EXERCISE-I (Conceptual Questions) Build Up Your Understanding

TERMINOLOGY OF COORDINATION COMPOUND

1. In the complex ion $[Fe(EDTA^{)]^{-}}$ the coordination number and oxidation state of central metal ion is :-

(1) C. N. = 6 O. N. = +3 (2) C.N. =1 O. N. = –1

(3) C. N. = 4 O. N. = +2 (4) C. N. = 3 O. N. = +3

2. The coordination number and oxidation number of the central metal ion in the complex $[Pt(en)_2]^{+2}$ is :

(1) C. N. = 2, O. N. = +2 (2) C. N. = 6, O. N. = +4

(3) C. N. = 4, O. N. = +4 (4) C. N. = 4, O. N. = +2

3. Select bidentate or didentate ligand from the following.

(1) CO (2) SCN^{-} (3) CH_3COO^{-} (4) $C_2O_4^{2-}$

4. The oxidation and coordination number of Pt in $[Pt(C_2H_4)Cl_3]+$ is respectively :-

(1) +1, 3 (2) +2, 4 (3) +3, 6 (4) +2, 5

5. The CN and ON of X in the compound $[X(SO_4)(NH_3)_5]$ will be :

(1) 10 and 3 (2) 1 and 6 (3}6 and 4 (4) 6 and 2

6. What is the oxidation number of Fe in $[Fe(H_2O)_5(NO)]^{2+}$ ion?

(1) +2 (2) +3 (3) +1 (4) 0

7. The oxidation state of iron in $Na_4[Fe(CN)_5(NOS)]$ is-

(1) +1 (2) +2 (3) +3 (4) zero

8. Incorrect statement about DMG:

(1) It is tetradentate ligand (2) Chelating ligand

(3) dioxime of diacetyl (4) in gravimetric determination of Ni is used

IUPAC-NOMENCLATURE

9. $K_3[Fe(CN)_6]$ is :-

(a) Potassium hexacyano ferrate (II)

(b) Potassium hexacyano ferrate (III)

(c) Potassium fern-cyanide

(d) Hexacyano ferrate (III) potassium

Correct answer is :-

(1) Only (a) and (b) (2) Only (b) and (c)

(3) Only (a) and (c) (4) Only (b) and (d)

10. Give the IUPAC name of the complex compound $(Co(NH_3)_4(H_2O)Br](NO_3)_2$.
(1) Bromoaquotetraamine Cobalt (III) nitrate
(2) Bromoaquotetraamino cobalt (III) nitrate
(3) Bromoaquatetraammine cobalt (III) nitrate
(4) Tetraammineaquabromido cobalt (III) nitrate

11. Which of the following complex is anion :
(1) Fluoro pentaammine cobalt (III)
(2) Trioxalato ferrate (III)
(3) Penta Carbonyl iron (0)
(4) Dichloro diammine platinum

12. The chloro-bis (ethylenediamine) nitro cobalt (III) ion is:-
(1) $[Co(No_2)_2\ (en)_2\ Cl_2]^+$ (2) $[CoCl\ (No_2)_2\ (en)_2]^+$
(3) $[Co\ (NO_2)Cl\ (en)_2]^+$ (4) $[Co(en)Cl_2\ (NO_2)_2]^-$

13. Which of the following complexes is not a chelate
(1) bis (dimethylglyoximato) nickel (II)
(2) Potassium ethylenediaminetetrathiocyanato chromate(III)
(3) Tetrammine dichlorocobalt (III) nitrate
(4) Trans-diglycinatoplatinum (II)

14. The correct IUPAC name of the complex $[Fe(C_5H_5)_2]$ is
(1) Cyclopentadienyl iron (II) (2) Bis (cyclopentadienyl) iron (H)
(3) Dicyclopentadienyl ferrate (II) (4) Ferrocene

15. The correct name of $[Pt(NH_3)_4Cl_2]\ [PtCl_2]$ is :-
(1) Tetraammine dichloro platinum (IV) tetrachloro platinate (II)
(2) Dichloro tetra ammine platinium (IV) tetrachloro platinate (II)
(3) Tetrachloro platinum (II) tetraammine platinate(IV)
(4) Tetrachloro platinum (II) dichloro tetraamine platinate (IV)

