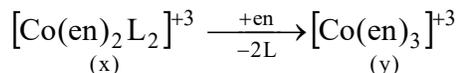


**Single correct :**

- Q.1 What will be the change in number of stereoisomers for complex  $[Ma_2b_2c_2]^{n\pm}$ , if its two different monodentate ligands are replaced with one symmetrical bidentate ligand?  
 (A) 3 (B) 2 (C) 0 (D) 1
- Q.2 Select the **incorrect** property for  $Fe_4[Fe(CN)_6]_3$  complex  
 (A)  $d^2sp^3$  hybridisation of coordinated Fe atom  
 (B) Blue colour due to ligand to metal charge transfer  
 (C) Six electrons are present in  $t_{2g}$  orbital  
 (D) More bond length of (C – N) than in  $Fe[Fe(CN)_6]$
- Q.3 Which of the following process involves decrease in magnetic moment of underlined atom?  
 (A)  $Na_2[\underline{Fe}(CN)_5NO] + Na_2S \rightarrow$  (B)  $\underline{Fe}SO_4(\text{solid}) + H_2O \rightarrow$   
 (C)  $\underline{Fe}SO_4(\text{aq}) + NO \rightarrow$  (D)  $\underline{Zn}(CN)_2 + KCN \rightarrow$   
 (excess)
- Q.4 Which of the following complex involves  $d_{z^2}$  orbital in hybridisation of central metal atom/ion?  
 (A)  $[CuCl_4]^{3-}$  (B)  $[Cu(CN)_4]^{3-}$  (C)  $[FeF_6]^{3-}$  (D)  $KMnO_4$
- Q.5 When  $K_2CrO_4$  is added to  $CuSO_4$  solution, there is formation of  $CuCrO_4$  as well as  $CuCr_2O_7$  on crystallisation. The formation of  $CuCr_2O_7$  is due to  
 (A) Basic nature of  $CuSO_4$  solution (B) Acidic nature of  $CuSO_4$  solution  
 (C)  $CuSO_4$  oxidizes  $CrO_4^{2-}$  to  $Cr_2O_7^{2-}$  (D) Basic hydrolysis reaction take place
- Q.6 For  $Mn^{3+}$  ion, the electron pairing energy (P) per pair is  $28000\text{ cm}^{-1}$ ,  $\Delta_0$  values for its two homoleptic octahedral complexes (X) and (Y) are  $21000\text{ cm}^{-1}$  and  $38500\text{ cm}^{-1}$  respectively. Select the **correct** option  
 (A) Complex (X) is low spin complex  
 (B) Complex (Y) is diamagnetic in nature  
 (C) If complex (X) is violet coloured then complex (Y) could be red coloured  
 (D) Complex (X) and (Y) have strong field ligand and weak field ligand respectively
- Q.7 Select **incorrect** match for  $[M(H_2O)_6]^{2+}$  complex
- | Metal Ions    | Electronic Configuration | CFSE           |
|---------------|--------------------------|----------------|
| (A) $Mn^{2+}$ | $t_{2g}^3 e_g^2$         | $0\Delta_0$    |
| (B) $V^{2+}$  | $t_{2g}^3 e_g^0$         | $-1.2\Delta_0$ |
| (C) $Ni^{2+}$ | $t_{2g}^6 e_g^2$         | $-1.6\Delta_0$ |
| (D) $Ti^{2+}$ | $t_{2g}^2 e_g^0$         | $-0.8\Delta_0$ |
- Q.8 Two transition metals (X) and (Y) have their  $IE_1$  717 kJ/mol and 762 kJ/mol respectively and  $IE_3$  equal to 3260 kJ/mol and 2962 kJ/mol respectively. Then (X) and (Y) could be  
 (A) Sc, Ti (B) Mn, Cr (C) Mn, Fe (D) Cu, Ni

