

## EXERCISE-I

## General Characteristics

- The element with a atomic number 26 is  
(A) A non-metal (B) Krypton  
(C) Iron (D) Manganese
- One of the following metals forms a volatile carbonyl compound and this property is taken advantage of for its extraction. This metal is  
(A) Iron (B) Nickel  
(C) Cobalt (D) Tungston
- The coinage metals are  
(A) Iron, Cobalt, Nickel  
(B) Copper and Zinc  
(C) Copper, Silver and Gold  
(D) Gold and Platinum
- Which of the following structure is that of a coinage metal  
(A) 2, 8, 1 (B) 2, 8, 18, 1  
(C) 2, 8, 8 (D) 2, 18, 8, 3
- An elements in +3 oxidation state has the electronic configuration  $(Ar)3d^3$ . Its atomic number is  
(A) 24 (B) 23  
(C) 22 (D) 21
- The catalytic activity of the transition metals and their compounds is ascribed to their  
(A) Chemical reactivity  
(B) Magnetic behaviour  
(C) Unfilled  $d$ -orbitals  
(D) Ability to adopt multiple oxidation states and their complexing ability
- What is the general electronic configuration for 2<sup>nd</sup> row transition series  
(A)  $[Ne]3d^{1-10}, 4s^2$  (B)  $[Ar]3d^{1-10}, 4s^{1-2}$   
(C)  $[Kr]4d^{1-10}, 5s^{1-2}$  (D)  $[Xe]5d^{1-10}, 5s^{1-2}$
- Transitional elements are named transition elements because their characters are  
(A) In between  $s$  and  $p$  - block elements  
(B) Like that of  $p$  and  $d$  - block elements  
(C) They are members of  $I - A$  group  
(D) They are like inactive elements
- Those elements whose two outermost orbitals are incompletely filled with electrons are  
(A)  $p$  - block elements  
(B)  $s$  - block elements  
(C) Transitional elements  
(D) Both  $s$  and  $p$  - block elements
- Which ion has maximum magnetic moment  
(A)  $V^{+3}$  (B)  $Mn^{+3}$   
(C)  $Fe^{+3}$  (D)  $Cu^{+2}$
- Which ion is not coloured  
(A)  $Cr^{3+}$  (B)  $Co^{2+}$   
(C)  $Cr^{2+}$  (D)  $Cu^{+}$
- The number of unpaired electrons in ferrous ion is  
(A) 5 (B) 4  
(C) 3 (D) 2
- $Fe$ ,  $Co$  and  $Ni$  have valuable catalytic properties in process involving  
(A) Organic compound  
(B) Oxidation  
(C) Hydrogenation  
(D) Compounds of hydrogen
- Which of the following statement is not correct  
(A) Metals contribute their valency electrons to the common sea of electrons  
(B) Metals have high co-ordination number  
(C) Metals tend to adopt closely packed structures  
(D) Metals have high lattice energy
- Zinc, cadmium and mercury show the properties of  
(A) Typical elements  
(B) Normal elements  
(C) Transitional elements  
(D) Rare elements

16. Iron is
  - (A) A normal element
  - (B) A typical element
  - (C) A transitional element
  - (D) An inert element
17. Platinum, palladium, iridium etc., are called noble metals because
  - (A) Alfred Noble discovered them
  - (B) They are inert towards many common reagents
  - (C) They are shining lustrous and pleasing to look at
  - (D) They are found in active state
18. Which of the following statement is not true about *Mohr's* salt
  - (A) It decolourises  $KMnO_4$