16. The IUPAC name of $K_2(Cr(CN)_2O_2(O)_2(NH_3)]$ is :-
(1) Potassiumamminedicyano dioxoperoxochromate (VI)
(2) Potassiumamminecyperoxodioxochromium M
(3) Potassiumamminecyanoperoxodioxo chromium (VI)
(4) Potassiumamminecyanoperoxodioxo chromate (IV)

17. The IUPAC name for $(Co(NH_3)_6]\ (Cr(CN)_6)$ is :-
(1) Hexaammine cobalt (III) hexacyanochromate (II)
(2) Hexacyanochromium cobalt hexaammine (VI)
(3) Hexaammine cobalt (III) hexacyanochromium (VI)
(4) Hexacyanochromium (III) hexaammine cobalt (III)

18. The IUPAC name for $[Co(NCS)\ (NH_3)_5]Cl_2$ is :-
(1) Pentaammine (thiocyanato-N) cobalt (III) chlqritle ·.

(2) Pentaammine (thiocyanato-S) cobalt (III) chloride
(3) Pentaammine (isothiocyanato-N, S) cobalt (III) chloride
(4) Pentaammine (mercapto-N) cobalt (III) chloride

19. IUPAC name of $K_2[OsCl_5N]$ will be
(1) Potassium pentachloroazido osmate (VIII)
(2) Potassium pentachloroazido osmate (VI)
(3) Potassium pentachloro nitrido osmate (VI)
(4) Potassium nitro osmate (III)

WERNER'S THEORY & EAN

20. Which of the following has least conductivity in aqueous solution.
(1) $Co(NH_3)_4Cl_3$ (2) $Co(NH_3)_3Cl_3$
(3) $Co(NH_3)_5Cl_3$ (4) $Co(NH_3)_6Cl_3$

21. If EAN of a central metal ion X^{+2} in u complex is 34 and atomic number of X is 28. The number of monodentet ligands present in complex are:-
(1) 3 (2)4 (3) 6 (4) 2

22. The EAN of cobalt in the complex ion $[Co(en)_2Cl_2]^+$ is :-
(1) 27 (2) 36 (3) 33 (4) 35

23. The effective atomic number of Cr (atomic no. 24) in $[Cr(NH_3)_6]Cl_3$ is
(1) 35 (2) 27 (3) 33 (4) 36

24. Which gives only 25% mole of AgCl, when reacts with $AgNO_3$:-
(1) $PtCl_2.4NH_3$ (2) $PtCl_4.5NH_3$
(3) $PtCl_4.4NH_3$ (4) $PtCl_4.3NH_3$

25. In the metal carbonyls of general formula M(CO)x (Which follows EAN rule) if M is Ni, Fe and Cr the value of x will be respectively:-
(1) 6, 5, 6 (2) 4, 5, 6 (3) 4, 4, 5 (4) 4, 6, 6

26. A compound has the empirical formula $CoCl_3.5NH_3$. When an aqueous solution of this compound is mixed with excess silver nitrate, 2 mol of AgCl precipitate per mol of compound. On reaction with excess HCl, no NH_4^+ is detected. Hence it is
(1) $Co(NH)_5Cl_2]Cl$ (2) $[Co(NH)_5Cl]Cl_2$
(3) $[Co(NH_3)_5Cl_3]$ (4) $(Co(NH_3)_4Cl_2]Cl.NH_3$

27. Which of the following pair the EAN of central metal atom is not same?
(1) $[Fe(CN)6]^{3-}$ and $[Fe(NH_3)_6]^{3+}$ (2) $[Cr(NH_3)_6]^{3+}$ and $[Cr(CN)_6]^{3-}$
(3) $[FeF_6]^{3-}$ and $[Fe(CN)_6]^{3-}$ (4) $[Ni(CO)_4]$ and $[Ni(CN)_4]^{2-}$

VALENCE BOND THEORY

28. Which of the following compound is paramagnetic
(1) Tetracyanonickelate (II) ion (2) Tetraamminezinc (II) ion
(3) Hexaamine chromium (III) ion (4) Diammine silver (I) ion

29. The shape of the complex $[Ag(NH_3)_2]^+$ is :
(1) Octahedral (2) Square planar
(3) Tetrahedral (4) Linear

30. Hexafluoroferrate (III) ion is an outer orbital complex. The number of unpaired electrons are
(1) 1 (2) 5 (3) 4 (4) Unpredictable

