NEET : CHAPTER WISE TEST-6

SUBJECT :- CHEMISTRY **DATE.....**

CLASS :- 12th **NAME.....**

CHAPTER :- COORDINATION COMPOUNDS **SECTION.....**

(SECTION-A)

1. Select bidentate or didentate ligand from the following .

(A) CO (B) SCN^-

(C) CH_3COO^- (D) $C_2O_4^{2-}$

2. The co-ordination number of a metal in co-ordination compound is

(A) Same as primary valency

(B) Sum of primary and secondary valencies

(C) Same as secondary valency

(D) None of the above

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

(A) + 1, 3 (B) + 2, 4

(C) + 3, 6 (D) + 2, 5

4. The coordination number and oxidation number of X in the compound $[X(SO_4)(NH_3)_5]$ will be :-

(A) 10 and 3 (B) 1 and 6

(C) 6 and 4 (D) 6 and 2

5. Which of the following compound does not give test of sulphate ion in aqueous solution

(A) $K_2SO_4.Al_2(SO_4)_3.24H_2O$

(B) $[Cu(H_2O)_4]SO_4.H_2O$

(C) $[CoSO_4\ (NH_3)_5]Br$

(D) $FeSO_4.(NH_4)_2SO_4.6H_2O$

6. The EAN of Cr in $Cr(CO)_6$ is

(A) 36 (B) 38 (C) 28 (D) 54

7. According to the rule of effective atomic number, central atom acquires :

(A) Inert gas configuration

(B) Duplet

(C) Octet

(D) Quartet

8. If EAN of a central metal ion X^{+2} in a complex is 34. and atomic number of X is 28. The number of monodentet ligands present in complex are:-

(A) 3 (B) 4 (C) 6 (D) 2

9. The wrong statement is :-

(A) Halide ligands forms high spin complex

(B) Strong ligands form low spin complex

(C) $[FeF_6]^{-3}$ is inner orbital complex

(D) $[NiCl_4]^{-2}$ is outer orbital complex

10. The correct name of $[Pt(NH_3)_4Cl_2]\ [PtCl_4]$ is :-

(A) Tetraammine dichloro platinum (IV) tetrachloro platinate (II)

(B) Dichloro tetra ammine platinium (IV) tetrachloro platinate (II)

(C) Tetrachloro platinum (II) tetraammine platinate(IV)

(D) Tetrachloro platinum (II) dichloro tetraamine platinate (IV)

11. IUPAC name of $K_2\ [OsCl_5N]$ will be

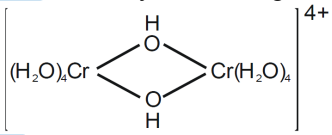
(A) Potassium pentachloroazido osmate (VIII)

(B) Potassium pentachloroazido osmate (VI)

(C) Potassium pentachloro nitrido osmate (VI)

(D) Potassium nitro osmate (III)

12. What is the oxidation number of chromium in the dimeric hydroxo bridged species :-



(A) +6 (B) +4 (C) +3 (D) +2

13. The IUPAC name for $[(NH_3)_5Cr–OH–Cr(NH_3)_5]^{5+}$ is:-

(A) μ-hydroxo-bis (pentaammine dichromium) (V+) ion

(B) μ-hydroxo-bis (decaammine dichromium (V+) ion

(C) μ-hydroxo-bis (octaammine chromium) (V+) ion

(D) μ-hydroxo-bis (pentammine chromium) (III) ion

14. Out of the following which complex will show geometrical isomerism ?

(A) $[Pt(NH_3)_2Cl_2]$ (B) $Ni(CO)_4$

(C) $Na_3[Ni(CN)_4]$ (D) $K[Ag(CN)_2]$

15. Which of the following complexes will show optical isomerism ?

(A) $[Cr(NH_3)_6]^{2+}$ (B) $[Ni(H_2O)_6]^{2+}$

(C) $[Pt(NH_3)_3Br]NO_3$ (D) $[Cr(en)_3]Cl_3$

16. The compound $[Cr(H_2O)_6]Cl_3$ and $[Cr(H_2O)_4Cl_2]Cl.2H_2O$ respresent

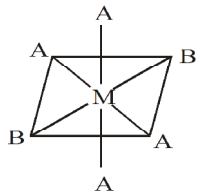
(A) Linkage isomerism

(B) Hydration isomerism

(C) Ligand isomerism

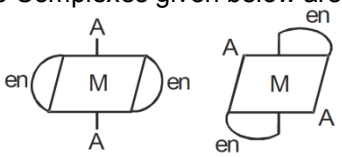
(D) None of these

17. The isomer - can be marked as -



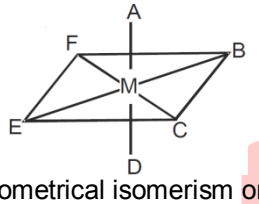
(A) Cis isomer (B) Leavo isomer
(C) Dextro isomer (D) Trans isomer