  - (B) It is a primary standard
  - (C) It is a double salt
  - (D) Oxidation state of iron is +3 in this salt
19. Which one of the following statement is true for transition elements
  - (A) They exhibit diamagnetism
  - (B) They exhibit inert pair effect
  - (C) They do not form alloys
  - (D) They show variable oxidation states
20. The valence shell electronic configuration of  $Cr^{2+}$  ion is
  - (A)  $4s^0 3d^4$
  - (B)  $4s^2 3d^2$
  - (C)  $4s^2 3d^0$
  - (D)  $3p^6 4s^2$
21. Which of the following elements does not belong to the first transition series
  - (A) *Fe*
  - (B) *V*
  - (C) *Ag*
  - (D) *Cu*
22.  $Fe^{2+}$  shows
  - (A) Ferromagnetism
  - (B) Paramagnetism
  - (C) Diamagnetism
  - (D) None of these
23. Zinc and mercury do not show variable valency like *d*-block elements because
  - (A) They are soft
  - (B) Their *d*-shells are complete
  - (C) They have only two electrons in the outermost subshell
  - (D) Their *d*-shells are incomplete
24. Cuprous ion is colourless while cupric ion is coloured because
  - (A) Both have half filled *p* and *d*-orbitals
  - (B) Cuprous ion has incomplete *d*-orbital and cupric ion has a complete *d*-orbital
  - (C) Both have unpaired electrons in the *d*-orbitals
  - (D) Cuprous ion has a complete *d*-orbital and cupric ion has an incomplete *d*-orbital
25. Transition metals are related to which block
  - (A) *s*-block
  - (B) *p*-block
  - (C) *d*-block
  - (D) None of these
26. The number of unpaired electrons in cobalt atom is (atomic number of *Co* = 27)
  - (A) 2
  - (B) 3
  - (C) 4
  - (D) 1
27. *Zn* is related to which group
  - (A) IIB
  - (B) IIA
  - (C) IA
  - (D) IB
28. Which of the following element does not show variable valency
  - (A) *Ni*
  - (B) *Zn*
  - (C) *Cu*
  - (D) *Mn*
29. Which of the following is diamagnetic transitional metal ion
  - (A)  $Ni^{+2}$
  - (B)  $Zn^{+2}$
  - (C)  $Co^{+2}$
  - (D)  $Cu^{+2}$
30. Which of the following is not an actinide
  - (A) Curium
  - (B) Californium
  - (C) Uranium
  - (D) Terbium
31. Europium is
  - (A) *s*-block element
  - (B) *p*-block element
  - (C) *d*-block element
  - (D) *f*-block element
32. Which of the following elements is alloyed with copper to form brass
  - (A) Lead
  - (B) Silver
  - (C) Zinc
  - (D) Antimony
33. In which of the following metallic bond is strongest
  - (A) *Fe*
  - (B) *Sc*
  - (C) *V*
  - (D) *Cr*

- 34.** Which of the following is a colourless ion  
 (A)  $Cu^{+2}$  (B)  $Fe^{+3}$   
 (C)  $Ti^{+3}$  (D)  $Zn^{+2}$
- 35.** The substance used in cancer therapy is  
 (A)  $Rn$  (B)  $Ni$   
 (C)  $Fe$  (D)  $Co$
- 36.** In solution of  $AgNO_3$ , if  $Cu$  is a solution become blue due to  
 (A) Oxidation of  $Ag$  (B) Oxidation of  $Cu$   
 (C) Reduction of  $Ag$  (D) Reduction of  $Cu$
- 37.** Lanthanide for which + II and + III oxidation states are common is  
 (A)  $La$  (B)  $Nd$   
 (C)  $Ce$  (D)  $Eu$
- 38.** The number of unpaired electrons in  $Zn^{++}$  is  
 (A) 2 (B) 3  
