CHEMISTRY

BOOKS - MODERN PUBLICATION

CO-ORDINATION COMPOUNDS

Exercise

1. EAN of Fe in $K_3\left[Fe(CN)_6\right]$ is.

A. 36

B. 37

C. 38

D. 35

Answer: D

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2. EAN of Cr in $\left[Cr(NH_3)_6\right]Cl_3$ is:

A. 32

B. 33

C. 34

D. 35

Answer: B

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3. Exchange of co-ordination group by a water molecule in complex molecule results in:

A. ionisation isomerism

B. hydration isomerism

C. hydration isomerism

D. geometrical isomerism

Answer: C

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4. The solubility of AgCN increases by the addition of KCN because of:

A. complex formation

B. redox formation

C. salt formation

D. none

Answer: A

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5. $\left[Cr(H_2O)_6\right]^{3+}$ ion has d-electrons equal to:

A. 2

B. 3

C. 4

D. 5

Answer: B

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6. An imperfect complex of a complex compound is 100% ionised, the compound is called:

A. double salt

B. complex salt

C. acid salt

D. normal salt

Answer: A

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7. In SCN ligand if N is attached to central atom, the name of ligand is:

A. Thiocyanato-N

B. Cyanato-N

C. Thiocyanato-S

D. Cyanato-s

Answer: A

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8. Aqueous solution of nickel sulphate on treating with pyridine and then adding a solution of sodium nitrite gives dark blue crystals of:

A. $\left[Ni(Py)_4\right]SO_4$

B. $\left[Ni(Py)_2(NO_2)_2\right]$

C. $\left[Ni(Py)_4\right](NO_2)_2$

D. $\left[Ni(Py)_3(NO_2]_2SO_4\right.$

Answer: C

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9. The co-ordination number of Cr in $\left[Cr(NH_3)_3(H_2O)_3\right]Cl_3$ is:

A. 3

B. 4

C. 6

D. 2

Answer: C

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10. $\left[Co(NH_3)_4CI_2\right]$ possesses:

A. square planar geometry

B. tetrahedral geometry

C. tetrahedral nature

D. octahedral nature

Answer: D

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11. The charge on cobalt in $\left[Co(CN)_6\right]^{3-}$ is:

A. -6

B. 3

C. -3

D. 6

Answer: B

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12. Which statement is not correct

A. $Fe(CO)_5$ reacts with Br_2Cl_4

B. Carbonyl complexes are usually formed with transition metals

C. All transition metals form monometallic carbonyls

D. The decomposition of $Ni(CO)_4$ to give Ni is used in the extraction of Ni by Mond's process

Answer: C

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13. Complex forming tendency increases with:

A. Increase in size of cation

B. Decrease in size of cation

C. Increase in size of anion

D. None

Answer: B

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14. The complex ion which has no. 'd' electrons in the central metal atom is:

A. MnO_4^-

B. $CO(NH_3)_6^3$

C. `[Fe(CN)_(6)]^(3-)

D. $\left[Cr(H_2O)_6\right]^3$

Answer: A

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15. Co-ordination number of Co in $\left[Co(NH_3)_6\right]^{2+}$ is:

A. 4

B. 5

C. 6

D. 8

Answer: C

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16. $\left[Cr(NH_3)_6\right]^{3+}$ ion is:

A. Paramagnetic

B. Diamagnetic

C. Square planar

D. None

Answer: A

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17. Chlorophyll is a co-ordination compound having central atom of:

A. Ca

B. Mg

C. Na

D. K

Answer: B

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18. Among $\left[Ni(CN)_4\right]^{2-}$, $[NiCl_4]^{2-}$ and $\left[Ni(CO)_4\right]$:

A. $Ni(CN)_2^{2-}$ is a square planar and $NiCl_4^{2-}$ and $Ni(CO)_4$ are tetrahedral

B. $NiCl_4^{2-}$ is a square planar and $Ni(CN)_4^{2-}$ and $Ni(CO)_4$ are tetrahedral

C. $Ni(CO)_4$ is a square planar and $Ni(CN)_4^{2-}$ and `[NiCl_(4)]^(2-) are tetrahedral

D. None

Answer: A

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19. Among $\left[Ni(CN)_4\right]^{2-}$, $[NiCl_4]^{2-}$ and $\left[Ni(CO)_4\right]$:

