

## Metallurgy and Solids

\* Which method of Concentration depends on the difference in Specific gravity of ore and gangue?

- a. hydraulic washing                      b. leaching  
c. magnetic separation                      d. froth flotation

Ans - a

\* Which of the following metal oxide undergoes reduction with aluminium.

- a.  $H_2O_3$                       b.  $ZnO$                       c.  $Cr_2O_3$                       d.  $SnO_2$

Ans - c

\* Which of the following OH of aluminium is known as gibbsite ?

- a.  $Al_2O_3$                       b.  $Al_2O_3 \cdot H_2O$   
c.  $Al_2O_3 \cdot 2H_2O$                       d.  $Al_2O_3 \cdot 3H_2O$

Ans - d

\* The role of flux in metallurgy is

- a. convert soluble impurities into insoluble impurities  
b. Reduction of metal oxide  
c. Retining of metal  
d. convert infusible impurities into fusible material

Ans - d

\* Which is the hottest zone in the blast furnace?

- a) Zone of reduction  
b) Zone of combustion  
c) Zone of slag formation  
d) Zone of fusion

Ans – b

- \* In the process of smelting,
- a) The OH is heated in absence of air
  - b) The OH is concentrated
  - c) The OH is heated in presence of air
  - d) The OH is melted

Ans - d

- \* In pig iron, the maximum impurity is
- a) Phosphorus
  - b) Manganese
  - c) Carbon
  - d) Silicon

Ans – c

- \* Which of the following metals cannot be extracted by carbon reduction process?
- a) Pb
  - b) Al
  - c) Hg
  - d) Zn

Ans - b

- \* An alloy which doesn't contain copper is
- a) Solder
  - b) Bronze
  - c) Brass
  - d) Bell metal

Ans - a

- \* In the extraction of nickel by mond's process, the metal is obtained by
- a) Electrochemical reduction
  - b) Thermal decomposition
  - c) Chemical reduction by aluminium
  - d) Reduction by carbon

Ans – b

- \* The curves in Ellingham diagram represent
- a) Sulphides
  - b) Oxides
  - c) Halides
  - d) All of these

Ans - d

\* Which metal is refined by poling?

- a) Silver                      b) Sodium      c) Buster copper      d) Zinc

Ans – c

\* In the electrolysis of alumina, cryolite is added to

- a) Increase the M.P of alumina  
b) Increase the electrical conductivity  
c) Minimise the anodic effect  
d) Move impurities from alumina

Ans - b

\* Which type of crystalline solid is an insulator in solid state as well as in molten state and possess very high M.P?

- a) Covalent Solid      b) Ionic Solids  
b) Molecular Solids      d) Metallic Solids

Ans - a

\* Which of the following has the least intermolecular force?

- a) Water      b) Ethanol      c) Diethylethes                      d) Methane

Ans - d

\* Solid CO<sub>2</sub> is an example of

- a) Ionic Solid      b) Metallic Solid                      c) Molecular Solid      d) Covalent Solid

Ans - c

\* Identify the correct Statement

- a) Cohesive energy of Ionic Crystals = Cohesive energy of molecular crystals  
b) Cohesive energy of Ionic Crystals > Cohesive energy of molecular Crystals  
c) Cohesive energy of Ionic Crystals < Cohesive energy of molecular Crystals  
d) Cohesive energy is same all of crystals

Ans – b

\* Which of the following statement is true

a)  $\Delta H_f$  is equal in magnitude but opposite in sign to the  $\Delta H_c$

b)  $\Delta H_f$  is equal in magnitude but has same sign to that of  $\Delta H_c$

c)  $\Delta H_f = \frac{1}{\sqrt{\Delta H_c}}$

d)  $\Delta H_f \propto \frac{1}{\sqrt{\Delta H_c}}$

Ans – a

\* If 'a' represents the edge length of the cubic system, then the ratio of the radii of the sphere of SCC, BCC & FCC is

a)  $1a : \sqrt{3}a : \sqrt{2}a$

b)  $\frac{1}{2}a : \frac{\sqrt{3}}{4}a : \frac{1}{2\sqrt{2}}a$

c)  $\frac{1}{2}a : \sqrt{3}a : \frac{1}{\sqrt{2}}a$

d)  $\frac{1}{2}a : \frac{\sqrt{3}}{2}a : a$

Ans - b

\* Copper crystallizes in FCC with a unit cell length of 361 pm. What is the radius of copper atom?

a) 157 pm    b) 181 pm    c) 108 pm    d) 127 pm

Ans - d