 (C) 4 (D) 0
- 39.** The first transition element is  
 (A) Chromium (B) Scandium  
 (C) Nickel (D) Copper
- 40.** The electronic configuration (outermost) of  $Mn^{+2}$  ion (atomic no. of  $Mn = 25$ ) in its ground state is  
 (A)  $3d^5 4s^0$  (B)  $3d^4 4s^1$   
 (C)  $3d^3 4s^2$  (D)  $3d^2 4s^2 4p^2$
- 41.** The decrease in atomic volume from  $Cr$  to  $Cu$  is very negligible because  
 (A) Increase in nuclear charge  
 (B) Screening effect  
 (C) Unpaired electrons of  $Cr$   
 (D) None
- 42.** The heaviest atom amongst the following is  
 (A) Uranium (B) Radium  
 (C) Lead (D) Mercury
- 43.** Thallium shows different oxidation states because  
 (A) It is a transition metal  
 (B) Of inert-pair effect  
 (C) Of its high reactivity  
 (D) Of its amphoteric character
- 44.** The test of ozone  $O_3$  can be done by  
 (A)  $Ag$  (B)  $Hg$   
 (C)  $Au$  (D)  $Cu$
- 45.** Which of the following set of elements does not belong to transitional elements set  
 (A)  $Fe, Co, Ni$  (B)  $Cu, Ag, Au$   
 (C)  $Ti, Zr, Hf$  (D)  $Ga, In, Tl$
- 46.** The transition metals mostly are  
 (A) Diamagnetic  
 (B) Paramagnetic  
 (C) Neither diamagnetic nor paramagnetic  
 (D) Both diamagnetic and paramagnetic
- 47.** The correct statement in respect of  $d$ -block elements  
 (A) They are all metals  
 (B) They show variable valency  
 (C) They form coloured ions and complex salts  
 (D) All above statements are correct
- 48.** Which one of the following is an example of non-typical transition elements  
 (A)  $Li, K, Na$  (B)  $Be, Al, Pb$   
 (C)  $Zn, Cd, Hg$  (D)  $Ba, Ca, Sr$
- 49.** Which one is wrong in the following statements  
 (A) Gold is considered to be the king of metals  
 (B) Gold is soluble in mercury  
 (C) Copper is added to gold to make it hard  
 (D) None of these
- 50.** The number of unpaired electrons in  $Cr^{3+}$  ion is  
 (A) 3 (B) 5  
 (C) 4 (D) 1
- 51.** The number of incomplete orbitals in inner transition element is  
 (A) 2 (B) 3  
 (C) 4 (D) 1
- 52.** Most common oxidation states of  $Cs$  (cesium) are  
 (A) + 2, + 3 (B) + 2, + 4  
 (C) + 3, + 4 (D) + 3, + 5

53. The  $3d$  elements show variable oxidation states because the energies of the following sets of orbitals are almost similar  
(A)  $ns, (n-1)d$  (B)  $ns, nd$   
(C)  $(n-1)s, nd$  (D)  $np, (n-1)d$
54. Which of the following  $3d$  bivalent metal ions has the smallest number of unpaired  $d$  electrons  
(A)  $3d^6$  (B)  $3d^7$   
(C)  $3d^8$  (D)  $3d^9$
55. The  $3d$  metal ions form coloured compounds because the energy corresponding to the following lies in the visible range of electromagnetic spectrum  
(A) Free energy change of complex formation by  $3d$  metal ions  
(B)  $d-d$  transitions of  $3d$  electrons  
(C) Heat of hydration of  $3d$  metal ions  
(D) Ionisation energy of  $3d$  metal ions
56. Which of the following metals make the most efficient catalyst  
(A) Transition (B) Alkali  
(C) Alkaline earth (D) Coloured metals