18. The Complexes given below are :-



(A) Geometrical isomers
(B) Position isomers
(C) Optical isomers
(D) Identical

19. A complex shown below can exhibit :-



(A) Geometrical isomerism only
(B) Optical isomerism only
(C) Both Optical and geometrical isomerism
(D) None

20. Theoretically the No. of geometrical isomers expected for octahedral complex $[M_{abcdef}]$ is:-
(A) Zero (B) 30 (C) 15 (D) 9

21. What is the relationship between the following two linear complex ions ?
$[Cl - Ag - SCN]^-$ $[SCN - Ag - Cl]^-$
The complex ions are :-
(A) Linkage isomers
(B) Coordination isomers
(C) Geometric isomers
(D) Optical isomers

22. Which of the following types of isomers can $[Ag(NH_3)_2]^+[Ag(CN)_2]-$ form :-
(i) Coordination isomers
(ii) Geometric isomers
(iii) Optical isomers
(A) (i) only (B) (i) & (ii)
(C) (iii) only (D) None of these

23. From the stability constant K (Hypothetical values) given below, predict which is strongest ligand:-

(A) $Cu^{+2} + 2C_2O_4^{-2} \rightleftharpoons [Cu(C_2O_4)_2]^{-2}$ K = 4.5×10^{11}

(B) $Cu + 4CN- \rightleftharpoons [Cu(CN)_4]^{-2}$ K = 2.0×10^{27}

(C) $Cu^{2+} + 2en \rightleftharpoons [Cu(en)_2]^{2+}$ K = 3.0×10^{15}

(D) $Cu^{2+} + 4F^- \rightleftharpoons [CuF4]^{-2}$ K = 9.5×10^6

24. Which of the following complexes is not a chelate
(A) bis (dimethylglyoximato) nickel(II)
(B) Potassium ethylenediamine tetrathiocyanato chromate(III)
(C) Tetrammine dichlorocobalt(III) nitrate
(D) Trans–diglycinatoplatinum(II)

25. $FeCl_3 . 4H_2O$ is actually :
(A) $[Fe(H_2O)_4]Cl_3$
(B) $[Fe(H_2O)_3Cl]Cl_2.H_2O$
(C) $[Fe(H_2O)_4Cl_2]Cl$
(D) $[Fe(H_2O)_3Cl_2]Cl.H_2O$

26. The compound which does not shows paramagnetism is :–
(A) $[Cu(NH_3)_4]Cl_2$ (B) $Fe(CO)_5$
(C) NO (D) NO_2

27. The complex ion which have no d-electrons in the central metal ion is (at No. Cr = 24, Mn = 25, V = 23, Fe = 26) :-
(A) $VOSO_4$ (B) MnO_4^-
(C) $[Fe(CN)_6]^{3-}$ (D) $[Cr(H_2O)_6]^{3+}$

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

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

30. Which of the following contains one unpaired electron in the 4p orbitals :-
(A) $[Cu(NH_3)_2]^+$ (B) $[Cu(NH_3)_4]^{2+}$
(C) $[Cu(CN)_4]^{3-}$ (D) $[Ni(CN)_4]^{2-}$

31. In an octahedral crystal field, the t_{2g} orbitals are

(A) Raised in energy by 0.4 Δ_0

(B) Lowered in energy by 0.4 Δ_0

(C) Raised in energy by 0.6 Δ_0

(D) Lowered in energy by 0.6 Δ_0

32. 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
(A)	iv	i	ii	v
(B)	ii	v	iii	i
(C)	iv	v	ii	i
(D)	ii	i	iii	v

33. For the $t_{2g}^6\ e_g^2$ system, the value of magnetic moment (μ) is :

(A) 2.83 B.M. (B) 1.73 B.M.