31. The shape of $[Cu(NH_3)_4]SO_4$ is :
(1) Square planar (2) Pyramidal
(3) Octahedral (4) Tetrahedral

32. Among the following ions, which one has the highest paramagnetism ?
(1) $[FeF_6]^{3-}$ (2) $[Fe(H_2O)_6]^{2+}$
(3) $[Cu(H_2O)_6]^{2+}$ (4) $[Zn(H_2O)_6]^{2+}$

33. In the complex ion ML_6^{n+}, M^{n+} has five d-electrons and L is weak field ligand. According to crystal field theory, the magnetic properties of the complex ion correspond to how many unpaired electrons
(1) 0 (2) 5 (3) 2 (4) 3

34. A magnetic moment of 1.73 BM will be shown by one among of the following compounds.
(1) $[Cu(NH_3)_4]^{2+}$ (2) $[Ni(CN)_4]^{2-}$
(3) $TiCl_4$ (4) $[CoCl_6]^{3-}$

35. The magnetic property and the shape of $[Cr(NH_3)_6]^{3+}$ complex ions are :
(1) Paramagnetic, Octahedral (2) Diamagnetic square planar
(3) Paramagnetic, tetrahedral (4) None of the above

36. Amongest the following ions which one has the highest paramagnetism
(1) $(Cr(H_2O)_6]^{2+}$ (2) $[Fe(H_2O)_6]^{3+}$
(3) $[Cu(H_2O)_6]^{2+}$ (3) $[Zn(H_2O)_6]^{2+}$

37. Which of the following complexes is an inner orbital complex ?
(1) $[CoF_6]^{3-}$ (2) $[FeF_6]^{3-}$ (3) $(Cr(NH_3)_6]^{3+}$ (4) $[Fe(H_2O)_6]^{2+}$

38. The wrong statement is :-
(1) Halide ligands forms high spin complex
(2) Strong ligands form low spin complex
(3) $[FeF_6]^{-3}$ is inner orbital complex
(4) $[NiCl_4]^{-2}$ is outer orbital complex

39. What is Incorrect for $K_4[Fe(CN)_6]$
(l) O.N of Iron is +2 (2) It exhibit diamagnetic character
(3) It exhibit paramagnetic character (4) It involved d^2sp^3-hybridisation

40. In which of the following molecules, central atom used orbitals of different principle quantum number, in the hybridization :-
(1) $[Fe(CO)_5]$ (2) IF_7 (3) $Ni(CO)_4$ (4) XeO_4

41. What are the geometric shape and the oxidation number of the copper atom, respectively, for the . complex ion, $(Cu(NH_3)_4(OH_2)_2]^{2+}$?
(1) Tetrahedral; + 2 (2) Square planar; – 2
(3) Linear; + 3 (4) Octahedral; + 2

42. For FeF_6^{3-} and $Fe(CN)_6^{3-}$ magnetic moment of the fluoride complex is expected to be:-
(1) The same as the magnetic moment of the cyanide complex
(2) Larger than the magnetic moment of the cyanide complex because there are more unpaired electrons in the fluoride complex
(3) Smaller ·than the magnetic moment of the cyanide complex because there are more unpaired electrons in the fluoride complex
(4) Larger than the magnetic moment of the cyanide complex because there are fewer unpaired electrons in the fluoride complex.

43. Which of the following. contains one unpaired electron in the 4p orbitals :-
(1) $(Cu(NH_3)_2]^+$ (2) $(Cu(NH_3)_4]^{2+}$
(3) $(Cu(CN)_4]^{3-}$ (4) $(Ni(CN)_4]^{2-}$

44. Which of the following complexes are low spin and diamagnetic?
(a) $K_4[Os(CN)_6]$ (b) $(Mo(CO)_6]$ (c) $(Mn(CN)_6]^{4-}$
Select the correct answer using the codes given below-
(1) a, b and c (2) a and b only
(3) a and c only (4) band c only

45. How many unpaired electrons are present in the Brown Ring complex $[Fe(H_2O)_5(NO)SO_4$.
(1) 4 (2) 3 (3) 0 (4) 5

46. Which of the following statements about $Fe(CO)_5$ is correct ?
(1) It is paramagnetic and high spin complex
(2) It is diamagnetic and high spin complex
(3) It is diamagnetic and low spin complex
(4) It is paramagnetic and low spin complex

