

# HIGHER SECONDARY SECOND YEAR CHEMISTRY



Choose the correct answer:

- Bauxite has the composition  
a)  $\text{Al}_2\text{O}_3$                       b)  $\text{Al}_2\text{O}_3 \cdot n\text{H}_2\text{O}$     c)  $\text{Fe}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$         d) None of these
- Roasting of sulphide ore gives the gas (A). (A) is a colourless gas. Aqueous solution of (A) is acidic. The gas (A) is  
a)  $\text{CO}_2$                       b)  $\text{SO}_3$                       c)  $\text{SO}_2$                       d)  $\text{H}_2\text{S}$
- Which one of the following reaction represents calcinations?  
a)  $2\text{Zn} + \text{O}_2 \longrightarrow 2\text{ZnO}$                       b)  $2\text{ZnS} + 3\text{O}_2 \longrightarrow 2\text{ZnO} + 2\text{SO}_2$   
c)  $\text{MgCO}_3 \longrightarrow \text{MgO} + \text{CO}_2$                       d) Both (a) and (c)
- The metal oxide which cannot be reduced to metal by carbon is  
a)  $\text{PbO}$                       b)  $\text{Al}_2\text{O}_3$                       c)  $\text{ZnO}$                       d)  $\text{FeO}$
- Which of the metal is extracted by Hall-Heroult process?  
a)  $\text{Al}$                       b)  $\text{Ni}$                       c)  $\text{Cu}$                       d)  $\text{Zn}$
- Which of the following statements, about the advantage of roasting of sulphide ore before reduction is not true?  
a)  $\Delta G_f^\circ$  of sulphide is greater than those for  $\text{CS}_2$  and  $\text{H}_2\text{S}$ .  
b)  $\Delta G_r^\circ$  is negative for roasting of sulphide ore to oxide  
c) Roasting of the sulphide to its oxide is thermodynamically feasible.  
d) Carbon and hydrogen are suitable reducing agents for metal sulphides.
- Match items in column - I with the items of column - II and assign the correct code.

Column-I		Column-II	
A	Cyanide process	(i)	Ultracpure Ge
B	Froth floatation process	(ii)	Dressing of ZnS
C	Electrolytic reduction	(iii)	Extraction of Al
D	Zone refining	(iv)	Extraction of Au
		(v)	Purification of Ni

	A	B	C	D
(a)	(i)	(ii)	(iii)	(iv)
(b)	(iii)	(iv)	(v)	(i)
(c)	(iv)	(ii)	(iii)	(i)
(d)	(ii)	(iii)	(i)	(v)

8. Wolframite ore is separated from tinstone by the process of
- Smelting
  - Calcination
  - Roasting
  - Electromagnetic separation
9. Which one of the following is not feasible
- $\text{Zn(s)} + \text{Cu}^{2+}(\text{aq}) \longrightarrow \text{Cu(s)} + \text{Zn}^{2+}(\text{aq})$
  - $\text{Cu(s)} + \text{Zn}^{2+}(\text{aq}) \longrightarrow \text{Zn(s)} + \text{Cu}^{2+}(\text{aq})$
  - $\text{Cu(s)} + 2\text{Ag}^+(\text{aq}) \longrightarrow 2\text{Ag(s)} + \text{Cu}^{2+}(\text{aq})$
  - $\text{Fe(s)} + \text{Cu}^{2+}(\text{aq}) \longrightarrow \text{Cu(s)} + \text{Fe}^{2+}(\text{aq})$
10. Electrochemical process is used to extract
- Iron
  - Lead
  - Sodium
  - silver
11. Flux is a substance which is used to convert
- Mineral into silicate
  - Infusible impurities to soluble impurities
  - Soluble impurities to infusible impurities
  - All of these
12. Which one of the following ores is best concentrated by froth – floatation method?
- Magnetite
  - Haematite
  - Galena
  - Cassiterite
13. In the extraction of aluminium from alumina by electrolysis, cryolite is added to
- Lower the melting point of alumina
  - Remove impurities from alumina
  - Decrease the electrical conductivity
  - Increase the rate of reduction
14. Zinc is obtained from ZnO by
- Carbon reduction
  - Reduction using silver
  - Electrochemical process
  - Acid leaching





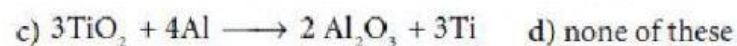
a)  $\left(\frac{\Delta S^0}{\Delta T}\right)$  is negative

b)  $\left(\frac{\Delta G^0}{\Delta T}\right)$  is positive

c)  $\left(\frac{\Delta G^0}{\Delta T}\right)$  is negative

d) initially  $\left(\frac{\Delta T}{\Delta G^0}\right)$  is positive, after  $700^\circ\text{C}$ ,  
 $\left(\frac{\Delta G^0}{\Delta T}\right)$  is negative

23. Which of the following reduction is not thermodynamically feasible?



24. Which of the following is not true with respect to Ellingham diagram?

a) Free energy changes follow a straight line. Deviation occurs when there is a phase change.

b) The graph for the formation of  $\text{CO}_2$  is a straight line almost parallel to free energy axis.

c) Negative slope of CO shows that it becomes more stable with increase in temperature.

d) Positive slope of metal oxides shows that their stabilities decrease with increase in temperature.