(C) 3.87 B.M. (D) 4.92 B.M.

34. Among the complex ions given below which is/are outer-orbital complex :

$[Co(CN)_6]^{3-}$ I $[Fe(H_2O)_6]^{2+}$ II

$[FeF_6]^{3-}$ III $[CoF_6]^{3-}$ IV

(A) II, III, IV (B) II, III only

(C) I , IV only (D) II only

35. Which of the following common shapes (1–IV) can never exist as geometric isomers, regardless of the identity of the ligands :-

(I) Linear (II) Square planar

(III) Tetrahedral (IV) Octahedral

(A) I only (B) I and II

(C) I and III (D) II and IV

(SECTION-B)

36. Silver halides are used in photography because it is :-

(A) Photosensetive

(B) Soluble in hypo solution

(C) Soluble in NH_4OH

(D) Insoluble in acids

37. Pick up the incorrect statement :-

(A) Cisplatin is a complex of platinum

(B) Vitamin B_{12} is a complex of cobalt

(C) Chlorophyll is a complex of Mangenese

(D) Haemoglobin is a complex of iron

38. Which of the following is related to Nessler's reagent?

(A) $PtCl_4 + KCl \rightarrow$ (B) $AgCl + NH_3 \rightarrow$

(C) $AgBr + Na_2S_2O_3 \rightarrow$ (D) $HgI_2 + KI \rightarrow$

39. Cu^{2+} and Cd^{2+} are distinguished through formation of complex $[Cu(CN)_4]^{2-}$ and $[Cd(CN)_4]^{2-}$ when H_2S gas is passed :

(A) There is yellow precipitate due to CdS

(B) There is precipitation of CuS and CdS togather

(C) There is black precipitate due to CuS

(D) There is blue precipitate due to CuS

40. 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 π bonded organometallic compound

(d) Frankland reagent is σ - bonded organometallic compound

The answer is:-

(A) c and d (B) a and c

(C) a and b (D) All are correct

41. Which one of the following is used as a heterogeneous catalyst ?

(A) Wilkinson's catalyst

(B) Tetraethyl lead

(C) Zeigler Natta catalyst

(D) Grignard's reagent

42. Which of the following is not a σ–bonded organometallic compound ?

(A) $(C_2H_5)_2Zn$ (B) $Sn(C_2H_5)_4$

(C) $[(CH_3)_3Al]_2$ (D) $Fe(\eta^5\text{–}C_2H_5)_2$

43. Synergic bonding involves :-
(A) The transference of electrons from ligands to metal
(B) The transference of electrons from filled metal orbitals to anti–bonding orbitals of ligands
(C) Both the above
(D) None of these

44. OMC form during purification of a metal is :-
(A) $Ni(CO)_4$ (B) $Pb(C_2H_5)_4$
(C) $Li–C_4H_9$ (D) $Na_2[Ni(CN)_4]$

45. Which of the following organometallic compound is used as fungicide in plant protection :-
(A) C_2H_5HgCl (B) $(C_2H_5)_2Zn$
(C) $(C_2H_5)_4Pb$ (D) $(C_2H_5)_2Cd$

46. A person suffering from lead poisoning should be fed with :-
(A) Hypo (B) Cis-platin
(C) $[Ca(EDTA)]^{2-}$ (D) DMG

47. **Assertion :** $K_2[PtCl_6]$ gives white ppt when reacts with $AgNO_3$
Reason : Chloride ion in the complex is ionisable
(A) If both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.
(B) If both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
(C) If Assertion is True but the Reason is False.
(D) If both Assertion & Reason are False.

48. **Assertion :** Magnetic moment of d^7 is greater than d^2 electronic configuration.
Reason : d^7 has more electrons than d^2
(A) If both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.
(B) If both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
(C) If Assertion is True but the Reason is False.
(D) If both Assertion & Reason are False.

49. **Assertion :** $[CoF_6]^{3-}$ is high spin complex.
Reason : F^- is strong field ligand.
(A) If both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.
(B) If both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
(C) If Assertion is True but the Reason is False.
(D) If both Assertion & Reason are False.

50. **Assertion :** NF_3 is weaker ligand than $N(CH_3)_3$.
Reason : NF_3 ionises to give F^- ions in aqueous solution.
(A) If both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.
(B) If both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
(C) If Assertion is True but the Reason is False.
(D) If both Assertion & Reason are False.