47. Which is true for $(Ni(en)_2)^{2+}$, Z(Ni) = 28 ? .
(1) paramagnetism, dsp^2, square planar, C.N. of Ni = 2
(2) diamagnetism, dsp^2, square planar, C.N. of Ni = 4
(3) diamagnetism, sp^3, tetrahedral, C.N. of Ni = 4
(4) pararriagnetism, sp^3, tetrahedral, C.N. of Ni = 4

48. Arrange the following in order of decreasing number of unpaired electrons :
I : $(Fe(H_2O)_6)^{2+}$ II : $(Fe(CN)_6]^{3-}$
III : $(Fe(CN)_6)^{4-}$ IV : $[Fe(H_2O)_6]^{3+}$
(1) IV, I, II, III (2) I, II, III, IV (3) III, II, I, IV (4) II, III, I, IV

CFT, COLOUR OF THE COMPLEX AND STABILITY

49. Which one of these ions absorbs energy from visible spectrium :
(1) $[Cu(NH_3)_4]^+$ (2) $[Cu(NH_3)_4]^{+2}$

(3) $(Zn(H_2O)_6]^{+2}$ (4) $[Co(H_2O)_6]^{+3}$

50. In the complex $[Ni(H_2O)_2(NH_3)_4]^{+2}$ the magnetic moment (μ) of Ni is :
(1) Zero (2) 2,83 BM (3) 1.73 BM (4) 3.87 BM

5l. Which of the following system has maximum number of unpaired electrons :-
(1) d^5 (Octahedral, low spin) (2) d^8 (Tetrahedral)
(3) d^6 (Octahedral, low spin) (4) d^3 (Octahedral)

52. In an octahedral crystal field the t_{2_g} , orbitals are

(1) Raised in energy by 0.4 Δ_0 (2) Lowered in energy by 0.4 Δ_0
(3) Raised in energy by 0.6 Δ_0 (4) lowered in energy by 0.6 Δ_0

53. If $\Delta_0 < P$, the correct electronic configuration for d^4 system will be :-
(1) $t_{2g}^4\ e_g^0$ (2) $t_{2g}^3\ e_g^1$ (3) $t_{2g}^0\ e_g^4$ (4) $t_{2g}^2\ e_g^2$

54. Match List-I (Complex ions) with List-II (Number of Unpaired Electrons) and select the correct answer using the codes given below the lists :-

List-I (Complex ions)		**List-II (Number of Unpaired Electrons)**	
A.	$[CrF_6]^{4-}$	i.	One
B.	$[MnF_6]^{4-}$	ii.	Two
C.	$[Cr(CN)_6]^{4-}$	iii.	Three
D.	$[Mn(CN)_6]^{4-}$	iv.	Four
		v.	Five

Code:	**A**	**B**	**C**	**D**
(1)	iv	i	ii	v
(2)	ii	v	iii	i
(3)	iv	v	ii	i
(4)	ii	i	iii	v

55. Consider the following complex formation reactions geometrical isomerism and comment on their formation constant value

(i) $Fe^{2+}(aq) + 6NH_3 \rightleftharpoons [Fe(NH_3)_6]^{2+}$

(ii) $Fe^{2+}(aq) + 3en \rightleftharpoons [Fe(en)_3]^{2+}$

(1) $K_f > K'_f$ (2) $K_f < K'_f$ (3) $K_f = K'_f$ (4) can not be compared

56. Select most stable complex :-
(1) $[Co(H_2O)_6]^{3+}$ (2) $[Co(NH_3)_2(en)_2]^{+3}$
(3) $[Co(en)_3]^{+3}$ (4) $[Co(NH_3)_4(en)]^{+3}$

57. What will be the the theoretical value of 'spin only' magnetic moment when $Fe(SCN)_3$ reacts with a solution containing F^- ions to yield a complex?
(1) 2.83 B.M. (2) 3.87 B.M. (3) 5.92 B.M. (4) 1.73 B.M.