- Q.9 Select the **incorrect** match regarding the use of d-block compounds in manufacturing of compounds.  
 (A)  $V_2O_5$  : Oxidation of sulphur to  $SO_2$  in Contact process  
 (B)  $Fe_2O_3 \cdot xH_2O$  : Arsenic purifier in Contact process  
 (C)  $Fe_2O_3$  : As catalyst in attainment of equilibrium in Haber's process  
 (D)  $Fe_2(SO_4)_3$  : As catalyst in reaction between  $I^-$  and persulphate ion
- Q.10 Which of the following elements have low value of  $E^\circ$  (Electrode potential) for  $M^{+3}/M^{+2}$  conversion ?  
 (A) Fe (B) Mn (C) Cr (D) Co
- Q.11 Select **incorrect** statement for  $[Cr(en)_3]^{3+}$  and  $[Cr(gly)_3]$  complexes  
 (A) Both show stereo isomerism (B) Both has same crystal field stabilization energy  
 (C) Both are inner orbital complex (D) Both has equal magnetic moment
- Q.12 Structural isomerism is exhibited by  
 (A)  $[Fe(dmgl)_2]$  (B)  $[Be_4O(NO_3)_6]$   
 (C)  $[Pt(H_2O)_4(ox)][CuCl_4]$  (D)  $[Co(ox)(H_2O)_4]Br$
- Q.13 Select **incorrect** match
- | Hexa co-ordinated complex of cation | Characteristic of complexes  |
|-------------------------------------|------------------------------|
| (A) $Cr^{3+}$                       | Always inner orbital complex |
| (B) $Ni^{2+}$                       | Always outer orbital complex |
| (C) $Pt^{4+}$                       | Always diamagnetic complex   |
| (D) $Co^{3+}$                       | Always paramagnetic complex  |
- Q.14  $\nu_{(CO)}$  of trans- $[IrCl(CO)L_2]$  in complexes w, x, y, z are respectively 1992, 1953, 1938, 1929 in  $cm^{-1}$ .  
 Select **correct** set of "L" in w, x, y, z respectively  
 (A)  $P(C_6F_5)_3, PPh_3, PMe_3, PEt_3$  (B)  $PPh_3, PMe_3, PEt_3, P(C_6F_5)_3$   
 (C)  $PMe_3, PEt_3, P(C_6F_5)_3, PPh_3$  (D)  $PEt_3, P(C_6F_5)_3, PPh_3, PMe_3$
- Q.15 Which pair of catalysts is used to convert  $C=C$  bonds to  $C-C$  bonds ?  
 (A) Zeigler-Natta and Wilkinson's catalyst (B) Cis-platin and Zeigler-Natta  
 (C) Cis-platin and Wilkinson's catalyst (D) Vanadium pentaoxide and cis-platin
- Q.16  $[Fe(H_2O)_6]^{2+} \xrightarrow{\text{excess KCN} + O_2} [Fe(CN)_6]^{3-}$   
 (x) (y)  
 Magnetic property of x, y are respectively  
 (A) Paramagnetic, paramagnetic (B) Paramagnetic, diamagnetic  
 (C) Diamagnetic, paramagnetic (D) Diamagnetic, diamagnetic
- Q.17 Which is not the property of product of given reaction  
 $CuSO_4 \text{ solution} + 4NH_4OH \rightarrow$   
 (A) Copper cation is bounded with oxygen atoms  
 (B) Blue colour compound  
 (C) Paramagnetic solution  
 (D) Geometry around copper cation is square planar

Q.18 Which statement must be **correct** for given reaction ?