A. $Ni(CO)_4$ and $Ni(CN)_4^{2-}$ are diamagnetic and $Ni(CN)_4^{2}$ is paramagnetic

B. $Ni(CN)_4^{2-}$ and $Ni(CN)_4^{2-}$ are diamagnetic and $Ni(CO)_4$ is paramagnetic

C. $Ni(CO)_4$ and $Ni(CN)_4^{2-}$ are diamagnetic and `Ni(CN)_(4)^(2-) is paramagnetic

D. $Ni(CO)_4$ is diamagnetic and $Ni(CN)_4^{2-}$ and $Ni(CN)_4^{2-}$ are paramagnetic

Answer: C

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20. Co-ordination no. of Fe in $K_3\left[Fe(CN)_6\right]$ is:

A. 2

B. 3

C. 4

D. 6

Answer: D

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21. The two compounds sulphato penta-ammine cobalt (III) bromide and sulphato penta-ammine cobalt(III) chloride represent:

A. Linkage isomerism

B. Ionisation isomerism

C. co-ordination isomerism

D. no isomerism

Answer: D

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22. Addition of KI to HgI_2 forms complex $K_2[HgI_4]$ having.....

A. red colour

B. blue colour

C. violet colour

D. colour less nature

Answer: D

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23. Fill in the blanks

EDTA is a .... ligand.

A. Monodentate

B. hexadentate

C. bidentate

D. tridentate

Answer: B

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24. The complex $\left[Co(NH_3)_5BR\right]SO_4$ will give white ppt with:

A. $PbCl_2$

B. $AgNO_3$

C. KI

D. none

Answer: A

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25. Which of the following is most likely structure of $CrCl_36H_2O$ if 1/3 of total chlorine of the compound is precipitated by adding $AgNO_3$ to its aqueous solution

A. $CrCl_3.6H_2O$

B. $\left[Cr(H_2O)_3Cl_3\right].(H_2O)_3$

C. $\left[CrCl_2(H_2O)_4\right].Cl.2H_2O$

D. $\left[CrCl(H_2O)_5\right]Cl_2.H_2O$

Answer: C

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26. Complexes with bidentate ligands are called:

A. ligands

B. chelates

C. complexes

D. none

Answer: B

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27. The oxidation state of Ni in nickel carbonyl is:

A. zero

B. 1

C. 2

D. 3

Answer: A

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28. The tendency of the transition metals to form complexes is not explained by:

A. small size of the metal ion

B. large ionic or nuclear charge

C. low basicity of metal ions

D. non-availabilty of d-orbitals

Answer: D

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29. In which of the following complexes the nickel metal is in highest oxidation state:

A. $\left[Fe(H_2O)_3(OH)_3\right]$

B. $\left[Ni(CO)_4\right]$

C. $\left[Fe(H_2O)_6\right]SO_4$

D. $\left[CO(NH)_3\right]_6Cl_3$

Answer: B

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30. The numbers of ions formed on dissolving one molecule of $FeSO_4(NH_4)_2SO_4.6H_2O$ is :

A. 4

B. 5

C. 3

D. 6

Answer: B

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31. The group satisfying the secondary valencies of a cation in a complex are called:

A. ligands

B. radicals

C. primary valenices

D. none

Answer: A

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32. AgO in Ag(II) complex is

A. diamagnetic

B. paramagnetic

C. ferromagnetic

D. neutral

Answer: A

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33. Nickel (II) tetracyanide complex has .....geometry:

A. linear

B. tetrahedral

C. square planar

D. none

Answer: C

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34. The correct IUPAC name of $Mn_3(CO)_{12}$ is:

A. Dodecacarbonyl manganate(0)

B. Dodecacarbonyl manganic(II)

C. Dodecacarbonyl trimanganese(0)

D. Manganic dodecacarbonyl (0)

Answer: C

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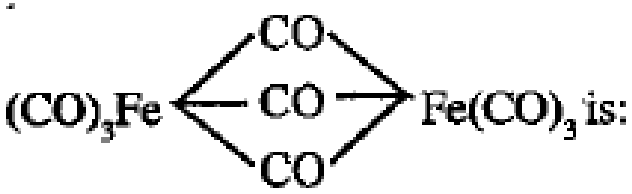
35. The correct IUPAC name of



is:

A. Cyclopentadienyl iron (II)

B. Bis(cyclopentadienyl) iron(II)

C. Dicyclopentadienyl ferrate(II)

D. ferrocene

Answer: B

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36. The complex $Hg[Co(CNS)_4]$ is correctly named as:

A. Mercury tetrathiocyanato cobaltate(II)

B. mercury cobalt tetrasulphocyano(II)

C. mercury tetrasulphocyanide cobaltate(II)

D. mercury sulphocyanato cobalt(II)

Answer: A

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37. Find $f(\sqrt{2})$ and $f(-\sqrt{3})$ for the function

$$f(x)=\begin{cases} x^2, \text{ if } x<0 \\ x, \text{ if } 0\leq x\leq 1 \\ \frac{1}{x}, \text{ if } x>1 \end{cases}$$

A. Tri-μ-carbonyl bis(tricarbonyl)iron(0)

B. Hexacarbonyl iron(III)μ- tricarbonyl ferrate(0)

C. Tricarbonyl iron(0) μ-tricarbonyl iron(0) tricarbonl

D. Nonacarbonyl iron

Answer: A

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38. Find $f(\sqrt{2})$ and $f(-\sqrt{3})$ for the function

$$f(x)=\begin{cases} x^2, \text{ if } x<0 \\ x, \text{ if } 0\leq x\leq 1 \\ \frac{1}{x}, \text{ if } x>1 \end{cases}$$

A. Dischlorodimethylglyoimato cobalt(II)

B. Bis(dimethylglyoxime) dichloro cobalt(II)

C. Dimethylglyoxome cobalt(II) chloride

D. Dichlorodimethyl glyoxome-N, N-cobalt(II)

Answer: D

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39. The correct formula of Zeise's salt is:

A. $[PtCl_3.C_2H_6]^{-K\ \hat{}\ +}$

B. $\left[PtCl_2.(C_2H_2)_2^{-K\ \hat{}\ +}\right.$

C. $K^+[PtCl_3.C_2H_4]^-$

D. [PtCl_(3).C_(6)H_(6)]^-K^+`

Answer: C

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40. Which is not an organometallic compound:

A. Trimethyl boron

B. trimethyl aluminium

C. trimethoxy titanium chloride

D. tetracarbonyl nickel

Answer: C

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41. In sodium tetrafluorooxochromate (.....),$Na_3[Cr(O)F_4]$- the left out place should be filled with which of the following Roman numerals:

A. VI

B. III

C. IV

D. none of these

Answer: B

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42. Which represents a chelating ligand:

A. Cl^-

B. DMG

C. OH^-

D. H_2O

Answer: B

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43. To which isomers the following compounds belong?

$[Co(NO_2)(NH_3)_5]Cl_2$ and $[Co(ONO)(NH_3)_5]Cl_2$

A. Geometrical isomers

B. linkage isomers

C. ligand isomers

D. ionisation isomers

Answer: B

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44. In which of the following complexes the nickel metal is in highest oxidation state:

A. $Ni(CO)_4$

B. K_2NiF_6

C. $\left[Ni(NH_3)_6\right](BF_4)_2$

D. $K_4\left[Ni(CN)_6\right]$

Answer: B

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45. The IUPAC name of $\left[CoCl(NO_2)(en)_2\right]Cl$ is

A. chloronitrobis (ethylene diamine) cobaltic (III)

B. Chloronitrobis (ethylene diamine) cobalt(II) chloride

C. Chlorobis (ethylene diamine) nitro cobalt(III) chloride

D. Bis (ethylene diamine) chloronitrocobalt (III) chloride

Answer: C

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46. The correct name of the compound $\left[Cu(NH_3)_4\right](NO_3)_2$ according to IUPAC system is:

A. Cuprammonium nitrate

B. tetramine copper(II) dinitrate

C. tetramine copper(II) nitrite

D. tetramine copper(II) dinitrate

Answer: C

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47. Lithium tetrahydridoaluminate is correctly represented as:

A. $Al[LiH_4]$

B. $Al_2[LiH_4]_3$

C. $Li[AlH_4]$

D. $Li[AlH_4]_2$

Answer: C

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48. The co-ordination number of the central ion may be obtained from:

A. The number of ionic bonds formed with the surrounding atoms

B. The numbber of co-ordinate bonds formed with the surrounding atoms

C. the number of ions of opposite charge immediately surrounding the specific ion

D. none of the above

Answer: B

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49. The co-ordination number and oxidation number of X in the following compound $\left[X(SO_4)(NH_3)_5\right]C1$ will be:

A. 10 and 3

B. 2 and 6

C. 6 and 3

D. 6 and 4

Answer: C

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50. What type of isomers are the following

$\left[Co(\text{en})_3\right]Cr(CN)_6\right]$ and $\left[Cr(\text{en})_3\right]\left[Co(CN)_6\right]$

A. co-ordination

B. ionisation

C. linkage

D. all the above

Answer: B

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51. In the compound $\left[Fe(H_2O)_5NO\right]SO_4$ the oxidation number of iron is

A. 1

B. 2

C. 3

D. none of the these

Answer: B

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52. The coordination number of cobalt in $\left[Co(NH_3)_3Cl_3\right]$ is

A. 30

B. 24

C. 27

D. 36

Answer: D

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53. Which one of the following does not show resonance ?