58. Which one of the following high spin complexes has the largest CFSE (Crystal field stabilization energy)?
(1) $(Mn(H_2O)_6]^{2+}$ (2) $[Cr(H_2O)]^{2+}$
(3) $(Mn(H_2O)_6]^{3+}$ (4) $[Cr(H_2O)_6]^{3+}$

59. Match List-I(Complex ions with List-II (CFSE) and select the correct answer using codes given below the lists :-

Column-I		Column-II
(P) $[Mn(H_2O)_6]^{2+}$	1.	0.6 Δ_0
(Q) $[Cr(H_2O)_6]^{2+}$	2.	0.4 Δ_0
(R) $[Fe(H_2O)_6]^{2+}$	3.	3.0 Δ_0
(S) $(Cr(H_2O)_6]^{3+}$	4.	1.2 Δ_0

	P	Q	R	S
(1)	3	1	2	4
(2)	1	2	3	4
(3)	4	3	2	1
(4)	None of these			

ISOMERISM

60. A square planar complex is cis platin $[Pt(NH_3)_2Cl_2)$, shows :
(1) Geometrical isomerism (2) Optical isomerism
(3) Linkage isomerism (4) None

61. The two compounds sulphato pehta-ammine cobalt (01) bromide and sulphato penta-ammine cobalt (III) chloride represent :
(1) Linkage isomerism (2) Ionisation isomerism
(3) Co-ordination isomerism (4) No isomerism

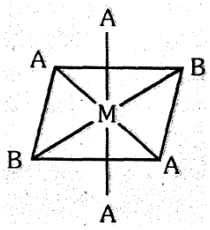
62. Which of the following complex can not exhibit geometrical isomerism-
(1) $[Pt(NH_3)_2Cl\ NO_2]$ (2) $[Pt(gly)_2]$
(3) $[Cu(en)_2]^{+2}$ (4) $[Pt(H_2O)(NH_3)BrCl]$

63. Which one of the following compounds will exhibit linkage isomerism:-
(1) $(Pt\ (NH_3)_2\ Cl_2]$ (2) $[Co(NH_3)_3\ NO_2]Cl_2$
(3) (C<) (NJ-IJ4 Cl2lCl - (4) [Co {en)2Cl2IC1

64. Out of the following which complex will show geometrical isomerism?
(1) $[Pt(NH_3)_2Cl_2]$ (2) $Ni(CO)_4$
(3) $Na[Ni(CN)_4]$ (4) $K(Ag(CN)_2]$

65. Which of the following complex will show options isomerism?
(1) $[Cr(NH_3)_6]^{2+}$ (2) $[Ni(H_2O)_6]^{2+}$
(3) $[Pt(NH_3]_3Br]NO_3$ (4) $[Cr(en)_3]Cl_3$

66. The compound $[Cr(H_2O)_6]Cl_3$ and $[Cr(H_2O)_4Cl_2].2H_2O$ represent-
(1) Linkage isomerism (2) Hydration isomerism
(3) Ligand isomerism (4) No of these

67. The isomer 

can be marked as-

(1) Cis isomer (2) Leavo isomer (3) Dextro isomer (4) Trans isomer

68. A Planar Complex (Mabcd) gives :-
(1) Two Optical isomer (2) Two geometrical isomer
(3) Three optica1isomer (4) Three geometrical isomers

69. Theoretically the number of geometrical isomers expected for octahedral complex [Mabcdef] is:-
(1) Zero (2) 30 (3) 15 (4) 9

70. Which of the following complex produce ppt with $AgNO_3$ and exist in two geometrical isomeric form
(1) $PtCl_2.4NH_3$ (2) $PtCl_2.3NH_3$
(3) $PtCl_4.4NH_3$ (4) $PtCl_4.2NH_3$

71. Cis $[Pt(en)_2Cl_2]Br_2.2H_2O$ and trans$[Pd(en)_2Br_2]Cl_2.2H_2O$ are :
(1) Ionisation isomer (2) Geometrical isomer
(3) Hydrate isomer (4) None of these

72. Which of the following octahedral complex have maximum stereoisomers :-
(1) $[M(CN)_6]^{\pm}$ (2) $[M(en)(CN)_4]^{\pm}$
(3) $[M(en)_2(CN)_2]^{\pm}$ (4) $[M(en)_3]^{\pm}$

73. Which of the following complex does no show geometrical isomerism ?
(1) $[Co(NH_3)_4Cl_2]^+$ (2) $[Co(NH_3)_3(NO_2)_3]$
(3) $[Cr(en)_3]^{3+}$ (4) $[Pt(gly)_2]$