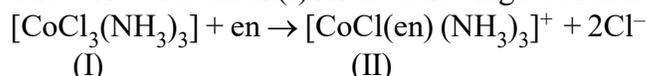
- (A) x and y both are optically active  
 (B) x is optically active while y is optically inactive  
 (C) x is optically inactive while y is optically active  
 (D) x and y both are optically inactive

Q.19 Complex  $[\text{NiL}_x]^{y\pm}$  has energy of  $3d_{x^2-y^2} > 3d_{z^2}$ , surrounding ligand 'L' is

- (A)  $\text{CN}^-$  (B)  $\text{Cl}^-$  (C)  $\text{H}_2\text{O}$  (D)  $\text{NH}_3$

**More than one may be correct**

Q.20 The **correct** statement(s) for the following reaction is/are



- (A) If complex compound-I is a cis isomer, then complex ion-II will also be cis-isomer  
 (B) If the complex compound-I is a trans isomer, then two isomers are produced  
 (C) If complex compound-I is a cis isomer, then complex ion-II exhibits optical activity  
 (D) If complex compound-I is a trans isomer then complex ion-II does not show optical activity.

Q.21 Correct statement(s) for complex compound  $[\text{Co(en)}(\text{H}_2\text{O})_2(\text{NH}_3)_2](\text{NO}_2)_3$  is/are :

- (A) Number of optical isomers are equal to four  
 (B) it exhibits hydrate isomerism  
 (C) It exhibits co-ordination isomerism  
 (D) It is diamagnetic and coloured

Q.22 Which of the complex(es) has higher stability as compared to its linkage isomer.

- (A)  $[\text{Cr}(\text{NH}_3)_5\text{NO}_2]^{2+}$  (B)  $[\text{Fe}(\text{CN})_6]^{4-}$   
 (C)  $[\text{Pt}(\text{NH}_3)_4(\text{SCN})_2]^{2+}$  (D)  $[\text{Pd}(\text{NCO})_4]^{2-}$

**Match List Type**

Q.23 **List-I (Complex)**

- (P)  $[\text{Co}(\text{CN})_6]^{3-}$   
 (Q)  $[\text{Co}(\text{NH}_3)_6]^{3+}$   
 (R)  $[\text{Co}(\text{NH}_3)_5(\text{H}_2\text{O})]^{3+}$   
 (S)  $[\text{Co}(\text{NH}_3)_5\text{Cl}]^{2+}$

Codes:

- |     | <b>P</b> | <b>Q</b> | <b>R</b> | <b>S</b> |
|-----|----------|----------|----------|----------|
| (A) | 3        | 2        | 1        | 4        |
| (B) | 4        | 3        | 2        | 1        |
| (C) | 2        | 1        | 4        | 3        |
| (D) | 1        | 2        | 3        | 4        |

**List-II (Colour of complex)**

- (1) Yellow-orange  
 (2) Yellow  
 (3) Violet  
 (4) Red

Q.24

**List - I**

- (P)  $S_2C_2O_2^{2-}$   
 (Q)  $NO_2^-$   
 (R)  $CH_3COO^-$   
 (S)  $CN^-$

**List-II**

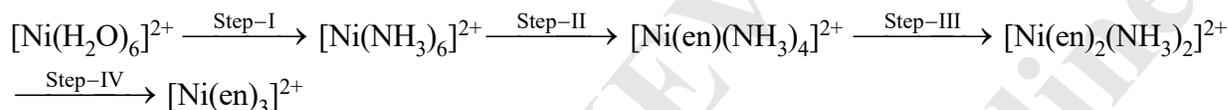
- (1) Only ambidentate  
 (2) Only flexidentate  
 (3) Ambidentate with flexidented character  
 (4) Ambidentate with bidentate character

