2. The number of different metals present in the ore copper pyrites is.

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3. The reactions involved in the extraction of iron from haematite in the blast furnace are -

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Jee Section Matrix Match Type Questions

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

Column I	Column II
A. Self reduction	p. Lead
B. Carbon reduction	q. Silver
C. Complex formation and displacement by metal	r. Copper
D. Decomposition of iodide	s. Boron

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2. Match the conversions in Column I with the type(s) of reaction(s) given in Column II.

Column I	ColumnII
A. $PbS \rightarrow PbO$	p. Roasting
B. $CaCo_3 \rightarrow CaO$	q. Calcination
C. $ZnS \rightarrow Zn$	r. Carbon reduction
D. $Cu_2S \rightarrow Cu$	s. Self-reduction

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3. Match the anionic species given in Column I that are present in the ore (s) given in Column II.

Column I	Column II
A. Carbonate	p. Siderite
B. Sulphide	q. Malachite
C. Hydroxide	r. Bauxite
D. Oxide	s. Calamine
	t. Argentite

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Jee Answer Tpye Question Jee Advanced 2018 Numeric Answer Type Question

1. Galena (an ore) is partially oxidized by passing air through it at high temperature. After some time, the passage of air is stopped, but the heating is continued in a closed furnace such that the contents undergo self-reduction. The weight (in kg) of Pb produced per kg of O_2 consumed is ____. (Atomic weights in g mol^1: O = 16, S = 32, Pb = 207)

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