



CHEMISTRY

BOOKS - MBD CHEMISTRY (ODIA ENGLISH)

COORDINATION COMPOUNDS

QUESTION BANK

1. Write the ionisation isomer of $\left[Cr(H_2O)_5Br\right]SO_4$



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2. Give examples of two coordination number .



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3. Give the preparation of nickel tetra carbonyl.



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4. Write the chemical equation preparation of Ferrocene.



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5. What is TEL ? Write its use.



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6. What is EDTA?



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



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8. What is double salt ?



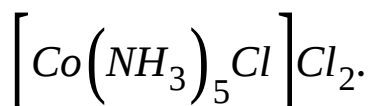
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9. Define coordination number.



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10. Write the name of coordination compound



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

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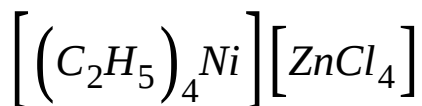
12. Write the chemical formula of copper (II) hexacyanoferrate.

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

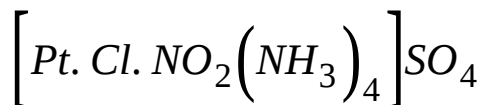
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14. Write IUPAC name of the compound



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15. What is the IUPAC name of the compound



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16. Write the formula of the compound Potassium pentacyanonitrosyl ferrate (III).



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17. IUPAC name of $\left[Co(H_2O)_6\right]Cl_2$ is _____.



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18. $\left[Ag(NH_3)_2\right]NO_3$ is formula of _____.



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19. The composition of carnallite is _____.



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20. Oxidation state of Ni in $[Ni(CO)_4]$ _____.



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21. IUPAC name of $K_3[Co(NO_2)_6]$ is _____.



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22. Fill in the blanks

EDTA is a ligand.



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23. Fill in the blanks

The IUPAC name of $Fe(CO)_5$ is



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24. Fill in the blanks

Ethylene diamine is an example of ... ligand.



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25. $\left[Co(NH_3)_5Br\right]SO_4$ and $\left[Co(NH_3)_5SO_4\right]Br$ are _____ isomers while $\left[Co(NH_3)_5NO_2\right]Cl_2$ and $\left[Co(NH_3)_5ONO\right]Cl_2$ are _____ isomers.

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26. EDTA is a bidentate ligand . True or False?

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27. Ligand NO is named as :

A. Nitrosonium

B. Nitronium

C. Nitrosyl

D. Nitro



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28. Alum is an example of simple salt. True or false?



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29. Ethylene diamine is an example of hexadentate

ligand:True/false



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30. $K[PtCl_3(C_2H_4)]$ is Fischer salt.



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



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32. What is ligand ? Give examples.



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33. Write the name of different types of ligands.



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34. What meant by chelate ? Give an example.



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35. Write the IUPAC name of following coordinate compounds. $[CoCl(en)_2NH_3]^{2+}$

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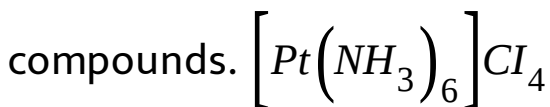
36. Write the IUPAC name of following coordinate compounds. $[PtCl_2(NH_3)_2]$

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37. Write the IUPAC name of following coordinate compounds. $K_3[Fe(CN)_6]$

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38. Write the IUPAC name of following coordinate



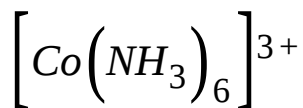
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39. Write the structure of following compound:



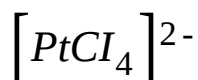
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40. Write the structure of following complex ion



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41. Write the structure of following compounds.



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



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



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44. Define normal salt.



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45. What is complex salt ?



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46. What is chelating ligand ?



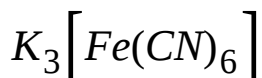
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47. What is Werner's coordination theory ?



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48. What is the IUPAC name of the compound



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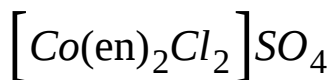
49. Write the formula of the following compound:

Ammonium diamine tetra-thiocyanato chromate (III)



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50. Write the name of the compound :



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51. Write the formula of the following complexes:

Potassium pentachloromonoammine platinate (IV).



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52. What is isomerism ?

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53. What is ligand?

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54. What is chelating ligand ?

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55. What are the ambidentate ligands ? Give examples.

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56. What is EAN rule ?

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57. Give the IUPAC names of



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58. What is EDTA (Ethylenediamine tetraacetic add) ?

Give one use.



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59. What is EAN rule ? Give an example.



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60. Explain coordination number with examples.



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61. Mention the geometrical shapes shown by the following types of hybrid orbitals. sp^3



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62. Mention the geometrical shapes obtained by the following types of hybrid orbitals dsp^2



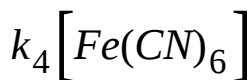
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63. Mention the geometrical shapes obtained by the following types of hybrid orbitals d^2sp^3



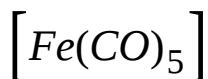
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64. Write the IUPAC name of following complexes.



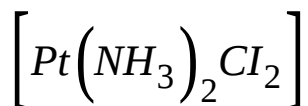
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65. Write the IUPAC name of following complexes.



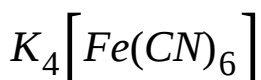
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66. Write the IUPAC name of following complexes.



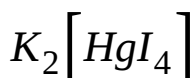
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67. Write the IUPAC name of following complex:



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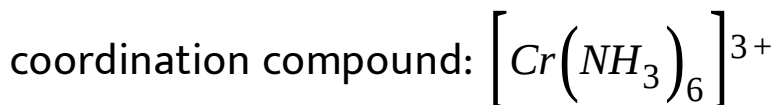
68. Write the IUPAC name of the following complex:





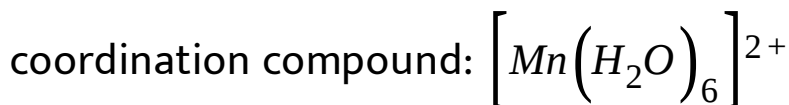
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69. Write the IUPAC name of the following



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70. Write the IUPAC name of the following



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71. Write the IUPAC name of the following coordination compound: $[Fe(CN)_6]^{4-}$



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72. Write the IUPAC name of the following coordination compound: $[Ni(NH_3)_6]Cl_2$



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73. How coordination compounds are used in analytical chemistry?

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74. Explain hydrate isomerism. Give some examples.

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75. Distinguish between double salt and complex salt

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76. What are the different types of complexes ?

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77. What are the primary valencies ?

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78. What are the secondary valencies ?

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79. What are the drawbacks of Werner's coordination theory ?

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80. What is functional isomerism ? Give one example.



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81. What is Werner's coordination theory ?



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82. What is isomerism ? Discuss structural isomerism in coordination compounds with

examples.

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

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84. What is optical isomerism in coordination compounds ? Explain with examples.

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



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



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87. Discuss colour in coordination compounds.



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88. Describe limitations of crystal field theory.



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89. Explain bonding in metal carbonyls.



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90. Discuss various applications of coordination compounds.



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91. From argentite (Ag_2S) ore the method used for obtaining metallic silver is:

A. Fused mixture of Ag_2S and KCl is electrolysed

B. Ag_2S is reduced with CO

C. Ag_2S is roasted to Ag_2O which is reduced with carbon

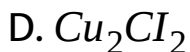
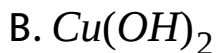
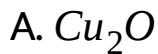
D. Treating argentite with $NaCN$ solution followed by metal displacement with zinc

Answer: D



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92. Which of the following is known as Ruby Copper:



Answer: A



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93. Thermal decomposition method is used to purify:

A. Ni

B. Ti

C. Zr

D. Cr

Answer: A



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94. When ferric chloride is treated with potassium ferrocyanide, we get:

A. Turnbull blue

B. Zeise salt

C. Prussian blue

D. None

Answer: C



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95. Anhydrous $FeSO_4$ is:

A. White

B. Black

C. Green

D. Brown

Answer: A



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96. Chinese white is:

A. ZnO

B. $ZnCO_3$

C. ZnS

D. $ZnS + BaSO_4$

Answer: A



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97. Which of the following has highest ionisation energy:

A. Cu

B. Ag

C. Au

D. All have same ionisation energy

Answer: C



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98. Hair dyes contain:

A. Copper .nitrate

B. Gold chloride

C. Silver nitrate

D. Copper sulphate

Answer: C



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99. Percentage of gold in Fool's gold is:

A. 0

B. 0.08

C. 0.16

D. 0.29

Answer: A

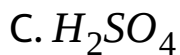


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100. Cu_2Cl_2 absorbs:

A. CO_2

B. SO_2

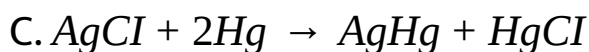
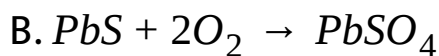
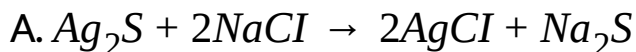


Answer: D



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101. Which is an example of chlorodising roasting:



D. Both (a) and ©

Answer: D



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102. Auto-reduction process is used in the extraction of

A. Cu and Hg

B. Zn and Hg

C. Cu and Al

D. Fe and Pb

Answer: A

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103. Wolframite ore contains:

A. SnO_2

B. 98% pure zinc

C. $\text{Na}_2\text{CO}_3 + \text{K}_2\text{CO}_3$

D. FeWO_2

Answer: D

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104. Oxidation state of mercury in amalgams is:

A. Zero

B. One

C. Two

D. Three

Answer: A



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105. An alloy consisting of 80% Ag + 20% Cu is:

A. Coinage silver

B. Sterling silver

C. Silver amalgam

D. Worm silver

Answer: B



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106. 860 fine silver means:

A. 14% Cu + 86%Ag

B. 8.6% Ag +91.4% Cu

C. 86%Ag+14%Cu

D. 86%Ag + 26%Cu

Answer: C



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107. The colour of FeF_3 is:

A. Brown

B. Red brown

C. Light green

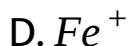
D. White

Answer: D



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108. The deep red colour of $Fe(SCN)_3$ or $Fe(SCN)_4^-$ is destroyed by addition of:

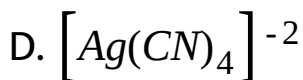
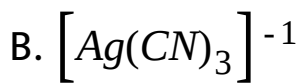
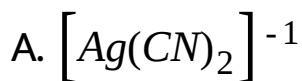


Answer: A



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109. Silver dissolves in the solution of an alkali cyanide in the presence of oxygen to form:

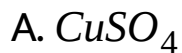


Answer: A



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110. Ferrous sulphate isomorphous with:



Answer: B



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111. All ligands are

A. Lewis acid

B. Lewis base

C. Neutral

D. None

Answer: B



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112. The scientist who explained the structure of coordination complexes is

A. Sidgwick

B. Pauling

C. Powell

D. Werner

Answer: D



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113. 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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114. Diethylene triamine is:

A. Chelating agent

B. Polydentate ligand

C. Tridentate

D. All

Answer: D



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115. 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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116. The hybridisation of $[Ni(CN)_4]^{-2}$ ion is:

A. dsp^2

B. sp^2d^2

C. d^2sp

D. sp^2

Answer: A



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117. The IUPAC name of $\left[Cr(NH_3)_4Cl_2\right]NO_3$ is:

- A. Tetra amino dichloro chromium nitrate
- B. Tetra amino dichloro chromium (III) nitrate
- C. Dichloro tetra ammine chromium (III) nitrate
- D. Tetra amino dichloro chromium (II) nitrate

Answer: C



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118. Transition elements form complexes because of:

A. Small size of cation

B. Vacant d-orbitals

C. Large ionic charge

D. All

Answer: D



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

A. 36

B. 38

C. 28

D. 54

Answer: A



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120. 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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121. The colour of $FeSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O$ is:

A. Red

B. White

C. Green

D. Blue

Answer: C



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

A. 46

B. 86

C. 36

D. 84

Answer: B



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

A. Inert gas configuration

B. Duplet

C. Octet

D. Quartet



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124. The EAN of nickel in $K_2[Ni(CN)_4]$ is:

A. 35

B. 34

C. 36

D. 38

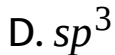
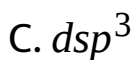
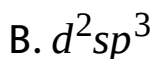
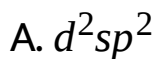
Answer: C



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125. The hybridisation of Fe in $K_4[Fe(CN)_6]$ complex

is:



Answer: B



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126. The structure of iron pentacarbonyl is:

- A. Square planar
- B. Trigonal bipyramidal
- C. Triangular
- D. None

Answer: B



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127. The number of ions formed in aqueous solution

by the compound $\left[Co(NH_3)_4Cl_2\right]Cl$ is:

- A. 2

B. 3

C. 4

D. 7

Answer: A



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

A. Ligands

B. Radicals

C. Primary valencies

D. None

Answer: A



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129. AgO in $Ag(II)$ complex is

A. Diamagnetic

B. paramagnetic

C. Ferromagnetic

D. Neutral

Answer: A



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130. Nickel (II) tetracyanide complex hasgeometry:

- A. Linear
- B. Tetrahedral
- C. Square planar
- D. None

Answer: C



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

A. -6

B. +3

C. -3

D. +6

Answer: B



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132. 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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133. Complex forming tendency increases with:

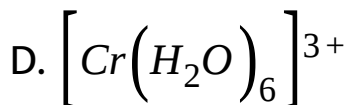
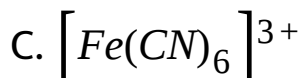
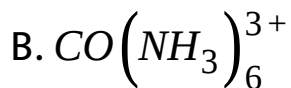
- A. Increase in size of cation
- B. Decrease in size of cation
- C. Increase in size of anion
- D. None

Answer: B



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



Answer: A



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135. Co-ordination number of Co in $[Co(NH_3)_6]^{2+}$

is:

A. 4

B. 5

C. 6

D. 8

Answer: C



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

A. Paramagnetic

B. Diamagnetic

C. Square planar

D. None

Answer: A



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

A. Ca

B. Mg

C. Na

D. K

Answer: B



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

A. $[Ni(CN)_4]^{2-}$ is square planar and $[NiCl_4]^{2-}$

and $Ni(CO)_4$ are tetrahedral

B. $[NiCl_4]^{2-}$ is square planar and $[Ni(CN)_4]^{2-}$

and $Ni(CO)_4$ are tetrahedral

C. $Ni(CO)_4$ is square planar and $[Ni(CN)_4]^{2-}$ and

$[NiCl_4]^{2-}$ are tetrahedral

D. None

Answer: A



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

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

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

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

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

Answer: C



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140. Co-ordination no. of Fe in $K_3[Fe(CN)_6]$ is:

A. 2

B. 3

C. 4

D. 6



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141. EAN of Fe in $K_3[Fe(CN)_6]$ is.

A. 36

B. 37

C. 38

D. 35

Answer: D



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



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

A. 2

B. 3

C. 4

D. 5

Answer: B



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

A. Thiocyanato-N

B. Cyanato-N

C. Thiocyanato-S

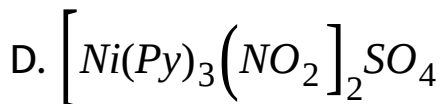
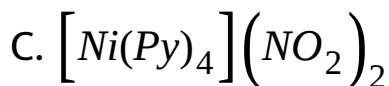
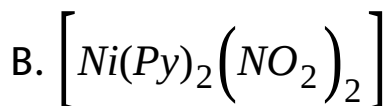
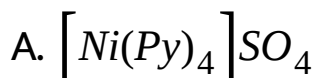
D. Cyanato-S

Answer: A



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

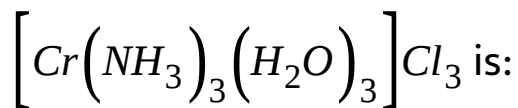


Answer: C



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149. The co-ordination number of Cr in



A. 3

B. 4

C. 6

D. 2

Answer: C



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150. $\left[\text{Co}(\text{NH}_3)_4\text{Cl}_2 \right]$ possesses:

A. Square planar geometry

B. Tetrahedral geometry

C. Tetrahedral nature

D. Octahedral geometry

Answer: D



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

- A. yellow colour
- B. Blue colour
- C. Violet colour
- D. Colourless nature

Answer: D



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153. EDTA is a.....ligand:

A. Monodentate

B. Hexadentate

C. Bidentate

D. Tridentate

Answer: B



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

A. $PbCl_3$

B. $AgNO_3$

C. KI

D. None

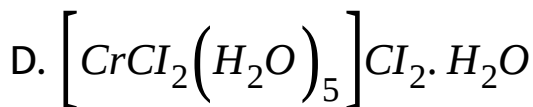
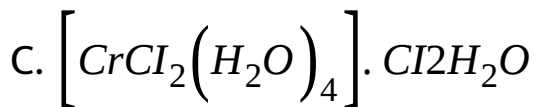
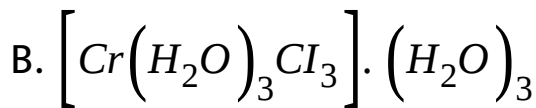
Answer: A



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155. Which of the following is most likely structure of $CrCl_3 \cdot 6H_2O$ if $1/3$ of total chlorine of the compound is precipitated by adding $AgNO_3$ to its aqueous solution

A. $CrCl_3 \cdot 6H_2O$



Answer: C



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156. Complexes with bidentate ligands are called:

A. Ligands

B. Chelates

C. Complexes

D. None

Answer: B



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

A. Zero

B. 1

C. 2

D. 3

Answer: A



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

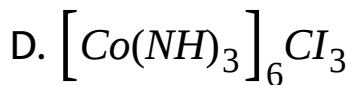
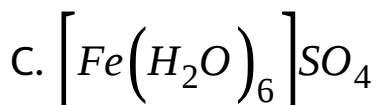
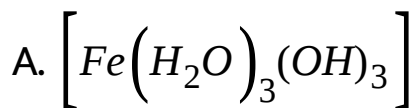
- A. Small size of the metal ion
- B. Large ionic or nuclear charge
- C. Low basicity of metal ions
- D. Non-availability of d-orbitals

Answer: D



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159. In which complex is the transition metal in zero oxidation state:



Answer: B



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160. The number of ions formed on dissolving one molecule of $FeSO_4(NH_4)_2SO_4 \cdot 6H_2O$ in water is:

A. 4

B. 5

C. 3

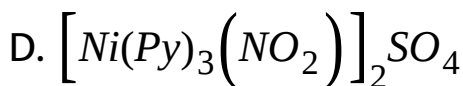
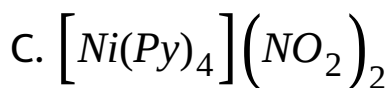
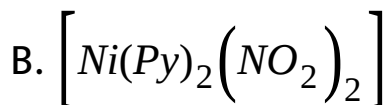
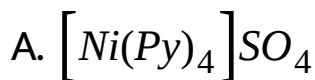
D. 6