57. Lanthanides and actinides resemble in  
(A) Electronic configuration  
(B) Oxidation state  
(C) Ionization energy  
(D) Formation of complexes
58. The lanthanide contraction relates to  
(A) Atomic radii  
(B) Atomic as well as  $M^{3+}$  radii  
(C) Valence electrons  
(D) Oxidation states
59. Which of the following species is expected to show the highest magnetic moment? (At. Nos.:  $Cr=24$ ,  $Mn=25$ ,  $Co=27$ ,  $Ni=28$ ,  $Cu=29$ ) [Kerala PMT 2004]  
(A)  $Cr^{2+}$  (B)  $Mn^{2+}$   
(C)  $Cu^{2+}$  (D)  $Co^{2+}$
60. Which one belongs to  $3d$ -transition series  
(A) Copper (B) Gold  
(C) Cobalt (D) Silver
61. Which one of the following organisation's iron and steel plant was built to use charcoal as a source of power, to start with, but later switched over to hydroelectricity  
(A) The Tata Iron and Steel Company  
(B) The Indian Iron and Steel Company  
(C) Mysore Iron and Steel Limited  
(D) Hindustan Steel Limited
62. Which of the following is the correct sequence of atomic weights of given elements  
(A)  $Fe > Co > Ni$  (B)  $Ni > Co > Fe$   
(C)  $Co > Ni > Fe$  (D)  $Fe > Ni > Co$
63. Which of the following element has maximum first ionisation potential  
(A)  $V$  (B)  $Ti$   
(C)  $Cr$  (D)  $Mn$
64. A metal  $M$  having electronic configuration  $M - 1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^1$   
(A)  $s$ -block element (B)  $d$ -block element  
(C)  $p$ -block element (D) None of these
65. Identify the transition element  
(A)  $1s^2, 2s^2 2p^6, 3s^2, 3p^6, 4s^2$   
(B)  $1s^2, 2s^2 2p^6, 3s^2, 3p^6 3d^2, 4s^2$   
(C)  $1s^2, 2s^2 2p^6, 3s^2, 3p^6 3d^{10}, 4s^2 4p^2$   
(D)  $1s^2, 2s^2 2p^6, 3s^2, 3p^6 3d^{10}, 4s^2 4p^1$
66. The aqueous solution containing which one of the following ions will be colourless  
(Atomic number  $Sc = 21$ ,  $Fe = 26$ ,  $Ti = 22$ ,  $Mn = 25$ )  
(A)  $Sc^{3+}$  (B)  $Fe^{2+}$   
(C)  $Ti^{3+}$  (D)  $Mn^{2+}$
67. Which of the following trivalent ion has the largest atomic radii in the lanthanide series  
(A)  $La$  (B)  $Ce$   
(C)  $Pm$  (D)  $Lu$
68. Which of the following does not have valence electron in  $3d$ -subshell  
(A)  $Fe$  (III) (B)  $Mn$  (II)  
(C)  $Cr$  (I) (D)  $P$  (0)

69. Among the following pairs of ions, the lower oxidation state in aqueous solution is more stable than the other in  
 (A)  $Tl^+$ ,  $Tl^{3+}$  (B)  $Cu^+$ ,  $Cu^{2+}$   
 (C)  $Cr^{2+}$ ,  $Cr^{3+}$  (D)  $V^{2+}$ ,  $VO^{2+}$
70. The lanthanide contraction is responsible for the fact that  
 (A) *Zr* and *Y* have about the same radius  
 (B) *Zr* and *Nb* have similar oxidation state  
 (C) *Zr* and *Hf* have about the same radius  
 (D) *Zr* and *Zn* have the same oxidation state
- Compounds of Transitional elements**
71. Correct formula of calomel is  
 (A)  $Hg_2Cl_2$  (B)  $HgCl_2$   
 (C)  $HgCl_2 \cdot H_2O$  (D)  $HgSO_4$
72. One of the important use of ferrous sulphate is in the  
 (A) Manufacture of blue black ink  
 (B) Manufacture of chalks  
 (C) Preparation of hydrogen sulphide  