A. CN^-

B. NO_2^-

C. H_2O

D. SCN^-

Answer: C

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54. Many elements are found in living organisms either free or in the form of compounds. One of the following is not

found in living organisms.

A. Zeise's salt

B. ferrocene

C. grignards reagent

D. dibenzene chromium

Answer: C

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55. The effective atomic number of $'Cr'$ in $[Cr(H_2O)6]^{3+}$ ion is ____

A. 30

B. 33

C. 36

D. 39

Answer: B

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56. $\left[Co(NH_3)_5Br\right]SO_4$ and $\left[Co(NH_3)_5SO_4\right]Br$ show .... isomerism.

A. linkage isomers

B. ionisation isomers

C. co-ordination isomers

D. none of these

Answer: B

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57. Which of the following metal can be extracted by hydrometallurgy ?

A. Na

B. Fe

C. Cu

D. Mg

Answer: C

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58. Which is not an organometallic compound:

A. sodium acetate

B. calcium carbide

C. methyl cadmium chloride

D. sodium ethoxide

Answer: C

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59. Formula of ferrocene is:

A. $\left[(C_2H_5)_2Fe\right]$

B. $\left[Fe(CN)_6\right]^{4-}$

C. $\left[Fe(Co)_5\right]$

D. $\left[Fe(CN)_6\right]^{3-}$

Answer: A

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60. All ligands are

A. Lewis acid

B. lewis base

C. neutral

D. none of these

Answer: B

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61. Which of the following is a gas:

A. $\left[Co(NH_3)_5Br\right]SO_4$ and $\left[Co(NH_3)_5SO_4\right]Br$

B. $\left[Cr(H_2O)_5Cl\right]Cl_2.H_2O$ and

$\left[Cr(H_2O)_4.Cl_2\right]Cl.2H_2O$

C. $\left[Co(NH_3)_6\right]Cr(CN)_6$ and $\left[Co(NH_3)_6Co(CN)_6\right.$

D. $Cis-\left[Pt(NH_3)_2Cl_2\right]$ and $trans-\left[Pt(NH_3)_2Cl_2\right]$

Answer: A

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62. Which of the following does not form complex:

A. $\left[Pt(NH_3)_2Cl_2\right]$

B. $[Pt(NH_3)Cl_5]^-$

C. $\left[Pt(NH_3)_5Cl\right]^3$

D. $\left[CO(NH_3)_6\right]Cl_2$

Answer: A

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63. Explain geometrical isomerism in coordination compounds having coordination number 4 and 6.

A. square planar and tetrahedral complexes

B. square planar and octahedral complexes

C. tetrahedral and octahedral complexes

D. square planar, tetrahedral and octahedral complexes

Answer: B

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64. Which of the following is an optically active compounds ?

A. $\left[Co(en)_3\right]^3$

B. $\left[Cr(OX)_3\right]^{3-}$

C. $Cis - \left[CoCl_2(en)_2\right]^+$

D. $trans - \left[CoCl_2(en)_2\right]^+$

Answer: D

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65. THC is associated with

A. $M(\forall)_2$

B. $M(\forall)_2$

C. $MABCD$

D. MA_3B_3

Answer: D

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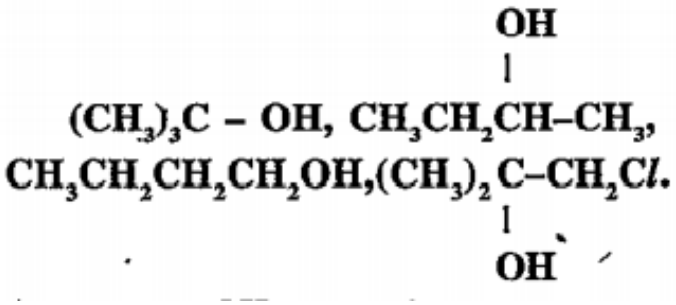
66. Which one of the following compounds will show optical isomerism :