**Codes:**

	P	Q	R	S
(A)	3	2	1	4
(B)	4	3	2	1
(C)	2	1	4	3
(D)	1	2	3	4

**Match the column**

Q.25 Consider the following steps of reaction and match the following



**Column I**

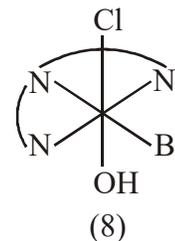
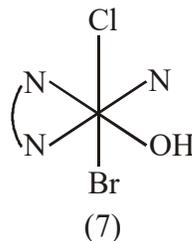
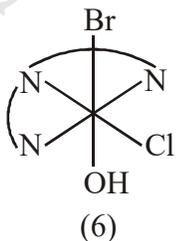
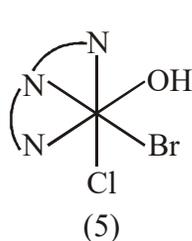
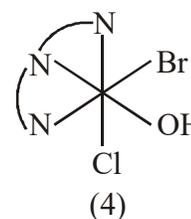
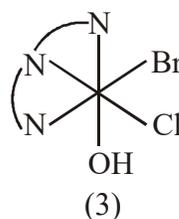
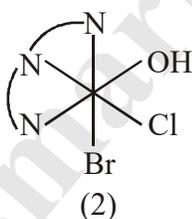
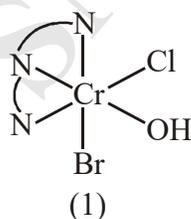
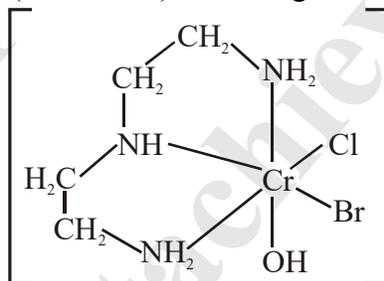
- (A) Step (I)  
 (B) Step (II)  
 (C) Step (III)  
 (D) Step (IV)

**Column II**

- (P) Stability of product complex increases  
 (Q) No change in magnetic moment  
 (R) Change in colour  
 (S) Either reactant or product show stereo-isomerism  
 (T) Neither reactant nor product show stereo-isomerism

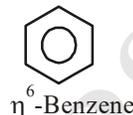
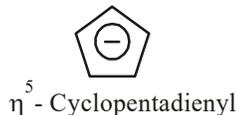
**Subjective**

Q.26 Find total number of complexes (Given 1 to 8) which are geometrical isomer of given complex compound



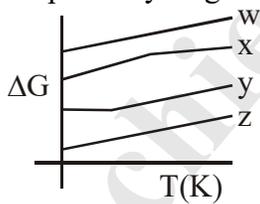
- Q.27 For complex ions  $[\text{CoBr}_2(\text{H}_2\text{O})_2(\text{NH}_3)_2]^+$  and  $[\text{Co}(\text{acac})(\text{H}_2\text{O})_2(\text{NH}_3)_2]^{2+}$ , find the value of expression  $|X + Y|$  where, X = total number of geometrical isomers of both complex ions which can exhibit optical activity phenomena.  
Y = Difference in their number of trans geometrical isomers.

- Q.28 Find total number of mononuclear neutral complex which follow EAN rule, form by Cr,  $\text{Mn}^+$ ,  $\text{Fe}^{2+}$ ,  $\text{Co}^{3+}$  with ligands.

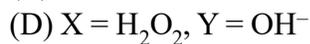
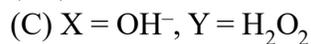


- Q.29 Find out total number of compound(s)/complex(s) in which at least one non axial d-orbital has been used in bond formation :  
 $\text{IF}_7$  ;  $\text{CrO}_4^{2-}$  ;  $\text{Cr}(\text{CO})_6$  ;  $[\text{Ni}(\text{dmg})_2]$  ;  $[\text{PtCl}_3(\pi\text{-CH}_2=\text{CH}_2)]^-$  ;  $[\text{NiCl}_2(\text{PPh}_3)_2]$  ;  
 $[\text{Fe}(\text{H}_2\text{O})_5(\text{NO})]^{2+}$  ;  $[\text{Ni}(\text{en})_3]^{2+}$  ;  $\text{BH}_3\cdot\text{CO}$
- Q.30 Find total number of bidentate ligands 'X' for which complex  $\text{M}(\text{X})_3$  can show geometrical as well as optical isomerism.  
en,  $\text{ox}^{2-}$ , dipy, phen, gly<sup>-</sup>, acac<sup>-</sup>, bcaac<sup>-</sup>, pn