 (D) Preparation of anhydrous ferric chloride
73. Copper sulphate is not used  
 (A) In electrotyping  
 (B) In dyeing and calicoprinting  
 (C) In detecting water  
 (D) As fertilizer
74. Blue vitriol is  
 (A)  $CuSO_4$  (B)  $CuSO_4 \cdot 5H_2O$   
 (C)  $Cu_2SO_4$  (D)  $CuSO_4 \cdot H_2O$
75. A solution of copper sulphate may be kept safely in the container made up of  
 (A) *Fe* (B) *Ag*  
 (C) *Zn* (D) *Al*
76. Silver nitrate produces a black stain on skin due to  
 (A) Being a strong reducing agent  
 (B) Its corrosive action  
 (C) Formation of complex compound  
 (D) Its reduction to metallic silver
77. When hypo solution is added to cupric sulphate solution, the blue colour of the latter is discharged, due to formation of  
 (A)  $CuS_2O_3$  (B)  $Na_2S_4O_6$   
 (C)  $NaCuS_2O_3$  (D)  $Cu_2O$
78. Oxygen gas can be prepared from solid  $KMnO_4$  by  
 (A) Strongly heating the solid  
 (B) Treating the solid with  $H_2$  gas  
 (C) Dissolving the solid in dil.  $H_2SO_4$   
 (D) Dissolving the solid in dil.  $HCl$
79. Anhydrous sample of ferric chloride is prepared by heating  
 (A)  $Fe + HCl$   
 (B)  $Fe + Cl_2$   
 (C)  $FeCl_2 + Cl_2$   
 (D) Hydrated ferric chloride
80. Light green crystals of ferrous sulphate lose water molecule and turn brown on exposure to air. This is due to its oxidation to  
 (A)  $Fe_2O_3$  (B)  $Fe_2O_3 \cdot H_2O$   
 (C)  $Fe(OH)SO_4$  (D)  $Fe_2O_3 + FeO$
81.  $KMnO_4$  in basic medium is reduced to  
 (A)  $K_2MnO_4$  (B)  $MnO_2$   
 (C)  $Mn(OH)_2$  (D)  $Mn^{2+}$
82. When  $KMnO_4$  is reduced with oxalic acid in acidic solution, the oxidation number of *Mn* changes from  
 (A) 7 to 4 (B) 6 to 4  
 (C) 7 to 2 (D) 4 to 2
83. Nessler's reagent is  
 (A)  $K_2HgI_4$  (B)  $K_2HgI_4 + KOH$   
 (C)  $K_2HgI_2 + KOH$  (D)  $K_2HgI_4 + Hg$
84. When ammonium dichromate is heated, the gas formed is  
 (A)  $N_2$  (B)  $O_2$   
 (C)  $H_2$  (D)  $NH_3$

85. Acidified potassium dichromate on reacting with a sulphite is reduced to  
 (A)  $CrO_2Cl_2$  (B)  $CrO_4^{2-}$   
 (C)  $Cr^{3+}$  (D)  $Cr^{2+}$
86. The product of oxidation of  $I^-$  ion by  $MnO_4^-$  in alkaline medium is  
 (A)  $I_2$  (B)  $IO_3^-$   
 (C)  $IO_4^-$  (D)  $I_3^-$
87. Identify the statement which is not correct regarding copper sulphate  
 (A) It reacts with  $KI$  to give iodine  
 (B) It reacts with  $KCl$  to give  $Cu_2Cl_2$   
 (C) It reacts with  $NaOH$  and glucose to give  $Cu_2O$   
 (D) It give  $CuO$  on strong heating in air
88. Acidified potassium permanganate solution is decolourised by  
 (A) Bleaching powder (B) White vitriol  
 (C) Mohr's salt (D) Microcosmic salt
89. Which of the following oxides is white but becomes yellow on heating  
 (A)  $AgO$  (B)  $Ag_2O$   
 (C)  $FeO$  (D)  $ZnO$
90. Amalgams are  
 (A) Highly coloured alloys  
 (B) Always solid  
 (C) Alloys which contain mercury as one of the contents  
 (D) Alloys which have great resistance to abrasion
91. The Nessler's reagent contains  