74. Select the correct statement :
(1) Potassium ferrocyanide and potassium ferricyanide can be differentiated by measuring the solid state magnetic moment.
(2} The complex $[Co(NH_3)_5Br]SO_4$ and $[Co(NH_3)_5SO_4]Br$ can be differentiated by adding. aqueous solution of barium chloride
(3) The complex $(Co(NH_3)_5Cl]Br$ and $[Co(NH_3)_5Br]Cl$ can be differentiated by adding aqueous solution of silver nitrate.
(4) All of these

75. Which of the following complex compounds does not exhibits geometrical isomerism ?
(1) $(PtCl_2(NH_3)_2]$ (2) $[PdCl_2BrI]$
(3) $[Pt(NH_3)(py)(Cl)(Br)]$ (4) $[Pt(NH_3)_3(Br)]$

76. The pair of molecules that exhibit geometrical isomerism are
(1) $[Cr(NH_3)_4Cl_2\}$+and $[Co(NH_3)_4Cl_2]^+$

(2) $[Cr(NH_3)_5Cl]^{2+}$ and $[Co(NH_3)_5Cl]^{2+}$
(3) $[Cr(NH_3)_6]^{3+}$ and $[Co(NH_3)_6]^{3+}$
(4) All of the above show geometric isomerism

ORGANOMETALLIC COMPOUNDS

77. Which of the following is π -acid ligand
(1) NH_3 (2) CO (3) gly (4) ethylene diamine

78. Which of the following statement is/are wrong:
(a) Al_4C_3 is an organometallic compound
(b) Metal carbonyls are organometallic compounds
(c) TEL is 1t bonded organometallic compound
(d) Frankland reagent is σ - bonded organometallic compound
The answer is:-
(1) c and d (2) a and c (3) a and b (4) All are correct

79. Compounds which contain one or more metal carbon bonds are called :
(1) Organic compound (2) Complex compound
(3) Metal carbides (4) OMC compounds

80. Which one of the following is used as a heterogeneous catalyst ?
(1) Wilkinson's catalyst (2) Tetraethyl lead
(3) Zeigler Natta catalyst (4) Grignard's reagent

81. Which of the following statement is true
(1) $FeCO_3$ and Fe_3C are organometallic compounds
(2) In ferrocene ligand is cyclopentadienyl
(3) Pb $(C_2H_5)_4$ is π-bonded OMC
(4) In zeise salt central metal is Sp^3 hybridised.

82. Synergic bonding involves :-
(1) The transference of electrons from ligands to metal
(2) The transference of electrons from filled metal orbitals to anti-bonding orbitals of ligands
(3) Both the. above
(4) None of these

83. OMC John during purification of a metal is :-
(1) $Ni(CO)_4$ (2) $Pb(C_2H_5)_4$ (3) $Li–C_4H_9$ (4) $Na_2lNi(CN)_4]$

84. Which of the following is not an organa metallic compound :
(1) $(C_2H_5)_2Zn$ (2) $CH_3B(OCH_3)_2$ (3) $B(OCH_3)_3$ (4) $Ni(CO)_4$

APPLICATION OF COORDINATION CHEMISTRY

85. The brown ring test for nitrites and nitrates is due to the formation of a complex ion with formula :-
(1) $[Fe(H_2O)5NO^+]+$ (2) $[Fe(H_2O)_6]^{2+}$
(3) $[Fe(H_2O)(NO)_5]^{2-}$ (4) $[Fe(NO)(CN)_5]^{2+}$

86. In a ferric salt on adding KCN a prussian blue is obtained which is :
(1) $K_3(Fe(CN)_6]$ (2) $Fe_3[FE(CN)_6]_4$
(3) $FeSO_4[Fe(CN)_6]$ (4) $Fe_4[Fe(CN)_6]_3$

87. Hypo is used .in photography because it is :-
(1) A strong reducing agent (2) A strong oxidising agent
(3) A strong complexing agent (4) Photo sensitive Compound

88. The solubility of AgBr in hypo solution is due to the formation of :-
(1) Ag_2SO_3 (2) $Ag_2S_2O_3$
(3) $(Ag(S_2O_3)]^-$ (4) $(Ag(S_2O_32]^{3-}$

89. Which of the following is related to Nessler's reagent?
(1) $PtCl_4 + KCl \rightarrow$ (2) $AgCl + NH_3 \rightarrow$
(3) $AgBr + Na_2S_2O_3 \rightarrow$ (4) $HgI_2 + Kl \rightarrow$