A. $\left[Cr(NH_3)_4Cl_2\right]Cl$

B. $\left[Co(en)_2Cl_2\right]Cl$

C. $\left[Co(NH_3)_5NO_2\right]Cl_2$

D. $\left[Pt(NH_3)_2Cl_2\right]$

Answer: C

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67. Geometrical isomerism is not shown by:

A. each gives equal number of isomers for a given compound

B. if in a acompound one is present then so is the other

C. both are included in stereoisomerism

D. they have no similarity

Answer: C

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68. What is the coordination number of metal in $[CO(en)_2Cl_2]$

A. 4

B. 5

C. 6

D. 3

Answer: C

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69. Which of the following complex will give white precipitate with $BaCl_2$(aq) ?

A. $\left[Cr(NH_3)_5SO_4\right]Cl$

B. $\left[Co(NH_3)_5SO_4\right]NO_2$

C. $\left[Cr(NH_3)_5Cl\right]SO_4$

D. both a and c

Answer: C

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70. The formula of sodium nitroprusside is:

A. `Na_(4)[Fe(CN)_(5)NO_(5)]

B. $Na_2\left[Fe(CN)_5NO\right]$

C. $NaFe\left[Fe(CN)_6\right]$

D. $Na_2\left[Fe(CN)_6NO_2\right]$

Answer: B

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71. The number of geometrical isomers of the complex $[PtCl_2(NH_3)_2]$ is :

A. 2

B. 4

C. 3

D. 0

Answer: A

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72. The oxidation state of Fe in the brown ring complex $[Fe(H_2O)_5NO]SO_4$ is

A. 1

B. 2

C. 3

D. 4

Answer: A

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73. The possible number of isomers for the complex $[MCI_2Br_2]SO_4$ is

A. 1

B. 2

C. 4

D. 5

Answer: B

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74. Oxidation number of Cr in CrO_5 is:

A. 4 and 2

B. 6 and 3

C. 3 and 3

D. 3 and 0

Answer: B

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75. The number of geometrical isomers of, $\left[Co(NH_3)_3(NO_2)_3\right]$ are:

A. two

B. one

C. three

D. four

Answer: A

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76. Which of the following shows optical activity ?

A. $\left[Co(NH_3)_6\right]_3$

B. `[Co(H_(2)O)_(2)(NH_(3))_(2) Cl_(2)]^+

C. $\left[Cr(H_2O)_4Cl_2\right]^+$

D. $\left[Co(CN)_5NC\right]$

Answer: B

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77. The blue complex ion formad on addition of conc. NH_4OHsolution to a Cu^{2+} salt solution is :

A. $\left[Cu(NH_4)_4\right]^2$

B. $\left[Cu(NH_3)_2\right]^2$

C. $\left[Cu(NH_3)_4\right]^2$

D. $\left[Cu(NH_4)_2\right]^2$

Answer: C

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78. Write the formula of tetrammine aquachlorido cobalt (III) chloride.

A. $\left[Cl(H_2O)(NH_3)_4Co\right]Cl$

B. $\left[CoCl(H_2O)(NH_3)_4\right]Cl$

C. $\left[Co(NH_3)_4(H_2O)Cl\right]Cl$

D. $\left[CoCl(H_2O)(NH_3)_4\right]Cl_2$

Answer: D

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79. Discuss Werner's theory of co-ordination compounds.

A. primary valency is ionisable

B. secondary valency is ionisable

C. primary and secondary valencies are non-ionisable

D. only primary valency is non -ionisable

Answer: A

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80. Which of the following will give iodoform test ?

A. $\left[Co(NH_3)_4Cl_2\right]$

B. $\left[Ni(en)NH_3)_4\right]^2$

C. $\left[Ni(C_2O_4)en_2\right]^{2-}$

D. $\left[Cr(SCN)_2(NH_3)_4\right]^3$

Answer: D

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81. All ligands are _____ (Lewis acid or Lewis base).