 (A)  $Hg_2^{++}$  (B)  $Hg^{++}$   
 (C)  $HgI_2^{--}$  (D)  $HgI_4^{--}$
92. Formula of ferric sulphate is  
 (A)  $FeSO_4$  (B)  $Fe(SO_4)_2$   
 (C)  $Fe_2SO_4$  (D)  $Fe_2(SO_4)_3$
93. When  $CuSO_4$  is hydrated, then it becomes  
 (A) Acidic (B) basic  
 (C) Neutral (D) Amphoteric
94. Silvering of mirror is done by  
 (A)  $AgNO_3$  (B)  $Ag_2O_3$   
 (C)  $Fe_2O_3$  (D)  $Al_2O_3$
95. The colour of  $K_2Cr_2O_7$  changes from red orange to lemon yellow on treatment with aqueous  $KOH$  because of  
 (A) The reduction of  $Cr^{VI}$  to  $Cr^{III}$   
 (B) The formation of chromium hydroxide  
 (C) The conversion of dichromate to chromate  
 (D) The oxidation of potassium hydroxide to potassium peroxide
96. On heating pyrolusite with  $KOH$  in presence of air we get  
 (A)  $KMnO_4$  (B)  $K_2MnO_4$   
 (C)  $Mn(OH)_2$  (D)  $Mn_3O_4$
97.  $Cu(CN)_4^{2-}$  is colourless as it absorbs light in  
 (A) Visible region  
 (B) Ultraviolet region  
 (C) Infrared region  
 (D) All above are wrong
98. Acidified solution of chromic acid on treatment with hydrogen peroxide yields  
 (A)  $CrO_3 + H_2O + O_2$   
 (B)  $Cr_2O_3 + H_2O + O_2$   
 (C)  $CrO_5 + H_2O$   
 (D)  $H_2Cr_2O_7 + H_2O + O_2$
99. Which of the following metals corrodes readily in moist air  
 (A) Gold (B) Silver  
 (C) Nickel (D) Iron
100. Which one of the following compounds is not coloured  
 (A)  $Na_2CuCl_4$  (B)  $Na_2CdCl_4$   
 (C)  $K_4Fe(CN)_6$  (D)  $K_3Fe(CN)_6$
101. The correct order of magnetic moments (spin only values in B.M.) among is (Atomic nos.  $Mn = 25, Fe = 26, Co = 27$ )  
 (A)  $[Fe(CN)_6]^{4-} > [MnCl_4]^{2-} > [CoCl_4]^{2-}$   
 (B)  $[MnCl_4]^{2-} > [Fe(CN)_6]^{4-} > [CoCl_4]^{2-}$   
 (C)  $[MnCl_4]^{2-} > [CoCl_4]^{2-} > [Fe(CN)_6]^{4-}$   
 (D)  $[Fe(CN)_6]^{4-} > [CoCl_4]^{2-} > [MnCl_4]^{2-}$

- 102.** Hybridization of  $[Ni(CO)_4]$  is  
 (A)  $sp^3$  (B)  $d^2sp^3$   
 (C)  $sp^3d$  (D)  $sp^2$
- 103.** What is the oxidation number of iron in the compound  $[Fe(H_2O)_5(NO)]SO_4$   
 (A) +2 (B) +3  
 (C)  $\pm 1$  (D)  $\pm 4$
- 104.** Which of the following metal gives hydrogen gas, when heated with hot concentrated alkali  
 (A) Cu (B) Ag  
 (C) Zn (D) Ni
- 105.** When ferric oxide reacts with NaOH, the product formed is  
 (A) NaF (B)  $FeCl_3$   
 (C)  $Fe(OH)_3$  (D)  $NaFeO_2$
- 106.** The compound insoluble in water is  
 (A) Mercurous nitrate  
 (B) Mercuric nitrate  
 (C) Mercurous chloride  
 (D) Mercurous perchlorate
- 107.** Which is an amphoteric oxide  
 (A) ZnO (B) CaO  
 (C) BaO (D) SrO
- 108.** What is the magnetic moment of  $[FeF_6]^{3-}$   
 (A) 5.92 (B) 5.49  
 (C) 2.32 (D) 4
- 109.** How  $H_2S$  is liberated in laboratory  
 (A)  $FeSO_4 + H_2SO_4$   
 (B)  $FeS + \text{dil. } H_2SO_4$   
 (C)  $FeS + \text{conc. } H_2SO_4$   
 (D) Elementary  $H_2$  + elementary S
- 110.** The spin magnetic moment of cobalt in the compound  $Hg[Co(SCN)_4]$  is  
 (A)  $\sqrt{3}$  (B)  $\sqrt{8}$   
 (C)  $\sqrt{15}$  (D)  $\sqrt{24}$