90. $K_4[Fe(CN)_6]$ reacts with $FeCl_3$ to form :-
(1)$K_3Fe(CN)_6$ (2) $K_4(Fe(CN)_3Cl_3]$
(3) $K_3[Fe(CN)_5Cl]$ (4) $KFe[Fe(CN)_6]$

91. A reagent used for identifying nickel ion is :
(1) Potassium ferrocyanid (2) Phenolphthalein
(3) Dimethyl glyoxime (4) EDTA

92. Which one of the following statement Is false for nickel-dimethylglyoximate complex?
(1) The stability of complex is only due to the presence of intra-molecular hydrogen bonding
(2) The complex is stable, only because dimethyl glyoxime ligand is a stronger ligand
(3) The complex is stable as it has five membered chelate rings as well as intra molecular hydrogen bonding
(4) (l)and (2) both

93. $CuCl_2 + K_4[Fe(CN)_6 \rightarrow$ Chocolate brown ppt (X) Select the correct statement for (X) :
(1) Its IUPAC name is copper(I) hexacyanoferrate (II)
(2) It reacts with excess potassium cyanide forming an another soluble complex which has tetrahedral geometry.
(3) It has 'spin only' magnetic moment equal to $\sqrt{36}$ B.M.
(4) 2 and 3 both

94. It is an experiment fact that :
DMG + Ni(II)salt + $NH_4OH \longrightarrow$ Red ppt.
Which of the following is wrong about this red ppt:
(1) It is a non-ionic complex
(2) It involves intra molecular H-bonding
(3) Ni(II) is sp^3 hybridised
(4) It is a diamagnetic complex

95. Wilkinson's catalyst react with H_2 to form an octahedral complex in which Rh(Z = 45) has the following electronic configuration in the ligand field $t_{2g}^{2,2,2}$, $t_g^{0,0}$. Then which of the following is correct about this new complex

(1) It is paramagnetic

(2) Its IUPAC name is chlorodlhydridotris (triphenylphosphine) rhodium (III)

(3) Hybridisation of Rh(I) is d^2sp^3

(4) None of these

ANSWER KEY

EXERCISE-I (Conceptual Questions)

1.	(1)	**2.**	(4)	**3.**	(4)	**4.**	(2)	**5.**	(4)	**6.**	(3)	**7.**	(2)
8.	(1)	**9.**	(2)	**10.**	(4)	**11.**	(2)	**12.**	(3)	**13.**	(3)	**14.**	(2)
15.	(1)	**16.**	(1)	**17.**	(1)	**18.**	(1)	**19.**	(3)	**20.**	(2)	**21.**	(2)
22.	(2)	**23.**	(3)	**24.**	(4)	**25.**	(2)	**26.**	(2)	**27.**	(4)	**28.**	(3)
29.	(4)	**30.**	(2)	**31.**	(1)	**32.**	(1)	**33.**	(2)	**34.**	(1)	**35.**	(1)
36.	(2)	**37.**	(3)	**38.**	(3)	**39.**	(3)	**40.**	(1)	**41.**	(4)	**42.**	(2)
43.	(2)	**44.**	(2)	**45.**	(2)	**46.**	(3)	**47.**	(2)	**48.**	(1)	**49.**	(2)
50.	(2)	**51.**	(4)	**52.**	(2)	**53.**	(2)	**54.**	(3)	**55.**	(2)	**56.**	(3)
57.	(3)	**58.**	(4)	**59.**	(1)	**60.**	(1)	**61.**	(4)	**62.**	(3)	**63.**	(2)
64.	(1)	**65.**	(4)	**66.**	(2)	**67.**	(4)	**68.**	(4)	**69.**	(3)	**70.**	(3)
71.	(4)	**72.**	(3)	**73.**	(3)	**74.**	(4)	**75.**	(4)	**76.**	(1)	**77.**	(2)
78.	(2)	**79.**	(4)	**80.**	(3)	**81.**	(2)	**82.**	(3)	**83.**	(1)	**84.**	(3)
85.	(1)	**86.**	(4)	**87.**	(3)	**88.**	(4)	**89.**	(4)	**90.**	(4)	**91.**	(3)
92.	(4)	**93.**	(2)	**94.**	(3)	**95.**	(2)						