**Single correct :**

- Q.1 Select **incorrect** statement  
 (A) A depressant prevent certain type of particle to come into the froth.  
 (B) Solidified copper obtained from Bessemer convertor has blistered appearance.  
 (C\*) Copper is commercially extracted from copper pyrite by carbon reduction method.  
 (D) Copper matte contains  $\text{Cu}_2\text{S}$  and  $\text{FeS}$ .
- Q.2 The method of electrolytic refining is not suitable in the extraction of  
 (A) Aluminium (B) Copper (C\*) Mercury (D) Silver
- Q.3 Select **correct** match for Froth floatation process  
 (A) Depressants : cresols (B\*) Froth stabilizer : aniline  
 (C) Frother :  $\text{CuSO}_4$  (D) Activator : pine oil
- Q.4 In which of the following pair both minerals are oxide and metal is commercially extracted by carbon reduction method.  
 (A) Siderite, Sylvine (B\*) Zincite, Haematite (C) Cuprite, Iron pyrites (D) Kaloinite, Calamine
- Q.5 Extraction of copper from low grade Chalcopyrite ore **does not** involve  
 (A) Leaching of ore by bacteria in the presence of air  
 (B\*) Solution containing  $\text{Cu}^{2+}$  is treated with zinc scrap  
 (C) Solution containing  $\text{Cu}^{2+}$  can also be treated with  $\text{H}_2$  gas  
 (D) Ore is leached out in the form of soluble sulphates of  $\text{Fe}^{2+}$  and  $\text{Cu}^{2+}$
- Q.6 Select correct set of metal W, X, Y, Z respectively for given Ellingham diagram
- 
- (A\*) Cu, Fe, Zn, Al (B) Fe, Zn, Al, Cu (C) Zn, Cu, Fe, Al (D) Al, Fe, Zn, Cu
- Q.7 Malachite is  
 (A\*)  $\text{CuCO}_3 \cdot \text{Cu(OH)}_2$  (B)  $2\text{CuCO}_3 \cdot \text{Cu(OH)}_2$   
 (C)  $\text{CuCO}_3 \cdot 2\text{Cu(OH)}_2$  (D)  $3\text{CuCO}_3 \cdot \text{Cu(OH)}_2$
- Q.8 Which statement belongs to most electronegative element ?  
 (A) It's atomic radius is shortest among all elements  
 (B\*) It's ionic radius is shortest among all anions  
 (C) It has highest ionization energy among are known elements  
 (D) It has highest electron affinity among all known elements
- Q.9 Which 2nd period element has maximum value of [ionization energy – electron affinity]  
 (A) Li (B) N (C) F (D\*) Ne

- Q.10 Which has maximum  $IE_2$  among second period elements ?  
(A\*) Li (B) Be (C) F (D) Ne
- Q.11 Select correct statement for  $IE_2$  &  $IE_4$  of Al if  $IE_1, IE_3, IE_5$  are respectively 6, 28, 154 eV/atom  
(A\*)  $IE_2$  is greater than 17 eV/atom (B)  $IE_4$  is less than 91 eV/atom  
(C)  $IE_2$  is less than 17 eV/atom (D)  $IE_4$  is 91 eV/atom
- Q.12 Which of the following does not contain Mg:  
(A\*) magnetite (B) magnesite (C) asbestos (D) carnallite
- Q.13 Refining of silver is done by:  
(A) liquation (B) poling (C\*) cupellation (D) van Arkel method
- Q.14 In the extraction of nickel by Mond process, the metal is obtained by:  
(A) electrochemical reduction (B\*) thermal decomposition  
(C) chemical reduction by aluminium (D) reduction by carbon
- Q.15 Refractory materials are generally used in furnaces because  
(A) they are chemically inert (B\*) they can withstand high temperature  
(C) they do not contain impurities (D) they decrease melting point of ore
- Q.16 When an impurity in a metal has greater affinity for oxygen and is more easily oxidises than the metal itself. Then, the metal is refined by  
(A\*) cupellation (B) zone-refining (C) distillation (D) electrolytic process
- Q.17 In the aluminothermite process, Al acts as  
(A) An oxidising agent (B) A flux (C\*) A reducing agent (D) A solder
- Q.18 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
- Q.19 The chemical composition of "slag" formed during the smelting process in the extraction of copper is:  
(A)  $Cu_2O + FeS$  (B\*)  $FeSiO_3$  (C)  $CuFeS_2$  (D)  $Cu_2S + FeO$
- Q.20 In the cyanide extraction process of silver from argentite ore, the oxidizing and reducing agents used are:  
(A)  $O_2$  and CO respectively (B\*)  $O_2$  and Zn dust respectively  
(C)  $HNO_3$  and Zn dust respectively (D)  $HNO_3$  and CO respectively
- Q.21 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