- 111.** Which of the following sulphides is yellow in colour  
 (A) CuS (B) CdS  
 (C) ZnS (D) CoS
- 112.** Which of the following is not oxidized by  $O_3$   
 (A) KI (B)  $FeSO_4$   
 (C)  $KMnO_4$  (D)  $K_2MnO_4$
- 113.** The number of moles of  $KMnO_4$  reduced by one mole of KI in alkaline medium is  
 (A) One fifth (B) Five  
 (C) One (D) Two
- 114.** Excess of KI reacts with  $CuSO_4$  solution and then  $Na_2S_2O_3$  solution is added to it. Which of the statements is incorrect for this reaction  
 (A)  $Na_2S_2O_3$  is oxidised  
 (B)  $CuI_2$  is formed  
 (C)  $Cu_2I_2$  is formed  
 (D) Evolved  $I_2$  is reduced
- 115.** The only cations present in a slightly acidic solution are  $Fe^{3+}$ ,  $Zn^{2+}$  and  $Cu^{2+}$ . The reagent that when added in excess to this solution would identify and separate  $Fe^{3+}$  in one step is  
 (A) 2M HCl (B) 6M  $NH_3$   
 (C) 6M NaOH (D)  $H_2S$  gas
- 116.** Which element is alloyed with copper to form bronze  
 (A) Fe (B) Mn  
 (C) Sn (D) Zn
- 117.** Emery consists of  
 (A) Impure corundum  
 (B) Impure carborundum  
 (C) Impure graphite  
 (D) Purest form of iron
- 118.** The metal commonly present in brass and german silver is  
 (A) Mg (B) Zn  
 (C) C (D) Al
- 119.** In the equation  
 $4M + 8CN^- + 2H_2O + O_2 \longrightarrow 4[M(CN_2)]^- + 4OH^-$  The metal M is  
 (A) Copper (B) Iron  
 (C) Gold (D) Zinc

- 120.** The term plating is  
 (A) Platinum painting  
 (B) Flat sheet of platinum  
 (C) Platinum manufacturing  
 (D) Platinum used as a catalyst
- 121.** The alloy of steel that is used in making automobile parts and utensils  
 (A) Stainless steel (B) Nickel steel  
 (C) Tungsten steel (D) Chromium steel
- 122.** Which of the following has lowest percentage of carbon  
 (A) Cast iron  
 (B) Wrought iron  
 (C) Steel  
 (D) All have same percentage
- 123.** Galvanisation is the  
 (A) Deposition of  $Zn$  on  $Fe$   
 (B) Deposition of  $Al$  on  $Fe$   
 (C) Deposition of  $Sn$  on  $Fe$   
 (D) Deposition of  $Cu$  on  $Fe$
- 124.** Tempered steel is  
 (A) Soft and pliable  
 (B) Hard and brittle  
 (C) Neither so hard nor so brittle  
 (D) Very soft
- 125.** Best quality of steel is manufactured by  
 (A) Siemen –Martin's open hearth process  
 (B) Electrical process  
 (C) Bessemer process  
 (D) Blast furnace
- 126.** The presence of  $Si$  in steel gives it  
 (A) Fibrous structure  
 (B) Silicate type structure  
 (C) Sheet type structure  
 (D) None of these
- 127.** The presence of  $Mn$  in steel produces  
 (A) Elasticity  
 (B) Increases tensile strength  
 (C) Both (A) and (B)  
 (D) None of these
- 128.** Presence of  $Cr$  in steel makes it  
 (A) Resistant to chemical action  
 (B) Useful for making cutlery  
 (C) Increases chemical action  
 (D) (A) and (B) both
- 129.** The addition of metals like  $Cr, Mn, W$  and  $Ni$  to ordinary steel makes it  
 (A) More useful  
 (B) Alters the properties of ordinary steel  
 (C) Both (A) and (B)  
 (D) None of these