Answer: B



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



Answer: C



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

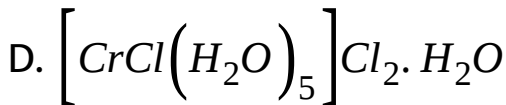
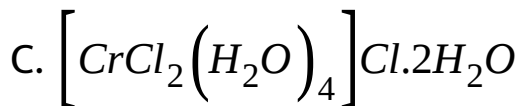
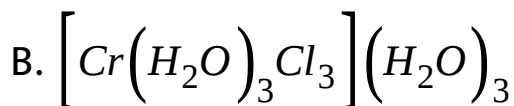
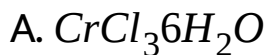
- A. Linkage isomerism
- B. Ionisation isomerism
- C. Co-ordination isomerism
- D. No isomerism

Answer: D



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163. Which of the following is most likely structure of $CrCl_3 \cdot 6H_2O$ if $1/3$ of total chlorine of the compound is precipitated by adding $AgNO_3$ to its aqueous solution



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164. 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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165. The correct IUPAC name of $Fe(C_5H_5)_2$ is:

- A. Cyclopentadienyl iron (II)
- B. Bis (cyclopentadienyl) iron (II)
- C. Dicyclopentadienyl ferrate (II)
- D. Ferrocene

Answer: B



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

- A. Mercury tetrathiocyanato cobaltate(II)

B. Mercury cobalt tetrasulphocyno (II)

C. Mercury tetrasulphocyanide cobaltate (II)

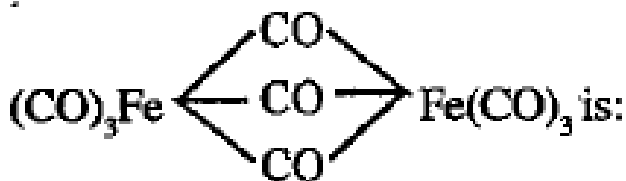
D. Mercury sulphocyanato cobalt (II)

Answer: A



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167. The correct IUPAC name of



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

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

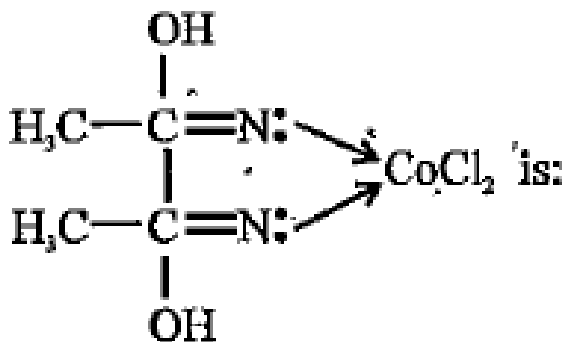
C. Tricarbonyl iron (0) μ - tricarbonyl tricarbonyl
iron (0)

D. Nonacarbonyl iron



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168. The correct IUPAC name of the complex:



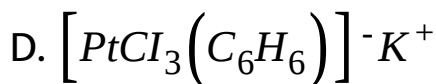
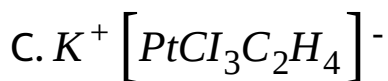
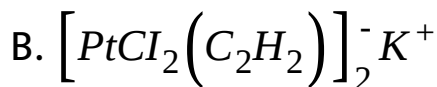
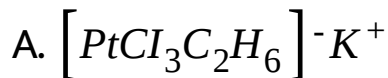
- A. Dischlorodimethylglyoximato cobalt (II)
- B. Bis (dimethylglyoxime) dichloro cobalt (II)
- C. Dichlorodimethyl cobalt (II) chloride
- D. Dichlorodimethylglyoximecobalt(II)

Answer: D



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



Answer: C



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170. 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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171. 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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172. Which of the following represents a chelating ligand:

A. Cl^-

B. DMG

C. OH^-

D. H_2O

Answer: B



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173. The compounds $\left[\text{Co}(\text{NO}_2)(\text{NH}_3)_5 \right] \text{Cl}_2$ and $\left[\text{Co}(\text{ONO})(\text{NH}_3)_5 \right] \text{Cl}_2$ are examples of:

A. Geometrical isomers

B. Linkage isomers

C. Ligand isomers

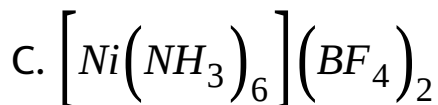
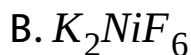
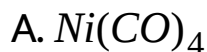
D. Ionisation isomers

Answer: B



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





Answer: B



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175. The IUPAC name of $[CoCl(NO_2)(en)_2]Cl$ is

- A. Chloronitrobis (ethylene diammine) cobaltic (III) chloride
- B. Chloronitrobis (ethylene diammine) cobalt(n) chloride

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

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

Answer: C



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176. The name of the given compound

$\left[\text{Cu}(\text{NH}_3)_4 \right] (\text{NO}_3)_2$, according to IUPAC system is:

A. Cuprammonium nitrate

B. Tetrammine copper (II) dinitrate.

C. Tetrammine copper (II) nitrate

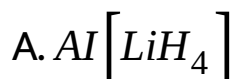
D. Tetrammine copper (III) dinitrate

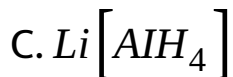
Answer: C



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177. Lithium tetrahydridoaluminate is correctly represented as:





Answer: C



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178. 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 number 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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179. The co-ordination number and oxidation number of X in the following compound

$\left[X(SO_4)(NH_3)_5 \right]Cl$ will be:

- A. 10 and 3
- B. 2 and 6
- C. 6 and 3
- D. 6 and 4

Answer: C



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180. The type of isomerism shown by

$\left[Co(en)_2(NCS)_2 \right]Cl$ and $\left[Co(en)_2(NCS)Cl \right]CNS$ is:

A. Co-ordination

B. Ionisation

C. Linkage

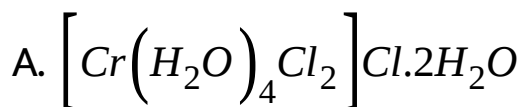
D. All above

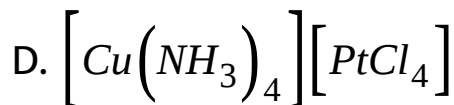
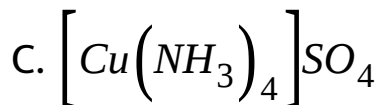
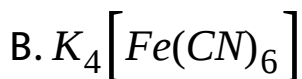
Answer: B



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181. Which of the following compounds would exhibit co-ordination isomerism:



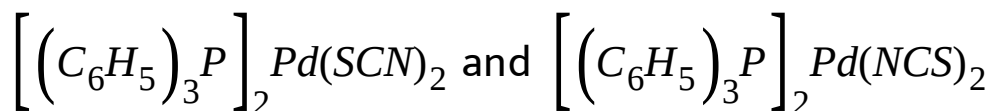


Answer: B



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182. The following isomers refer to



:

A. Linkage isomerism

B. Coordination isomerism

C. Ionisation isomerism

D. Geometrical isomerism

Answer: A



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183. The complexes given below show and

A. Optical isomerism

B. Co-ordination isomerism

C. Geometrical isomerism

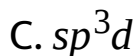
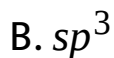
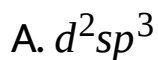
D. Bridged isomerism

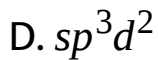
Answer: C



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184. Hexafluorocobaltate (III) ion is found to be high spin complex, the probable hybrid state of cobalt in it is:





Answer: D



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185. In hexacyanomanganate (II) ion the Mn atom assumes d^2sp^3 hybrid state. The number of unpaired electrons in the complex is

A. 1

B. 2

C. 3

D. zero

Answer: A



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186. $Fe_2(CO)_9$ is diamagnetic. Which of the following reasons is correct:

- A. Presence of one CO as bridge group
- B. Presence of monodentate ligand
- C. Metal-Metal (Fe-Fe) bond in molecule
- D. Resonance hybridization of CO

Answer: C



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187. Chlorophyll contains the metal:

A. Al

B. Fe

C. Mg

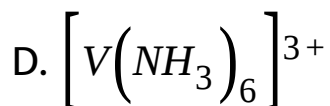
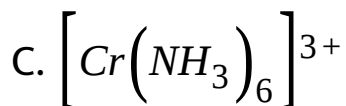
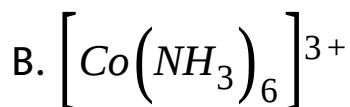
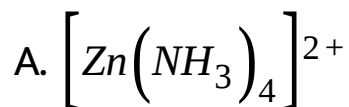
D. Ca

Answer: C



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188. In which there is outer orbital hybridisation:



Answer: D



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189. Ligands in a complex salt are :

A. Anions linked by coordinate bonds to a central metal atom or ion

B. Cations linked by coordinate bonds to a central metal or ion

C. Any species linked by coordinate bonds to a central metal or ion

D. Ions or molecules linked by coordinate bonds to a central atom or ion

Answer: D



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190. A group of atoms can function as a ligand only when:

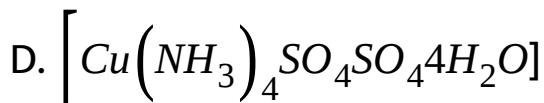
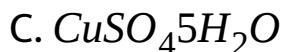
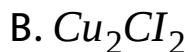
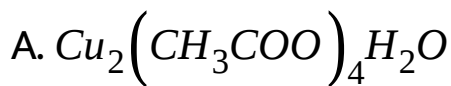
- A. It is a small molecule
- B. It has an unshared electron pair
- C. It is a negatively charged ion
- D. It is a positively charged ion

Answer: B



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191. Which is colourless complex:



Answer: B



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192. The structure of $[Cu(H_2O)_4]^{2+}$ ions is:

A. Square planar

B. Tetrahedral

C. Octahedral

D. Distorted rectangle

Answer: A



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193. The complex $\left[Pt(NH_3)_6\right]Cl_4$ furnishes:

A. 5 ions

B. 6 ions

C. 4 ions

D. 2 ions

Answer: A



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194. $K_4[Fe(CN)_6]$ is used to detect the presence of:

A. Metallic ion

B. Ferrous ion

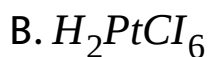
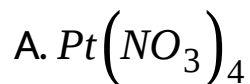
C. Ferric ion

D. None



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195. Aqua regia reacts with Pt to yield:



Answer: B



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196. The shape of cobalt hexa-ammine cation, which has its central cobalt atom surrounded by six ammonia molecules is:

- A. Tetrahedral
- B. Octahedral
- C. Square planar
- D. Trigonal

Answer: B



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197. Blue colour/precipitate will be obtained when

$K_4[Fe(CN)_6]$ reacts with:

A. Fe(II) ions

B. Cu(II) ions

C. Fe(III) ions

D. Cu(I) ions



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198. Ligand in the complex $[Fe(CN)_6]^{3-}$ ion is

A. CN^-

B. N

C. Fe

D. C

Answer: A



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199. The oxidation state of Fe in

$Na_3[Fe(NH_3)(CN)_5]2H_2O$ is:

A. -1

B. +1

C. +2

D. +3

Answer: C



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200. The primary valency of Fe in $K_3[Fe(CN)_6]$ is

A. 3

B. 2

C. 1

D. Zero

Answer: C



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201. The shape of $\left[\text{Cu}(\text{NH}_3)_4 \right] \text{Cl}_2$ is:

A. Tetrahedral

B. Octahedral

C. Square planar

D. Pyramidal

Answer: C



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202. If a compound absorbs violet colour from the sunlight, then the observed colour is:

- A. Yellow
- B. Orange
- C. Blue
- D. Green

Answer: A

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203. The oxidation state of Cu in $\left[\text{Cu}(\text{NH}_3)_4 \right] \text{SO}_4$ is:

A. -1

B. +1

C. +2

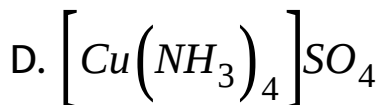
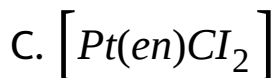
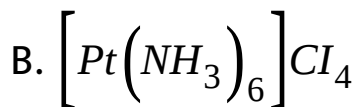
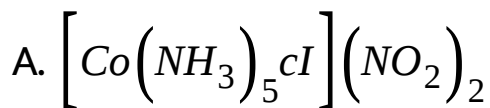
D. Zero

Answer: C

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204. Which will give a white precipitate with $AgNO_3$

in



Answer: B



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205. In $\left[Co(NH_3)_4Cl_2\right]Cl$ the co-ordination number of cobalt is

A. 4

B. 6

C. 2

D. 7

Answer: B



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206. The co-ordination number of Cu in copper ammonium sulphate is:

A. 2

B. 4

C. 3

D. 6

Answer: B



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207. The number of ions given by $\left[Co(NH_3)_4\right]Cl_3$

in aqueous solution is:

A. 2

B. 3

C. 1

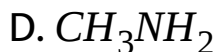
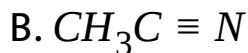
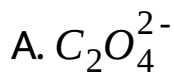
D. 4

Answer: D



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208. Which ligand is expected to be bidentate:



Answer: A



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209. A group of atoms can function as a ligand only when:

- A. It is a small molecule
- B. It has an unshared electron pair
- C. It is negatively charged ion
- D. It is positively charged ion

Answer: B



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210. In $\left[Cr(NH_3)_4Cl_2\right]Cl$ the ligands are:

- A. NH_3
- B. Cl^- only

C. Both NH_3 and Cl^-

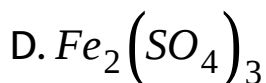
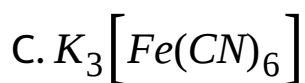
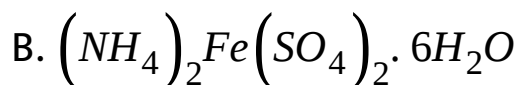
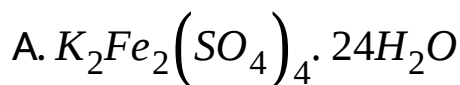
D. Cr , NH_3 , Cl^-

Answer: C



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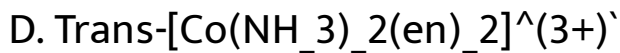
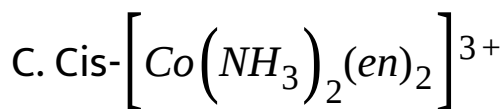
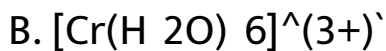
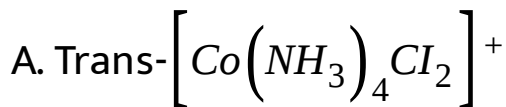
211. Which will not give the usual test for iron:



Answer: C

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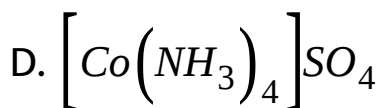
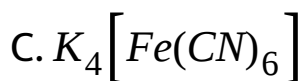
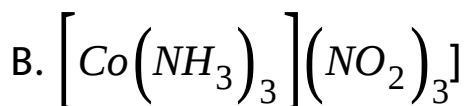
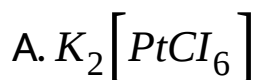
212. Which of the following shows optical activity ?



Answer: C

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213. Pick a poor electrolytic conductor complex in solution:



Answer: D



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214. The complex $\left[Co(NH_3)_3Cl_3\right]$ when dissolved in water gives how many ions:

A. 2

B. 4

C. 3

D. zero

Answer: D



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215. Turnbull's blue is:

- A. Ferricyanide
- B. Ferrous ferricyanide
- C. Ferrous cyanide
- D. Ferri-ferrocyanide

Answer: B



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216. The number of isomeric forms in which

$\left[Co(NH_3)_4Cl_2\right]^+$ ion can occur is :

A. 2

B. 3

C. 4

D. 1

Answer: A



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217. What is the IUPAC name of the following compound $K_3[Fe(CN)_6]$

A. Potassium hexcyanoferrate (III)

B. Potassium ferrocyanide ion (III)

C. Potassium hexacyanoferrate(II)

D. potassium cyanohexaferrate (II)

Answer: A



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218. The total number of ions produced when one molecule of $\left[Co(NH_3)_6\right]Cl_3$ undergoes ionisation is :

A. 1

B. 2

C. 3

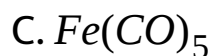
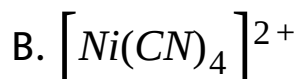
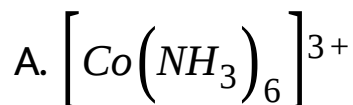
D. 4

Answer: D



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219. Which molecule has tetrahedral geometry



Answer: D



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220. Oxidation number of Fe in $K_3[Fe(CN)_6]$ is:

A. +3

B. +2

C. +10

D. 1

Answer: A



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221. The complex $\left[Co(NH_3)_3Cl_3\right]$ is :

A. Neutral

B. Cationic

C. Anionic

D. None

Answer: A



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222. Complexation is shown by :

A. Ag

B. Au

C. Cu

D. All

Answer: D



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223. A solution of CuCl in NH_4OH is used to measure title amount of which gas is a sample by simply

measuring change in volume:

A. CO_2

B. H_2

C. CO

D. All

Answer: C



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224. Ionisation of $K[Ag(CN)_2]$ will give :

A. K^+ and $[Ag(CN)_2]^-$ ion

B. KCN and AgCN

C. K^+ , Ag^+ , CN^-

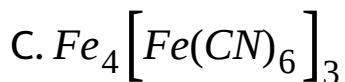
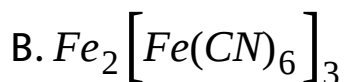
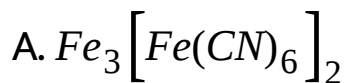
D. None

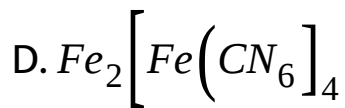
Answer: A



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225. The probable formula for prussian blue is :





Answer: C



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226. The number of ions given by $[Pt(NH_3)_2Cl_4]$ in aqueous solution is :

A. Zero

B. 1

C. 2

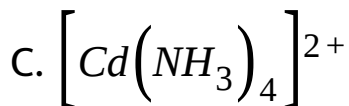
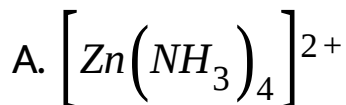
D. 4

Answer: A



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227. Which possesses tetrahedral shape (sp^3 -hybridisation of central atom):



D. All are correct

Answer: D



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228. Which of the following is π complex:

A. Trimethyl aluminum

B. Ferrocene

C. Diethyl zinc

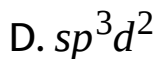
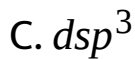
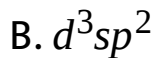
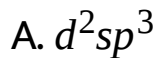
D. Nickel carbonyl

Answer: B



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229. The hybridisation involved in $[CoF_6]^{3-}$ is:

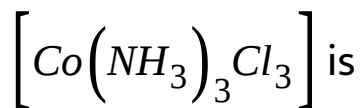


Answer: D



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230. The coordination number of cobalt in



A. 6

B. 5

C. 4

D. 3

Answer: A



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231. The number of ions given by K_2PtCl_6 in aqueous solution is:

A. 2

B. 3

C. 4

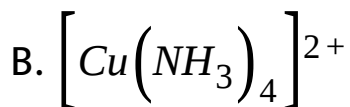
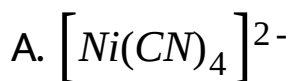
D. Zero

Answer: B



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232. Which complex has square planar shape dsp^2 hybridisation:



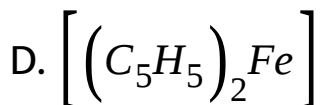
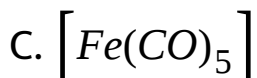
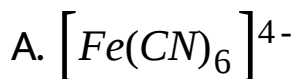
D. All

Answer: D



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233. Formula of ferrocene is:



Answer: D



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234. The number of ions given by $K[Pt(NH_3)Cl_5]$ in aqueous solution is :

A. 2

B. 3

C. 4

D. 1

Answer: A



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235. Which is the strongest field ligand:

A. CN^-

B. NO_2^-

C. NH_3

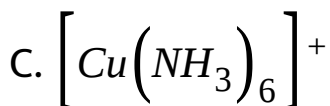
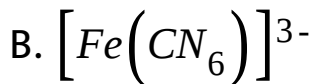
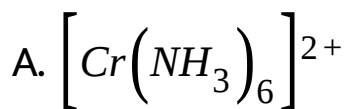
D. en

Answer: A



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236. Which have octahedral shape (d^2sp^3)
hybridisation of central atom :



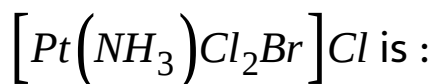
D. All are correct

Answer: D



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237. The number of precipitable halide ions in



A. 2

B. 3

C. 4

D. 1

Answer: D



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

the examples of :

- A. Linkage isomerism
- B. Geometrical isomerism
- C. Ionisation isomerism
- D. Optical isomerism

Answer: C



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239. The hybridisation involved in $K_3[Fe(CN)_6]$ is :

A. Sp^2

B. d^2sp^3

C. d^3sp^2

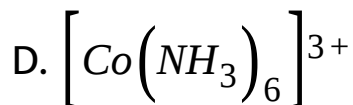
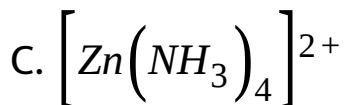
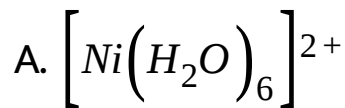
D. sp^3

Answer: B



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240. Which is expected to be paramagnetic:



Answer: A



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241. Out of the following which are soluble in-water:

(i) $AgCN$

(ii) Ag_2S

(iii) AgF

(iv) $AgNO_3$

(v) $AgClO_4$

A. (i) (ii) (iii)

B. (iii) (iv) (v)

C. (i) (v) (ii)

D. (ii) (iii) (i)

Answer: B



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242. The alloy of steel that is used for making automobile parts and utensils is :

- A. Nickel steel
- B. Chromium steel
- C. Tungsten steel
- D. Stainless steel

Answer: B

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243. Dental amalgam is composed of:

- A. $\text{Hg} + \text{Ag} + \text{Cd} + \text{Au} + \text{Fe}$
- B. $\text{Cu} + \text{Sn} + \text{Hg} + \text{Ag} + \text{Zn}$

C. $\text{Cd} + \text{Cu} + \text{Ni} + \text{Au} + \text{Fe}$

D. $\text{Cu} + \text{Sn} + \text{Au} + \text{Hg} + \text{CO}$

Answer: B



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244. Paris green is an insecticide made up of:



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245. In order to refine blister copper it is melted in a furnace and is stirred with green logs of wood. The

purpose is:

- A. To expel the dissolved gases in blister copper
- B. To bring the impurities to surface and oxidise them
- C. To increase carbon content of copper
- D. To reduce the metallic oxide impurities with hydrocarbon gases liberated from the wood

Answer: D



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246. Which reagent would enable you to remove SO_4^{2-} ions from solution containing both SO_4^{2-} and Cl^- ions?

A. NaOH

B. $Pb(NO_3)_2$

C. $BaSO_4$

D. KOH

Answer: B



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247. $AgNO_3$ gives yellow ppt. with:



Answer: B



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248. Acidic solution of a salt producing deep blue colour with starch and KI . The salt is:

A. Chloride

B. Nitrite

C. Acetate

D. Bromide

Answer: B



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249. On passing H_2S in II gp, sometimes a white turbidity is formed. This is due to:

A. Colloidal sulphur

B. SnS_2

C. Bi_2S_3

D. ZnS

Answer: A



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250. Some salts, although containing two different metal elements give test for only one of them in, solution, such salts are:

A. Normal salts

B. Double salts

C. Complex salts

D. Basic salts

Answer: C



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251. An orange precipitate of II group is dissolved in conc. HCl. The solution when treated with excess of water turns milky due to formation of:

A. Sn(OH)Cl

B. SbOH

C. SbOCl

D. $Sb(OH)_2Cl$

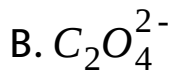
Answer: C



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252. An inorganic salt is heated with ethyl alcohol and . cone. H_2SO_4 , vapours evolved produces green-edged flame on ignition , It indicates the presence of :

A. F^-



Answer: C



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253. An aqueous solution contains Hg^{2+} , Hg_2^{2+} , Pb^{2+} and Sb^{3+} . The addition of HCl (6N) will precipitate :



B. $PbCl_2$ only

C. $PbCl_2$ and Hg_2Cl_2

D. $PbCl_2$ and $HgCl_2$

Answer: C



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254. Arrange :

I Explosive

A- NaN_3

II Artificial gem

A- NaN_3

III Self reduction

C-Sn

IV Magnetic material

D- Al_2O_3

E- $\text{Pb}(\text{N}_3)_2$

F- Fe_2O_3

G-Sn

H-SiC

A. I-A,II-D,III-G,iv-B

B. I-E,II-H,III-C,IV-F

C. I-A,II-D,III-G,IV-F

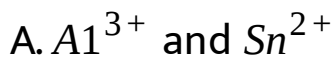
D. I-E,II-D,III-G,IV-B

Answer: D



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255. Concentrated aqueous sodium hydroxide can separate a mixture of:



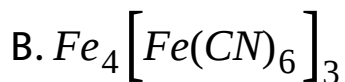
Answer: B



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256. Addition of $FeCl_3$ to $K_4Fe(CN)_6$ gives :

A. Prussian blue



C. Ferric ferrocyanide

D. All

Answer: D



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257. Which one is water-soluble:

A. $MgSO_4$

B. $BeSO_4$

C. $CaSO_4$

D. All

Answer: D



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258. Which is not decomposed by $dil.H_2SO_4$

A. Chloride

B. Carbonate

C. Nitrite

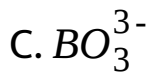
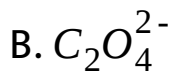
D. Acetate

Answer: A



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259. Which are interfering radicals:



D. All

Answer: D



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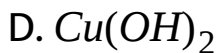
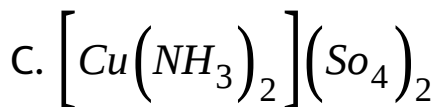
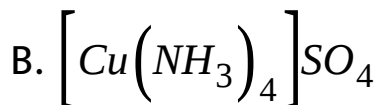
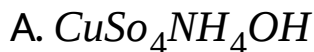
260. A salt which gives brown vapours with cone.

H_2SO_4 and turns water yellow is:

- A. Nitrate
- B. Chloride
- C. Bromide
- D. Iodide

Answer: C

261. In $CuSO_4$ solution, on adding excess of NH_4OH the solution turns blue due to the formation of:



Answer: B

262. Transition metals can form complexes. in:

A. Zero oxidation state (

B. Cation form

C. Anion form

D. All

Answer: D



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263. Bidentate ligand is :

A. CH^-

B. Ethylene diamine

C. EDTA

D. SCN^-

Answer: B



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

A. 2

B. 4

C. 6

D. 8

Answer: C



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265. The neutral ligand is :

A. Chloro •

B. Hydroxo

C. Ammine

D. Oxalato

Answer: C



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266. The action that does not form an amine complex with excess of ammonia is:

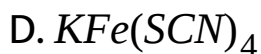
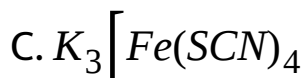
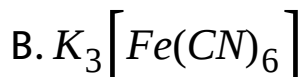
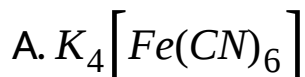


Answer: A



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267. Potassium hexacyanoferrate (II) is:



Answer: A



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268. The EAN of-Ni in $Ni(CN)_4^{2-}$ is:

A. 34

B. 35

C. 36

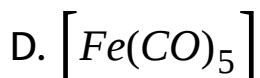
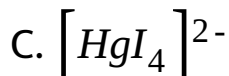
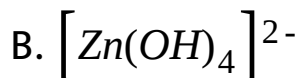
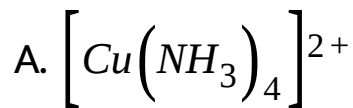
D. 28

Answer: A



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269. Which does not obey EAN rule:



Answer: A



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270. Which statement about co-ordination number of a cation is true :

A. Most metal ions exhibit only a single characteristic co-ordination number

B. The coordination number is equal to the number of ligands bonded to the central atom

C. The co-ordination number is determined solely by the tendency to surround the metal atom with the same number of electrons as one of the rare gases

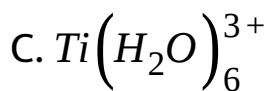
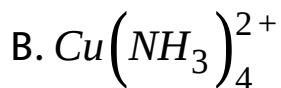
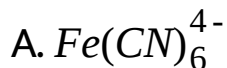
D. For most complexes, the co-ordination number depends on the size, structure and charge of the ligands

Answer: D



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271. Which complex is diamagnetic:



D. None

Answer: A



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272. Which ion shows usually co-ordination number

6:



D. All

Answer: D



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273. For which transition metal ions spin paired or complexes possible:



D. All are correct

Answer: D



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274. Which ion produces a small crystal field splitting (a weak ligand field) :