A. lewis acid

B. lewis base

C. neutral

D. none

Answer: B

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82. The scientist who explained the structure of co-ordination complexes is

A. sidgwick

B. pauling

C. powell

D. werner

Answer: D

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83. A bridging ligand possesses:

A. polydentate or monodentate nature

B. two or more donor centres

C. the tendency to get itself attached to two metal ions

D. all

Answer: D

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84. Diethylene triamine is:

A. chelating agent

B. polydentate ligand

C. tridentate

D. all

Answer: D

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85. Each metal possesses:

A. primary valencies satisfied by anions only

B. secondary valencies satisfied by donor molecules

C. co-ordination number

D. all

Answer: D

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86. The hybridisation of $\left[Ni(CN)_4\right]^{-2}$ ion is:

A. dsp^2

B. sp^2d^2

C. d^2sp

D. sp^2

Answer: A

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87. The IUPAC name of $\left[Cr(NH_3)_4CI_2\right]NO_3$ is:

A. tetra amino dichloro chromium nitrate

B. tetra amino dichloro chromium (III)nitrate

C. dichloro tetramine chromium (III) nitrate

D. tetra amino dichloro chromium (II) nitrate

Answer: C

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88. Transition elements are:

A. small size of cation

B. vacant d-orbitals

C. large ionic charge

D. all

Answer: D

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89. The EAN of nickel in $Ni(CO)_4$ is:

A. 36

B. 38

C. 28

D. 54

Answer: A

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90. The number of isomers possible for square planar complex $K_2[PdClBr_2SCN]$ is:

A. 2

B. 3

C. 4

D. 6

Answer: C

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91. $XeF_4 + H_2O \rightarrow$

A. red

B. white

C. green

D. blue

Answer: C

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92. The .EAN of platinum in potassium hexachloroplatinate (IV) is:

A. 46

B. 86

C. 36

D. 84

Answer: B

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93. According to effective atomic number rule the central metal acquires:

A. inert gas configuration

B. duplet

C. octet

D. quartet

Answer: A

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94. The EAN of nickel in $K_2\left[Ni(CN)_4\right]$ is:

A. 35

B. 34

C. 36

D. 38

Answer: B

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95. The hybridisation of Fe in $K_4\left[Fe(CN)_6\right]$ complex is:

A. d^2sp^2

B. d^2sp^3

C. dsp^2

D. sp^3

Answer: B

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96. The structure of iron pentacarbonyl is:

A. square planar

B. trigonal bipyramid

C. triangular

D. none

Answer: B

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97. The number of ions formed in aqueous solution by the compound $\left[Co(NH_3)_4CI_2\right]CI$ is:

A. 2

B. 3

C. 4

D. 7

Answer: A

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98. Which one of the following cations does not form a complex with ammonia :

A. Ag^{+}

B. Cu^{2}

C. Cd^2

D. Na^+

Answer: D

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99. Number of unpaired electrons of Ni in $\left[Ni(CO)_4\right]$ are:

A. 0

B. 1

C. 2

D. 3

Answer: A

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100. Which ion is paramagnetic

A. `[Co(NH_(3))_(6)]^3

B. $\left[Ni(NH_3)_4\right]^2$

C. $\left[Ni(CO)_4\right]$

D. $\left[Ni(CN)_4\right]^{2-}$

Answer: B

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101. Write the IUPAC same of $\left[Co(en)_2Cl_2\right]SO_4$

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102. Complete the following chemical equation.

$CH_3NH_2 + CH_3COCl \rightarrow$ ___+____

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103. The composition of carnallite is _____.

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104. Oxidation state of Ni in $\left[Ni(CO)_4\right]$ _____.

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105. IUPAC name of $K_4\left[Fe(CN)_5(NO)S\right]$

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106. Fill in the blanks

EDTA is a .... ligand.

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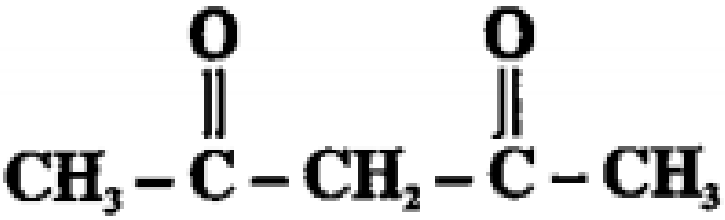
107. IUPAC name of:



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108. Fill in the blanks

Ethylene diamine is an example of .... ligand.

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109. $[Co(NH_3)_5Br]SO_4$ and $[Co(NH_3)_5SO_4]Br$ show .... isomerism.

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110. Explain $[Co(NH_3)_6]^{3+}$ is an inner orbital complex whereas $[Ni(NH_3)_6]^{2+}$ is an outer orbital complex.