### Comprehension

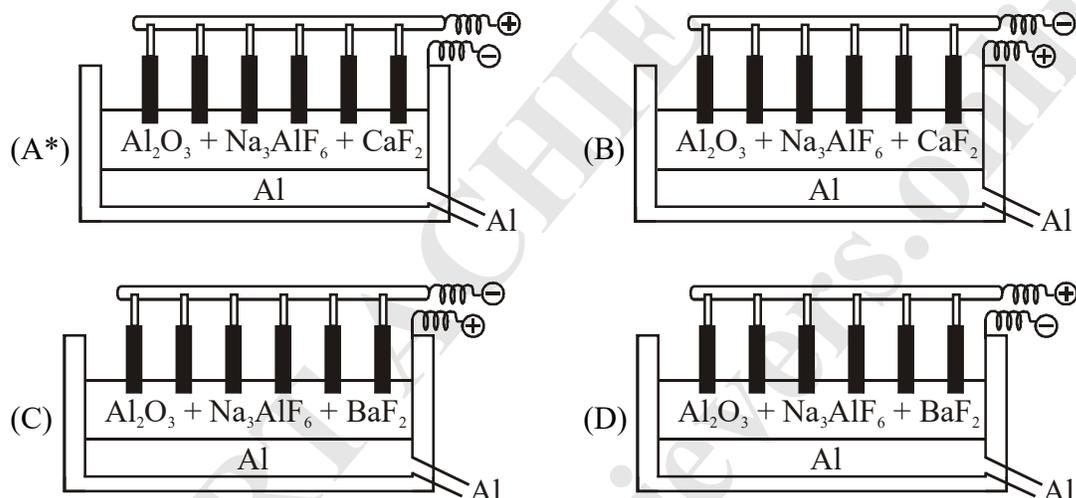
#### Comprehension (Q.23 to Q.24)

After iron, aluminium is now the second most widely used metal in the world. The properties of aluminium include : low density and therefore low weight, high strength, superior malleability, easy machining, excellent corrosion resistance and good thermal and electrical conductivity are among aluminium's most important properties. Aluminium is also very easy to recycle.

Q.23 Which is not involved in extraction of pure Al

(A\*) Thermite method (B) Hoop's process (C) Bayer's method (D) Hall's method

Q.24 Which of them is **correct** representation of Hall-Heroult's process



#### Comprehension (Q.25 to Q.28)

Some of the lower quality ore are mixed with Haemite for Fe-extraction like Siderite, Limonite and magnetite. Roasted ores are mixed with coke and lime stone, finally heated in the blast furnace to get molten Fe.

Q.25 Choose the correct statement regarding the roasting process here.

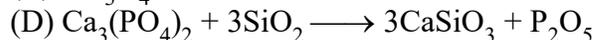
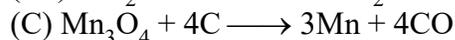
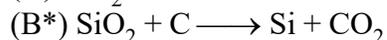
(A) It is illogical because there is no sulphide ore.

