CHEMISTRY

BOOKS - DISHA CHEMISTRY (HINGLISH)

GENERAL PRINCIPLES AND PROCESSES OF ISOLATION OF ELEMENTS

Mcq

1. Bronze is a mixture of

A. Pb+Sn

B. Cu+ Sn

C. Cu+Zn

D. Pb+Zn

Answer: B

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2. Which of the following pair is incorrectly matched ?

A. Magnetite $-Fe_3O_4$

B. Copper glance $-Cu_2S$

C. Calamine$-ZnCO_3$

D. Zincitic-ZnS

Answer: D

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3. Which of the following factors is of no significance for roasting sulphide ores to the oxides and not subjecting the sulphide ores to carbon reduction directly ?

A. Metal sulphides are themodynamically more stable than CS_2

B. CO_2 is thermodynamically more stable than CS_2

C. Metal sulphides are less stable than the corresponding oxides

D. CO_2 is more volatile than CS_2

Answer: C

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4. Aluminothermic process is used for the extraction of metals, whose oxides are

A. fusible

B. not easily reduced by carbon

C. not easily reduced by hydrogen

D. strongly basic.

Answer: B

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5. Which reagent is used in Bayer's process ?

A. Na_2CO_3

B. Carton

C. NaOH

D. Silica

Answer: C

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6. Which of the following reaction takes place in blast fumace during extraction of copper ?

A. $2Cu_2S + 3O_2 \rightarrow 2Cu_2O + 2SO_2$

B. $2FeS + 3O_2 \rightarrow 2FeO + 2SO_2$

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

D. All of these

Answer: D

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7. When an aqueous solution of sodium chloride is electrolysed using platimun electrodes, the ion discharged at the electrodes are

A. sodium and hydrogen

B. sodium and chloride

C. hydrogen and chloride

D. hydroxyl and chloride

Answer: C

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8. Which of the following elements is present as the impurity to the maximum extent in the pig iron ?

A. Manganese

B. Carbon

C. Silicon

D. Phosphorus

Answer: B

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9. Thomas slag is

A. $Ca_3(PO_4)_2$

B. $CaSiO_3$

C. Mixture of (a) and (b)

D. $FeSiO_3$

Answer: C

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10. Brine is electrolysed by using inert electrodes. The reaction at anode is _____.

A. $Cl^-(aq) \rightarrow \frac{1}{2}Cl_2(g) + e^-, \qquad E^\circ_{\text{Cell}} = 1.36V$

B.

$$2H_2O(l) \rightarrow O_2(g) + 4H^+ + 4e^-, \qquad E^\circ_{\text{Cell}} = 1.23V$$

C. $Na^+(aq) + e^- \rightarrow Na(s), \qquad E^\circ_{\text{Cell}} = 2.71V$

D. $H^+(aq) + e^- \rightarrow \frac{1}{2}H_2(g), \qquad E^\circ_{\text{Cell}} = 0.00V$

Answer: A

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11. Pb and Sn are extracted from their chieforeby

A. carbon reduction and self reduction.

B. self reduction and carbon reduction

C. electrolysis and self reduction

D. self reduction and electrolysis.

Answer: B

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12. In the commercial electrochemical process for aluminium extraction the electrolyte used is

A. $Al(OH)_3$ in NaOH solution

B. An aqueous solution of $Al_2(SO_4)_3$

C. A molten mixture of Al_2O_3 and Na_3AlF_6

D. A molten mixture of Al_2O_3 and $Al(OH)_3$

Answer: C

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13. 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

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14. A coupled reaction is takes place as follow

$A + B \rightarrow C + D, \qquad \Delta G^{\circ} = +xkJ$

$D + E \rightarrow F \qquad \Delta G^{\circ} = -ykJ$

for the spontancity of reaction $A + B + E \rightarrow C + F$, which of the following is correct ?

A. 2x=y

B. $x < y$

C. $x > y$

D. $x = (y) \times T\Delta S$

Answer: B

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15. The most electropositive metals are isolated from their ores by

A. high temperature reduction with carbon

B. self reduction

C. thermal decomposition

D. electrolysis of fused ionic salts

Answer: D

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

A. Ga and In

B. Zr and Ti

C. Ag and Au

D. Ni and Fe

Answer: B

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17. Match list I with list II and select the correct answer using the codes given below the lists :

List I	List II
A. Cyandide process	I. Ultrapure Ge
B. Floatation process	II. Pincoil
C. Electrolytic reduction	III. Extraction of Al
D. Zone refining	IV. Extraction of Au

A. A-III, B-I, C-IV, D-II

B. A-IV, B-II, C-III, D-I

C. A-III, B-II, C-IV, D-I

D. A-IV, B-I, C-III,D-II

Answer: B

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18. Blister copper is

A. Impure Cu

B. Cu alloy

C. Pure Cu

D. Cuhaving 1% impurity

Answer: D

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19. Electrometallurgical process is used to extract

A. Fe

B. Pb

C. Na

D. Ag

Answer: C

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20. Sulphide ores of metals are usually concentrated by froth flotation process. Which one of the following sulphide ores offer an exception and concentrated by chemical leaching?