A. I^-

B. Cl^-

C. F^-

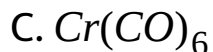
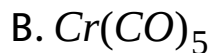
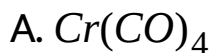
D. All

Answer: D



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275. Chromium carbonyl is:



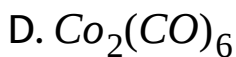
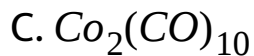
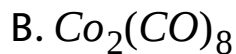
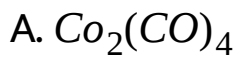
D. None

Answer: C



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276. The formula of a carbonyl complex $[(CO)_nCo - Co(CO)_n]$ in which there is a single covalent $Co - Co$ bond is :



Answer: B



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277. The co-ordination number of Ni in

$[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$ complex is :

A. 2

B. 4

C. 6

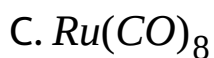
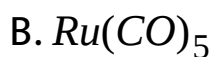
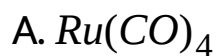
D. 5

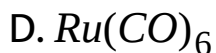
Answer: C



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278. Ruthenium carbonyl is:





Answer: B



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279. For which transition metal ions are high spin or spin free complexes possible



D. All are correct

Answer: D



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280. Which ligand produces a high crystal field splitting:

A. CO

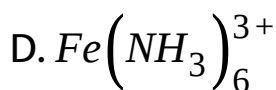
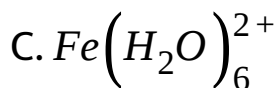
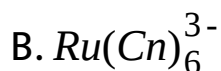
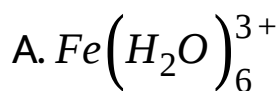
B. NO_2^-

C. CN^-

D. All are correct

Answer: D

281. Of the following complexes, the one with the largest value of the crystal field splitting is:



Answer: B

282. Which ion shows only the co-ordination number 4 in complexes :



Answer: A



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283. Complexes with halide ligands are generally:

A. High spin complexes

B. Low spin complexes,

C. Both (a) and (b)

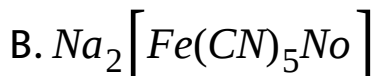
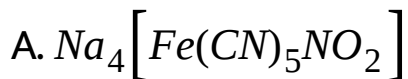
D. None

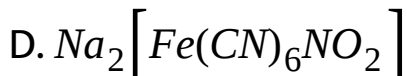
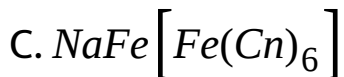
Answer: A



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284. The formula of sodium nitroprusside is:





Answer: B



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285. $[Co(NH_3)_6]Cl_3$ is called :

A. Hexaammine cobalt (III) chloride

B. Amino cobalt chloride (III)

C. Cobalt chloride hexammine

D. Hexammine tricobalt chloride

Answer: A



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286. Which is correct in the case of $[Ni(CN)_4]^{2-}$ complex :

- A. It involves dsp^2 - hybridisation
- B. It has square planar shape
- C. It is diamagnetic
- D. All are correct

Answer: D



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287. Which is correct in the case of $[NiCl_4]^{2-}$ complex:

A. sp^3 hybridized

B. Paramagnetic

C. Tetrahedral

D. All are correct

Answer: D



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288. The IUPAC name of $Pt. \left(NH_3 \right)_4 NO_2 Cl \left] SO_4 \right.$ is :

A. Chloronitro platinum (IV) sulphate

B. Tetra-ammine chloronitrito platinum (IV)
sulphate

C. Chloronitro tetra-ammine platinum (IV)
sulphate

D. Platinum(IV) tetra-ammine nitrochloro
sulphate

Answer: C



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289. Formation of complex compound can be detected by:

- A. Change in colour
- B. Change in solubility
- C. Change in pH
- D. All are correct

Answer: C



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290. Which is correct in the case of $[Fe(CN)_6]^{4-}$ complex:

- A. Diamagnetic
- B. Octahedral
- C. d^2sp^3 -hybridisation
- D. All are correct

Answer: D



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291. The no. of ions given by $[\text{Pt}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}_2$ in aqueous solution is :

A. 2

B. 3

C. 4

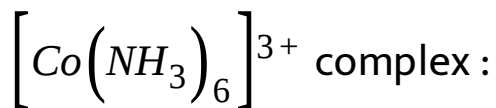
D. 5

Answer: B



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292. Which statement is not correct in the case of



- A. It is octahedral in shape
- B. It involves dsp^2 -hybridisation
- C. It has diamagnetic nature
- D. None

Answer: B



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293. Which is true in the case of $[Ni(CO)_4]$ complex:

- A. sp^3 hybridisation
- B. Tetrahedral shape
- C. Diamagnetic
- D. All are correct

Answer: D



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294. The shape of $\left[\text{Cu}(\text{NH}_3)_4 \right]^{2+}$ is square planar:

Cu in this complex is :

A. sp^3 - hybridised

B. dsp^2 -hybridised

C. sp^3d^2 - hybridised

D. sp^3d -hybridised

Answer: B



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295. IUPAC name of $\text{Na}_3[\text{Co}(\text{ONO})_6]$ is :

- A. Sodium cobaltinitrite
- B. Sodium hexanitritocobaltate (III)
- C. Sodium hexanitrocobaltate (III)
- D. Sodium hexanitritocobaltate(II)

Answer: B



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296. Which is true in the case of $[\text{Fe}(\text{CN})_6]^{3-}$ complex:

A. d^2sp^3 -hybridisation of Fe

B. Paramagnetic

C. One unpaired electron

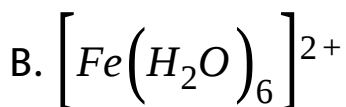
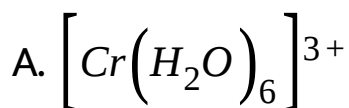
D. All are correct

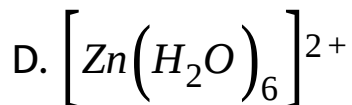
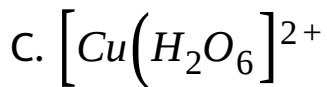
Answer: D



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297. Which has highest paramagnetism:





Answer: B



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298. Colour of transition metal complexes can be explained by:

A. Completely filled d-orbitals

B. Vacant d-orbitals

C. d-d transition

D. None

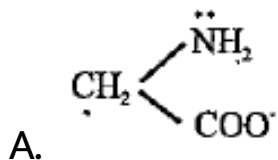
Answer: C

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299. In complexes, metal atom acts as:

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300. Glycinato ligand is:



B. Bidentate ligand

C. Two donor sites N and O^-

D. All

Answer: D



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301. The IUPAC name of $[Cr(H_2O)_4Cl_2]Cl$ is :

A. Tetrahydro dichloro chromium (III) chloride

B. Tetraaquo dichloro chromium (III) chloride

C. Tetraaquo dichloro chromium(I)chloride

D. None

Answer: B



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302. The element which does not form mononuclear carbonyl is:

A. Fe

B. Mn

C. Ni

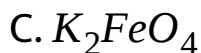
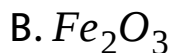
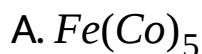
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Answer: B



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303. Iron has lowest oxidation state in:



Answer: A



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304. The charge on cobalt in $[Co(CN)_4]^{3-}$ is:

- A. -6
- B. +6
- C. - + 1
- D. -3

Answer: C



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305. Which is not true about ligand- metal complex:

- A. Larger the ligand, the more stable is the metal-ligand complex
- B. Highly charged ligand forms stronger bonds
- C. Larger the permanent dipole moment of a neutral ligand, the more stable is the bond
- D. Greater the electronegativity of the central metal, the stronger the bond

Answer: A



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306. Which is not a π -bonded complex:

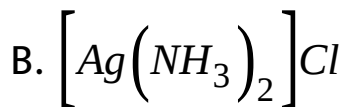
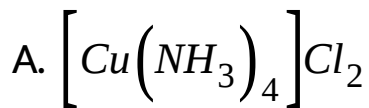
- A. Zeise salt
- B. Ferrocene
- C. Dibenzene chromium
- D. Tetraethyl lead

Answer: D



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307. The compound which does not show paramagnetism:



C. NO

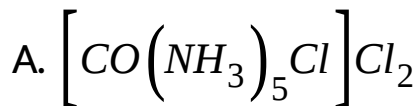
D. NO_2

Answer: B



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308. Oxidation state of nitrogen is not correctly given for the compound



B. NH_2OH (- 1)

C. $(N_2H_5)_2SO_4$ (- 2)

D. Mg_3N_2 (- 3)

Answer: A



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309. Ligands in a complex salt are :

A. Anions linked by co-ordinate bonds to a central metal atom or ion

B. Cations linked by co-ordinate bonds to a central metal atom or ion

C. Molecules linked by co-ordinate bonds to a central metal or ion

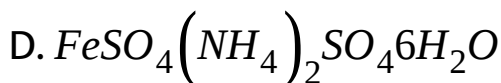
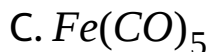
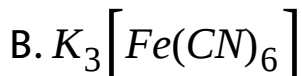
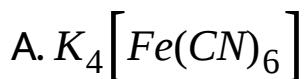
D. Ions or molecules linked by co-ordinate bonds to a central atom or ion,

Answer: D



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310. Iron shows least oxidation number in:



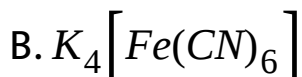
Answer: C



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311. An example of double salt is :

A. Bleaching powder



C. Hypo

D. PotasH, alum.

Answer: D



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312. Oxidation number of Fe in the compound

$Na_4[Fe(CN)_5NO](SO_4) \cdot 2H_2O$ is:

A. 0

B. +1

C. +2

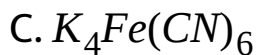
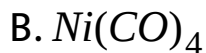
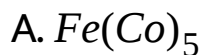
D. +3