(B) Limonite is converted into magnetite during roasting

(C\*) All FeO are converted into  $\text{Fe}_2\text{O}_3$ .

(D) None of these

Q.26 Which of the following reaction is least favoured at the hearth.



Q.27 Which of following gas is not present in blast furnace gas.

(A\*)  $O_2$                       (B)  $CO_2$                       (C)  $CO$                       (D)  $N_2$

- Q.28 Which of following steel treatment process is applicable for softening of the steel.  
 (A) Leaching                      (B) Quenching                      (C) Nitriding                      (D\*) Annealing

**Comprehension (Q.29 to Q.32)**

Beneficiation of the ore can be done by different ways. Which is increasing the concentration of ore removing impurities. While refining is the process by which concentration of metal is increased in the final product.

- Q.29 Which of the following compound will be reduced by self reduction.  
 (A)  $PbS$                       (B)  $HgS$                       (C)  $Cu_2S$                       (D\*) All

- Q.30 The liquation process is applicable for  
 (A) For high melting metals                      (B\*) For low melting metals  
 (C) (A) and (B) both                      (D) None of these

- Q.31 What is the correct match for the name of the ore in column I and formula in column II

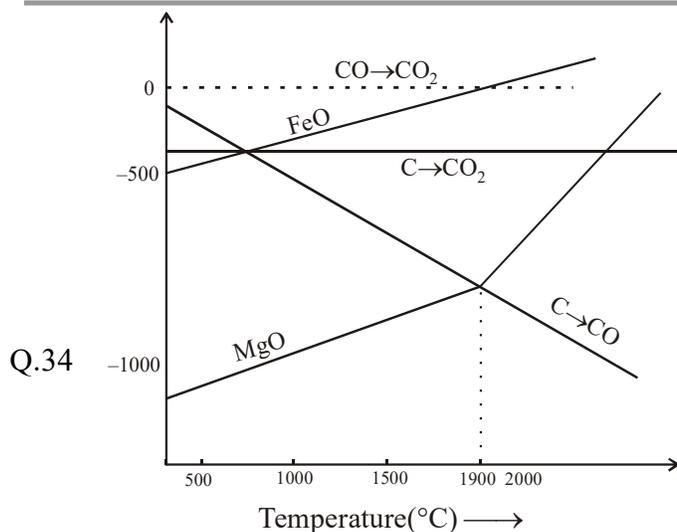
Name of the ore	Formula
(A) Zincite	$ZnSO_4 \cdot 7H_2O$
(B*) Malachite green	$Cu(OH)_2 \cdot CuCO_3$
(C) Anglesite	$PbCO_3$
(D) Magnetite	$MgCO_3$

- Q.32 The basic principle to apply vapour phase refining is/are  
 (A) The intermediate compound has to be volatile  
 (B) The intermediate compound has to be relatively thermally unstable.  
 (C\*) (A) and (B) both  
 (D) Neither (A) nor (B)

**Comprehension (Q.33 to Q.35)**

Most metals are obtained from minerals. A mineral is obtained by mining and is a naturally occurring substance with a range of chemical composition.

- Q.33 In self reduction process of metal sulphide which of the following gas is evolved.  
 (A)  $CO_2$                       (B)  $CO$                       (C\*)  $SO_2$                       (D)  $NO_2$



Using the Ellingham diagram, show the lowest temperature at which MgO can be reduced to metal by carbon.

- (A) 1500°C                      (B) 1120°C                      (C\*) 1900°C                      (D) 1600°C

Q.35 Choose the **incorrect** option :

- (A\*) Fractional distillation is used when there is difference in densities of ore and gangue.  
 (B) Mond's process is used for purification of Ni.  
 (C) Matte is ( $\text{Cu}_2\text{S} + \text{FeS}$ )  
 (D) Heating of mild steel in presence of  $\text{NH}_3$  is called nitriding.