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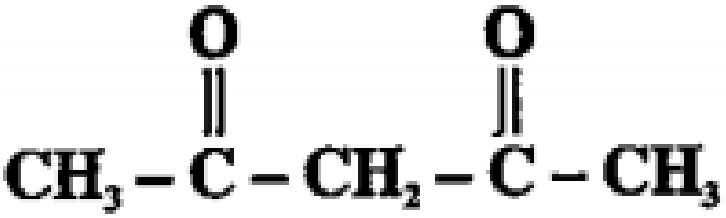
111. IUPAC name of:



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112. Paracetamol is :

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113. acids, bases and salts are examples of____

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114. Secondary producers are :

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115. A metal M forms a compound M_2HPO_4 The formula of the metal sulphate is :

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116. Discuss various applications of coordination compounds.

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117. Rate of reaction is influenced by____.

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118. Fe_3O_4 is known as _____ .

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119. The IUPAC name of C_(2)H_(5)-NH_(2) is _____.

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120. Define coordination number.

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121. The reaction

$CH_3COOC_2H_5 + H_2O \rightarrow \left(H^+\right)CH_3COOH + C_2H_5 - OH$

is an example of

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122. Find EAN of Fe in $K_4\left[Fe(CN)_6\right]$

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123. Mohr's salt is :

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124. Write the IUPAC name of $\left[Co(NH_3)_5Cl\right]Cl_2$

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125. DPD is equal to:

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126. The sugar present in milk is

Watch Video Solution

127. Ozone acts as:

Watch Video Solution

128. The chemical formula of chromite mineral :

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129. Transition metals can form complexes. in:

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130. The co-ordination number of cobalt in`[Co(en)_2Br_2]Cl_2 is :

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131. Oxidation number of Cr in CrO_5 is:

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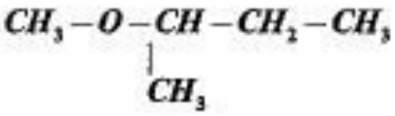
132. Write the IUPAC name of



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133. Write the name of coordination compound $\left[Co(NH_3)_5Cl\right]Cl_2$.

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134. What are the ligands and coordination number of $\left[Cr(NH_3)_4(ONO).Cl\right]NO_3$.

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135. Write the chemical formula of chile salt petre.

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136. Write the chemical formula of copper (II) hexacyanoferrate.

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137. What is the shape of hexacyanoferrate (II) ion ?

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138. What is the shape of hexacyanoferrate (II) ion ?

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139. Write the chemical formula of Glauber's salt.

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140. Write the chemical formula of Glauber's salt.

Watch Video Solution

141. Write the IUPAC name of $\left[Co(NH_3)_5SCN\right]Cl_2$.

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142. Write the IUPAC name of $\left[Co(NH_3)_5SCN\right]Cl_2$.

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143. Write the IUPAC name of $\left[Cr(H_2O)_5Br\right]SO_4$.

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144. What is the coordination number of each ion in NaCl ?

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145. what is the valency of Ru in $\left[K_2Ru(OH)_4Cl_2\right]$?

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146. Give example of a bidentate ligand.

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147. give an example of hydrate isomer.

Watch Video Solution

148. give an example of organometallic compound.

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149. what is the oxidation state of gold in $\left[Au(CN)_2\right]^{2-}$?

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150. The correct formula for diamine silver (I) chloride is :

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151. EDTA is a _____ dentate ligand.

A. bi

B. tri

C. tetra

D. hexa

Answer: 6

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152. What is EDTA?

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153. Write the IUPAC name of the complex $Na_3[Cr(OH)_2F_4]$.

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154. write isomer of $[Cr(NH_3)_4Cl_2]^+$

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155. what is coordination number of Central metal ion in $\left[Fe(C_2O_4)_3\right]^{2-}$?

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156. What type of hybridisation is associated with N in `NH_3 ?

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157. What is ligand ? Give examples.

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158. how many types of ligands are there ?

Watch Video Solution

159. Write the IUPAC names of the following coordination complex ions:

(i). $\left[Cr(NH_3)_6\right]^{3+}$ (ii). $\left[Mn(CN)_6\right]^{4-}$

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160. What meant by chelate ? Give an example.

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161. Write the IUPAC name of the following co-ordinate compound.

$[CoCl_2(NH_3)_4]Cl$

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162. explain coordination compounds with examples .

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163. Explain coordination number with examples.

Watch Video Solution

164. explain complex ion with examples.

Watch Video Solution

165. Write two methods of preparation of coordination compounds.

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166. How coordination compounds are used in analytical chemistry ?

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167. Mention the geometrical shapes obtained by the following types of hybrid orbitals d^2sp^3

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168. explain organo metallic compound.