- 130.** Stainless steel is non-corrosive. This character is more prominent in  
 (A)  $Mn$  steel (B) Ordinary steel  
 (C)  $Ti$  steel (D) All of these
- 131.** Carbon monoxide reacts with iron to form  
 (A)  $Fe(CO)_5$  (B)  $FeCO_2$   
 (C)  $FeO + C$  (D)  $Fe_2O_3 + C$
- 132.** Iron is extracted from magnetite by reduction with  
 (A)  $H_2$  (B)  $C$   
 (C)  $Mg$  (D)  $Al$
- 133.** Malachite is a mineral of  
 (A)  $Zn$  (B)  $Fe$   
 (C)  $Hg$  (D)  $Cu$
- 134.** The most important oxidation state of copper is  
 (A) +1 (B) +2  
 (C) +3 (D) +4
- 135.** Hot and conc. nitric acid when reacts with copper, the gas obtained is  
 (A)  $N_2$  (B) Nitrous oxide  
 (C)  $NO$  (D)  $NO_2$
- 136.** Which of the following property is not expected to be shown by copper  
 (A) High thermal conductivity  
 (B) Low electrical conductivity  
 (C) Ductility  
 (D) Malleability



- 137.** Which of the following metal gives more than one chloride  
 (A) *Cu* (B) *Al*  
 (C) *Ag* (D) *Na*
- 138.** The metal which is the best conductor of electricity is  
 (A) Iron (B) Copper  
 (C) Silver (D) Aluminium
- 139.** Paris green is  
 (A) Double salt of copper carbonate and copper nitrate  
 (B) Double salt of copper acetate and copper arsinite  
 (C) Double salt of copper acetate and copper sulphate  
 (D) Double salt of copper and silver nitrate
- 140.** Reaction between the following pairs will produce  $H_2$  except  
 (A)  $Na + \text{ethyl alcohol}$  (B)  $Fe + \text{steam}$   
 (C)  $Fe + H_2SO_4 (aq.)$  (D)  $Cu + HCl (aq.)$
- 141.** To prevent corrosion, iron pipes carrying drinking water are covered with zinc. The process involved is  
 (A) Photoelectrolysis  
 (B) Electroplating  
 (C) Galvanization  
 (D) Cathodic protection
- 142.** From aqueous solution of  $ZnSO_4$ , normal zinc carbonate may be precipitated by  
 (A) Boiling with  $CaCO_3$   
 (B) Adding  $Na_2CO_3$   
 (C) Adding  $NaHCO_3$   
 (D) Passing  $CO_2$
- 143.** Which one of the following dissolve in hot concentrated  $NaOH$  solution  
 (A) *Fe* (B) *Zn*  
 (C) *Cu* (D) *Ag*
- 144.** Which of the following metal forms an amphoteric oxide  
 (A) *Ca* (B) *Fe*  
 (C) *Cu* (D) *Zn*
- 145.** Reaction of zinc with cold and very dilute nitric acid yields  
 (A)  $Zn(NO_3)_2 + N_2O$   
 (B)  $Zn(NO_3)_2 + NO$   
 (C)  $Zn(NO_3)_2 + NH_4NO_3$   
 (D)  $Zn(NO_3)_2 + NO_2$
- 146.** The number of unpaired electrons in  $Zn^{2+}$  is  
 (A) 2 (B) 3  
 (C) 4 (D) 0
- 147.** The trace metal present in insulin is  
 (A) Iron (B) Cobalt  
 (C) Zinc (D) Manganese
- 148.** The chemical name of borax is  
 (A) Sodium orthoborate  
 (B) Sodium metaborate  
 (C) Sodium tetraborate  
 (D) Sodium tetraborate decahydrate
- 149.** Hydrogen is not obtained when zinc reacts with  
 (A) Cold water  
 (B) Dilute  $H_2SO_4$   
 (C) Dilute  $HCl$   
 (D) Hot 20%  $NaOH$
- 150.** The metal which gives hydrogen on treatment with acid as well as sodium hydroxide is  
 (A) Iron  
 (B) Zinc  
 (C) Copper  
 (D) None of the above