A. Galena

B. Copper pyrite

C. Sphalerite

D. Argentite

Answer: D

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21. Which of the following reactions is an example for calcination process ?

A. $2Ag + 2HCl + (O) \rightarrow 2AgCl + H_2O$

B. $2Zn + O_2 \rightarrow 2ZnO$

C. $2ZnS + 3O_2 \rightarrow 2ZnO + 2SO_2$

D. $MgCO_3 \rightarrow MgO + CO_2$

Answer: D

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22. In the metallurgy of Zn, Zn dust obtained from roasting and reduction of zinc suI ph ide contains some ZnO. It is removed by

A. absorbance of ultraviolet light- and reemission of white light

B. shock cooling by contact with a shower of molten lead.

C. X-raymethod

D. smelting.

Answer: D

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23. The electrolytic reduction technique is used in the extraction of

A. highly electronegative elements

B. highly electropositive elements

C. metalloids

D. transition metals

Answer: B

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24. Which ofthe following metal is leached by cyanide process

A. Ag

B. Na

C. Al

D. Cu

Answer: A

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25. ΔG° vs T plot in the Ellingham's diagram slopes downward for the reaction

A. $Mg + \frac{1}{2}O_2 \rightarrow MgO$

B. $2Ag + \frac{1}{2}O_2 \rightarrow Ag_2O$

C. $C + \frac{1}{2}O_2 \rightarrow CO$

D. $CO + \frac{1}{2}O_2 \rightarrow CO_2$

Answer: C

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26. Process followed before reduction of carbonate ore is

A. calcination

B. roasting

C. liquation

D. polling

Answer: A

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27. Which of the following metal is used in the manufacture of dye-stuffs and paints ?

A. Copper

B. Zinc

C. Aluminium

D. Magnesium

Answer: B

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28. Silver containing lead as an impurity is removed by

A. poling

B. cupellation

C. lavigation

D. distillation

Answer: B

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29. Among the following groups of oxides, the group containing oxides that cannot be reduced by carbon to give the respective metals is

A. Cu_2O, SnO_2

B. Fe_2O_3, ZnO

C. CaO, K_2O

D. PbO, Fe_3O_4

Answer: C

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30. Which of the following condition favours the reduction of a metal oxide to metal ?

A. $\Delta H = +ve$, $T\Delta S$ =+ ve at low temperature

B. $\Delta H = +ve$, $T\Delta S$= - ve at any temperature

C. $\Delta H = -ve, T\Delta S$= - ve at high temperature

D. $\Delta H = -ve, T\Delta S$= + ve at any temperature

Answer: D

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

A. Copper (I) sulphide (Cu_2S)

B. Sulphur dioxide (SO_2)

C. Iron sulphide (FeS)

D. Carbon monoxide (CO)

Answer: A

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32. In electro-refining of metal the impure metal is made the anode and a strip of pure metal, the cathode, during the electrolysis of an aqueous solution of a complex metal salt. This method cannot be used for retining of

A. silver

B. copper

C. aluminium

D. sodium

Answer: D

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33. According to Ellingham diagram, the oxidation reaction of carbon to 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

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34. Hematite is the ore of

A. Pb

B. Cu

C. Fe

D. Au

Answer: C

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35. Which of the following is chalcopyrite ?

A. $CuFeS_2$

B. FeS_2

C. $KMgCl_36H_2O$

D. $Al_2O_32H_2O$

Answer: A

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36. Main function of roasting is

A. to remove volatile substances

B. oxidation

C. reduction

D. slag formation

Answer: A

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37. 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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38. After partial roasting the sulphide of copper is reduced by

A. cyanide process

B. electrolysis

C. reduction with carbon

D. self reduction

Answer: D

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39. Cast iron is

A. made by melting pig iron with scrap iron and coke using hot air blast

B. having slightly lower carbon content (about 3%) as compared to pig iron

C. extremely hard and brittle

D. All of the above statements are true

Answer: D

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40. The following reactions take place in the blast ftm1ace in the preparation of impure iron. Identify tbe reaction pertaining to the formation of the slag.

A. $Fe_2O_3(s) + 3CO(g) \rightarrow 2Fe(l) + 3CO_2(g)$

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

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

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

Answer: C

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41. Before introducing FeO in blast fumace, it is converted to Fe_2O_3 by roasting so that

A. it may not removed as slag with silica

B. it may not evaporate in the fumace

C. presence of it may increase the m pt. of charge

D. None of these

Answer: A

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42. When a metal is to be extracted from its ore and 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 fluxes are needed

D. Neither of them is needed

Answer: B

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43. $Cu_2S + 2C_2O \rightarrow 6Cu + SO_2$

In which process of metallurgy of copper, above equation is involved ?

A. Roasting

B. Self reduction

C. Refining

D. Purification

Answer: B

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44. When the sampleofcopperwith zinc impurity is to be purified by electrolysis, the appropriate electrodes are

A. Cathode Anode
pure zine pure copper

B. Cathode Anode
impure sample pure copper

C. Cathode Anode
impure zine impure sample

D. Cathode Anode
pure copper impure sample

Answer: D

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