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169. write the structure of following compounds. (a) $Fe(CO)_5$. (b) $\left[CO(NH_3)_6\right]^{3\hat{}}+$. (c)$[NiCl_4]^{2-}$.

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170. Discuss the nature of bonding in metal carbonyls.

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171. Discuss about the application of organometallic compounds in organic synthesis.

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172. Discuss various applications of coordination compounds.

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173. write application of coordination compounds in chemotherapy.

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174. What are organometallic compounds? Give two examples.

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175. Explain hydrate isomerism. Give some examples.

Watch Video Solution

176. Define coordination number.

Watch Video Solution

177. what do you mean by complex ?

Watch Video Solution

178. What is a double salt ? Give an example.

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179. what is primary valency ?

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180. What are the secondary valencies ?

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181. determine the coordination number and oxidation number of $\left[CuCl_4(H_2O)_2\right]^{2-}$.

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182. give the formation of nickel tetracarbonyl in mond's process.

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183. write the chemical equation preparation of ferrocene.

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184. Describe Mond process for refining of nickel

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185. what is TEL ? write its use.

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186. how many types of organometallic compounds are there ?

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187. define organometallic compounds. Give an example of Sigma bonded Organometallics.

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188. What is Werner's coordination theory ?

Watch Video Solution

189. give some examples of neutral ligands.

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190. give examples of some neutral complexes.

Watch Video Solution

191. explain what are isomers and define isomerism.

Watch Video Solution

192. Name different types of isomerisms.

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193. give some examples of anionic complexes.

Watch Video Solution

194. CN^- is a strong ligand. why ?

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195. mohr's salt is an example of a double salt . why ?

Watch Video Solution

196. Write the IUPAC name of following complexes. $k_4\left[Fe(CN)_6\right]$

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197. Name the factors which influence the stability of a complex.

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198. discuss about the stability constant of complex.

Watch Video Solution

199. What is a double salt ? Give an example.

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200. Define normal salt.

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201. What is complex salt ?

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202. What are the different types of complexes ?

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203. What is chelating ligand ?

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204. What is EAN rule ?

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205. Indicate the primary and secondary valencies of the central metal atom in the complex $K_4\left[Fe(CN)_6\right]$

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206. give one example of an ionization isomer.

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207. give the formula of the complexes : Chloronitrito-O-bis (ethylene diamine) cobalt(iii)

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208. name the following complex using IUPAC norms: $\left[Co(en)_2(ONO)Cl\right]Cl$

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209. how many geometrical and optical isomers are possible for the complex ion, $\left[Cocl_2(en)_2\right]^+$?

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210. write the IUPAC name of the compound $[Cr(NCS)(NH_3)_5][ZnCl_4]$.

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211. Write the formula of the following complexes:

Dichlorobis(ethylenediamine)-cobalt(III)sulphate

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212. give an example of linkage isomerism.

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213. Which of the following is more stable complex and why?

$[Co(NH_3)_6]^{3+}$ and $[Co(\text{en})_3]^{3+}$

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214. what is coordination isomerism ? give an example.

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215. Draw structural formula of two isomers of the complex ion $[Co(NH_3)_5NO_2]^{2}+$. Name the type of isomerism and give their IUPAC names .

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216. What is Werner's coordination theory ?

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217. Who provided experimental evidences in support of chemical evolution of life?

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218. Write various postulates and applications of valence bond theory in coordination compounds.

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219. Give main features of crystal field theory of coordination compounds in octahedral crystal field.

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220. What is crystal field splitting among octahedral and tetrahedral crystal fields? In which case, the magnitude of crystal field splitting is larger?

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221. Describe limitations of crystal field theory.

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222. Discuss various applications of coordination compounds.

Watch Video Solution

223. With the help of valence bond theory, compare the magnetic behaviour of $[Co(NH_3]_6]^3+$ and [`CoF_(6)]^3- complex' ions.

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224. (b) Define crystal field splitting. discuss the splitting of d -orbitals in octahedral field.

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225. (a) state the reason for each of the following situations: (i) Co^{+2} is easily oxidised to Co^{+3} in presence of a strong ligand.

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226. Give the name, stereochemistry and the magnetic behaviour of the following complexes.

(i) $\left[Co(NH_3)_5Cl\right]Cl_2$ (ii) $K_2\left[Ni(CN)_4\right]$

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227. How is the magnitude of Δ in coordination complex affected by (i) nature of the ligand and (ii) oxidation state of

metal ion .

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