**More than one may be correct**

Q.36 Correct statement(s) for extraction of pure lead from galena is/are :

- (A\*) Lead is extracted from low grade galena by carbon reduction  
 (B\*) Lead is commercially extracted from galena by self reduction  
 (C\*) Pattinson's and Parke's methods are used in purification of lead  
 (D) Lead is purified by electrolytic refining using aqueous  $\text{PbSO}_4 + \text{dil. H}_2\text{SO}_4$

Q.37 Which reaction(s) is/are **incorrect** for reduction of ZnO with respect to Ellingham diagram.

- (A)  $\text{ZnO(s)} + \text{C(s)} \longrightarrow \text{Zn(g)} + \text{CO(g)}$                       (B\*)  $\text{ZnO(s)} + \text{C(s)} \longrightarrow \text{Zn(g)} + \text{CO}_2\text{(g)}$   
 (C\*)  $\text{ZnO(s)} + \text{C(s)} \longrightarrow \text{Zn(l)} + \text{CO(g)}$                       (D\*)  $\text{ZnO(s)} + \text{CO(g)} \longrightarrow \text{Zn(l)} + \text{CO}_2\text{(g)}$

Q.38 For reaction  $2\text{Cu}_2\text{O(s)} + \text{Cu}_2\text{S(s)} \xrightarrow{\Delta} 6\text{Cu(l)} + \text{SO}_2\text{(g)}$

Correct statement(s) is/are

- (A\*) It occurs in bessemerization stage of copper extraction  
 (B\*)  $\text{S}^{2-}$  present in  $\text{Cu}_2\text{S}$ , acts as reducing agent  
 (C\*) Hydrogen gas can also reduce  $\text{Cu}_2\text{O}$  into copper  
 (D\*) Presence of FeO does not affects nature of product at the reaction temperature

Q.39 Which of the element can form slag with quick lime on reaction with oxygen in 'basic oxygen process' steel formation.

- (A) Carbon                      (B) Sulphur                      (C\*) Phosphorous                      (D\*) Silicon

Q.40 In which pair of element, first element has low  $\text{IE}_1$  and high  $\text{IE}_2$  than second element

- (A\*) Li, Be                      (B\*) B, C                      (C\*) Cr, Mn                      (D\*) Cu, Zn

**Subjective**

- Q.41 Consider the electrolytic refining of Cu in presence of  $\text{CuSO}_4$  and  $\text{H}_2\text{SO}_4$  containing following impurities Fe, Ag, Zn, Au, Pt and Pb  
Find the value of  $(2x + y)$   
where  $x$  = Number of metals which are oxidized and also dissolved in solution  
 $y$  = Number of impurities can't oxidize and present in anode mud.
- Ans. 7
- Q.42 Find total number of process which are related to extraction of pure Al from Bauxite.  
Bayer's process, Hall's process, Park process, Belgian's process, Hall-Herolt's process, Puddling process, Serpeck's process, Hoop's process, L-D process.
- Sol. 5 (Bayer's process, Hall's process, Hall-Herolt's process, Serpeck's process, Hoop's process)
- Q.43 Find the total number of metals(s) which is/are oxidized by oxidant dilute  $\text{HNO}_3$  as well as concentrated  $\text{HNO}_3$  in same oxidation state  
Zinc, Iron, Tin, Lead, Copper, Mercury, Silver, Gold, Platinum
- Ans 4
- Q.44 In order to concentrate galena (which contains ZnS as impurity) by froth-floatation process, sodium cyanide is used as depressant. NaCN dissolves ZnS due to formation of water soluble complex(A).  
Find the value of " $w - x + y - z$ ".  
where  $w$  = coordination number of central metal ion in complex ion of (A)  
 $x$  = number of unpaired electrons in (A).  
 $y$  = total number of possible linkage isomers of (A) including (A).  
 $z$  = maximum number of atoms in a single plane in the complex ion of (A).  
[Ans 4]
- Q.45 Find the number of elements which are extracted by carbon reduction method.  
Fe, Sn, Zn, Pb, Na, Au, Ag [Ans. 0004]