Answer: C



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313. Which follows EAN rule:



D. All are Correct

Answer: D



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314. In haemoglobin the iron shows oxidation state:

A. +2

B. +3

C. +1

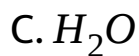
D. +4

Answer: A



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315. Which one is monodentate ligand:



D. All are correct

Answer: D



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316. The oxidation no. of nickel in $K_2[Ni(CN)_4]$ is :

A. -2

B. +2

C. -1

D. Zero

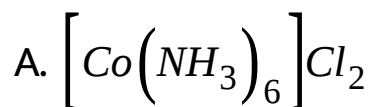
Answer: B

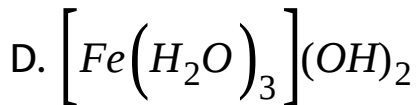
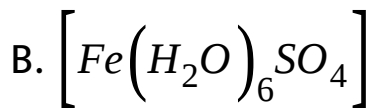


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317. In which complex is the transition metal in zero.

oxidation state:





Answer: C



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318. The number of ions formed when copper ammonium sulphate, is dissolved in water is:

A. 1

B. 2

C. 4

D. Zero

Answer: B



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319. The brown ring complex compound is formulated as $\left[Fe(H_2O)_5(NO)\right]SO_4$. The oxidation state of iron is:

A. +1

B. +2

C. +3

D. 0

Answer: A



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320. The number of d-electrons of Cr(Z=24) in

$[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$ ion :

A. 2

B. 3

C. 4

D. 5

Answer: B



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321. NH_2NH_2 serves as :

A. Monodentate ligand

B. Chelating ligand

C. Chelating ligand

D. (a) and (c) both

Answer: D



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322. The oxidation state of Ni in $[Ni(CN)_4]^{2-}$ ion is:

- A. -2
- B. +2
- C. +4
- D. 0

Answer: B



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323. The oxidation state of Mo in its oxo-complex

species $\left[Mo_2O_4(C_2H_4)_2(H_2O)_2 \right]^{2-}$ is:

A. +2

B. +3

C. +4

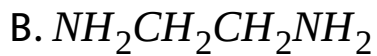
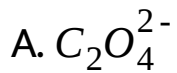
D. +5

Answer: B



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324. Which one is bidentate ligand:



C. Both

D. None

Answer: C



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325. The value of X on the $[Ni(CN)_4]^x$ is:

A. +2

B. +3

C. Zero

D. Zero

Answer: B



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326. The IUPAC name of $Ni(CO)_4$ is

A. Tefetracarbonyl nickelate (0)

B. Tbtracarbonyl nickelate (II)

C. Tetracarbonyl nickel (0)

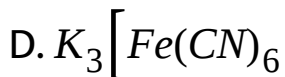
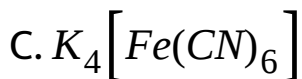
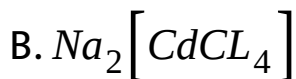
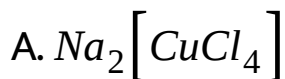
D. Tbtracarbonyl nickel (II)

Answer: C



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327. Which of the following compounds is not coloured :



Answer: B



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328. $K_4Fe(CN)_6$ is a :

- A. Double salt
- B. Basic salt
- C. Complex compound
- D. Simple salt

Answer: C



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329. In triethylenediamine cobalt (III) chloride the coordination number of cobalt is:

A. 3

B. 4

C. 6

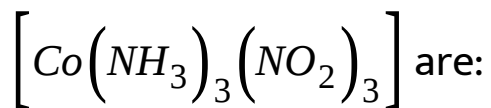
D. 7

Answer: C



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330. The number of geometrical isomers of,



A. Zero

B. 2

C. 3

D. 4

Answer: B



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331. The EAN of Cr in $[Cr(SCN)_6]^{3-}$ is:

A. 35

B. 33

C. 34

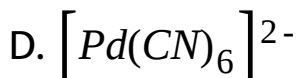
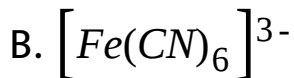
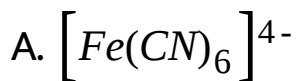
D. 37

Answer: B



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332. In which of the following 10ns has the metal atom EAN as 36:

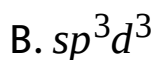
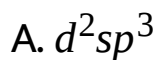


Answer: A



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333. The hybridisation of $[PtCl_6]^{2-}$ ion is:



C. sp^3d

D. sp^3d^2

Answer: D



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334. The tendency to show complex formation is maximum in Elements :

A. s-block

B. p-block

C. d-block

D. f-block

Answer: C



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335. The complex that violates the E AN:

A. Potassium ferrocyanide

B. Potassium ferricyanide

C. Nickel carbonyl,

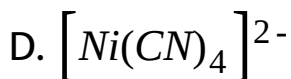
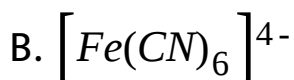
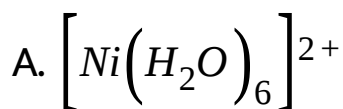
D. Cobalt (II) hexamine chloride

Answer: B



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336. Which ion is paramagnetic



Answer: A



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337. Complexes with CN^- ligands are usually:

- A. High spin complexes
- B. Low spin complexes
- C. Both (a) and (b)
- D. None

Answer: B



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338. The effective atomic number rule is less likely to apply if the metal-ligand bond:

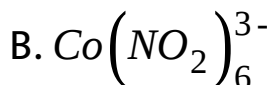
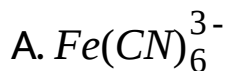
- A. Is extremely weak
- B. Has a covalent character
- C. Has a large amount of ionic character
- D. None is correct

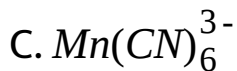
Answer: C



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339. Which is low spin complex:





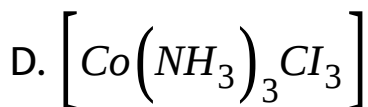
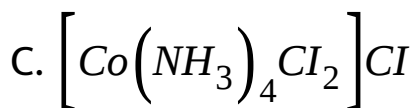
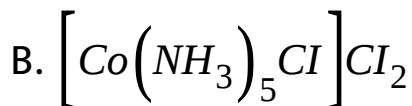
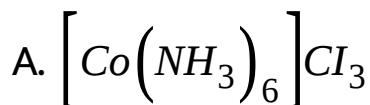
D. All

Answer: A



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340. Which exhibits highest molar conductivity:



Answer: A



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341. Which ligand is capable of forming low spin well as high spin complexes:

A. CO

B. NO_2^-

C. NH^-

D. NH_3

Answer: D



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342. The tetrahedral crystal field splitting is only of the octahedral splitting:

A. $1/9$

B. $2/9$

C. $4/9$

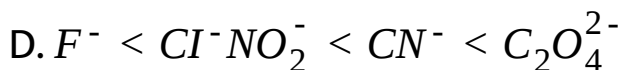
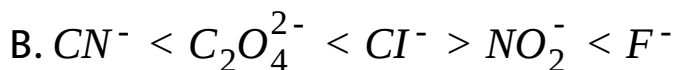
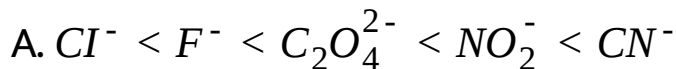
D. $5/9$

Answer: C



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343. Which order is correct in spectrochemical series of ligands:

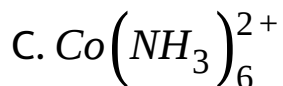
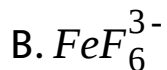


Answer: A



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344. Which is high spin complex:



D. All are correct

Answer: D



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345. A complex shown below can exhibit:

A. Optical isomerism only

B. Geometrical isomerism only

C. Both optical and geometrical isomerism

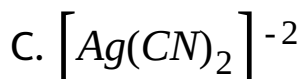
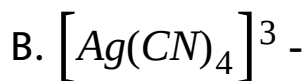
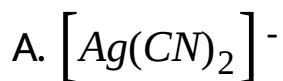
D. None

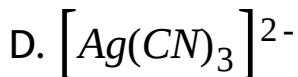
Answer: A



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346. Silver dissolves in the solution of an alkali cyanide in the presence of oxygen, forming:



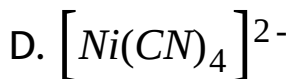
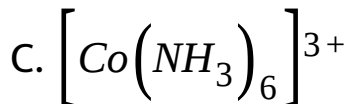
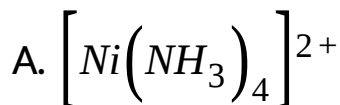


Answer: A



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347. Which ion is paramagnetic:

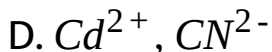
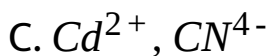
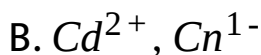
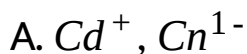
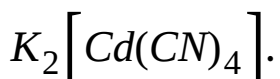


Answer: A



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348. Point out the central ion ligand in the complex

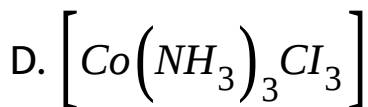
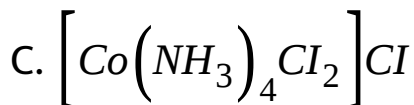
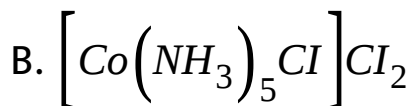
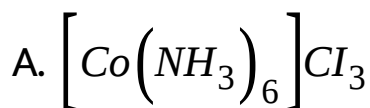


Answer: B



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349. Which one of the following does not give a white precipitate with silver nitrate solution:



Answer: D



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350. in solid $CuSO_4 \cdot 5H_2O$ copper is co-ordinated to:

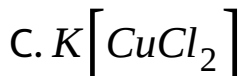
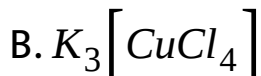
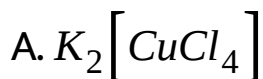
- A. 4 water molecules
- B. 5 water molecules
- C. One sulphate molecule
- D. One water molecule

Answer: A



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351. $CuCl$ is sparingly soluble in H_2O but it dissolves in KCl solution due to the formation of:



D. None

Answer: B



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352. The co-ordination number of copper in the complex formed by adding excess of NH_3 to $CuSO_4$ solution is:

A. 4

B. 2

C. 6

D. 5

Answer: A



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353. The coordination number of central metal ion

in $\left[\text{Cu}(\text{H}_2\text{O})_4 \right]^{2+}$ is:

A. 4

B. 2

C. 6

D. 5

Answer: A



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354. Magnetic moment of $[Ag(CN)_2]^-$ is zero. How many unpaired electrons are there:

A. Zero

B. 4

C. 3

D. 1

Answer: A



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355. $CuSO_4$ reacts with KCN solution forming a complex. Co-ordination number of copper in the complex is:

A. 2

B. 3

C. 4

D. 6

Answer: C



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356. The unpaired electrons in $[Ni(CO)_4]$ are:

A. Zero

B. 1

C. 2

D. 3



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357. The shape of the complex $Ag(NH_3)_2^+$ is:

- A. Octahedral
- B. Square planar
- C. Tetrahedral
- D. Linear

Answer: D



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358. The fraction of chlorine precipitated by $AgNO_3$

solution from $[Cu(NH_3)_5Cl]Cl_2$ is:

A. $1/2$

B. $2/3$

C. $1/3$

D. $1/4$

Answer: B



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359. $[Fe(CN)_6]^{4-}$ ion is:

- A. Octahedral
- B. Square planar
- C. Bipyramidal
- D. Tetrahedron

Answer: A



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360. Lead sulphate is insoluble in:

A. tConc. HNO_3

B. Ammonium acetate

C. Ammonium hydroxide

D. All

Answer: D



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361. A solution of salt in HCl when diluted with water turns milky. It indicates the presence of:

A. Sn

B. Bi

C. Sb

D. All

Answer: D



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362. The reagent NH_4Cl and aq.ammonia will precipitate:

A. Ca^{2+}

B. Al^{3+}



Answer: B



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363. KCN is used for separating:



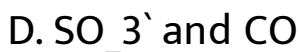
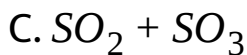
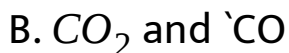
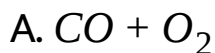
D. None

Answer: A



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364. Heating of oxalic acid with cone. H_2SO_4 gives:



Answer: B



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365. Sulphur dioxide may be recognised by its:

- A. Characteristic pungent smell of burning sulphur
- B. Ability to turn dichromate paper green
- C. Ability to decolourise acidified $KMnO_4$ solution
- D. All

Answer: D



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366. Sulphur trioxide gas is:

A. Prepared by heating ferric sulphate

B. An anhydride of H_2SO_4

C. Used for preparing oleum

D. All

Answer: D



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367. Iodine can be obtained from NaI solution by the action of:

A. Cl_2

B. Br_2

C. F_2

D. All

Answer: D

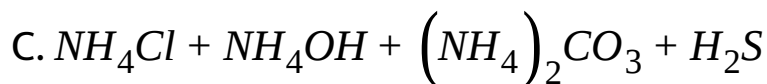
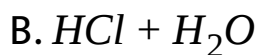


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368. The group reagent for the analysis of group IIIB

is:





Answer: A



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369. Sulphides of cations of analytic group IIB are precipitated by H_2S in:

A. Acidic medium

B. Neutral medium

C. Alkaline medium

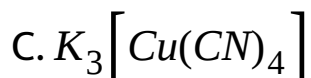
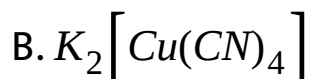
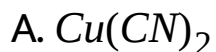
D. None of these

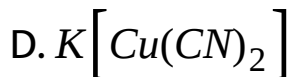
Answer: A



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370. $CuSO_4$ solution reacts with excess of KCN solution to form:



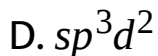
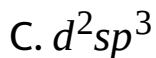
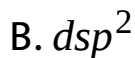
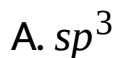


Answer: C



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371. An octahedral complex is _____ formed when the central metal atom is hybridised.

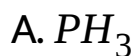


Answer: D



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372. Which one does not belong to ligand:

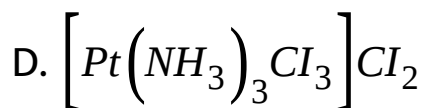
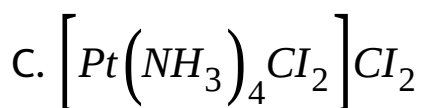
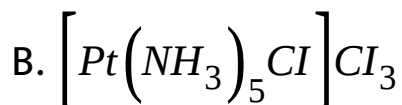
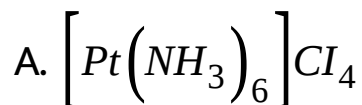


Answer: C



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373. Which of the following has the highest molar conductivity in solution:



Answer: A



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374. CuCl dissolves in ammonia forming a complex.

The co-ordination number of copper in the complex is:

A. 1

B. 2

C. 4

D. 6

Answer: B



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375. Geometrical isomerism is found in coordination compounds having co-ordination number:

A. 2

B. 3

C. 4 (tetrahedral)

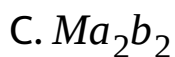
D. 6

Answer: D



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376. Cis-trans-isomerism is found in square planar complexes of the molecular formula: (a and b are monodentate ligands)



Answer: C



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377. The two complexes, given below are:

A. Geometrical isomers

B. Position isomers

C. Optical isomers

D. Identical

Answer: D



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378. Hexafluoroferrate(III)ion is an outer orbital complex. The number of unpaired electrons present

in.it is:

A. 1

B. 5

C. 4

D. Unpredictable

Answer: B



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379. The oxidation state of Ag in Tollen's reagent is:

A. Zero

B. +1

C. +2

D. +1.5

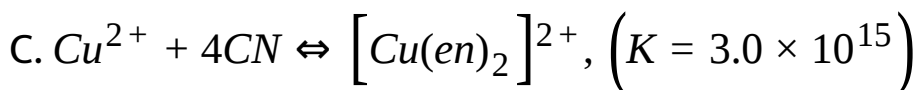
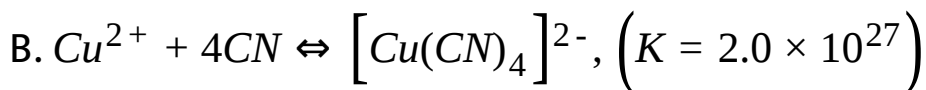
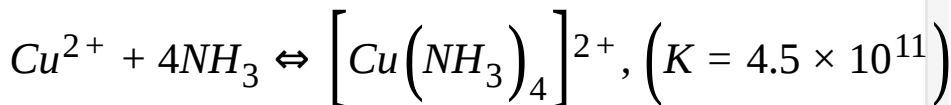
Answer: B



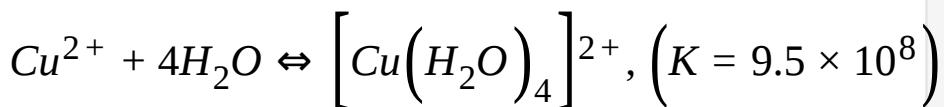
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380. From the stability constant (hypothetical values) given below, predict which is the strongest ligand:

A.



D.



Answer: B



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381. A square planar complex is represented as:

A. Geometrical isomers

B. Optical isomerism

C. Linkage isomerism

D. None

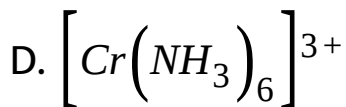
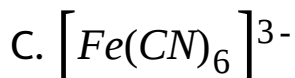
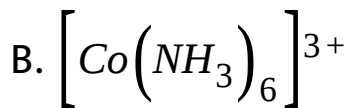
Answer: A



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382. Which of the following complex species do not involve d_2sp^3 hybridisation:





Answer: A



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383. In the complex $Fe(CO)_x$, the value of x is:

A. 3

B. 4

C. 5

D. 6

Answer: C



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384. The complex ion $[Cu(NH_3)_4]^{2+}$ has:

- A. The tetrahedral configuration with one unpaired electron configuration
- B. Square planar configuration with one unpaired electron

C. Tetrahedral configuration with all electrons paired

D. Square planar configuration with all electrons paired

Answer: B



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385. The hardness of water is estimated by:

A. Conductivity method

B. EDTA method

C. Titrimetric method

D. Distillation method

Answer: B



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386. en is an example of a:

A. Monodentate

B. Bidentate ligand

C. Tridentate ligand

D. Hexadentate ligand

Answer: B



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387. A reagent used for identifying nickel ion is:

A. Potassium ferrocyanide

B. Phenolphthalein

C. Dimethyl glyoxime

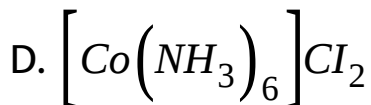
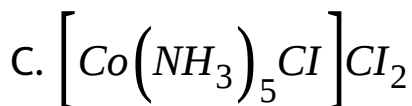
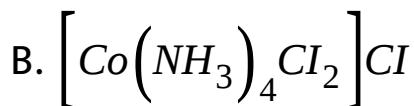
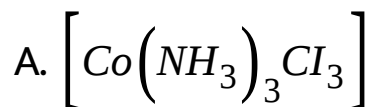
D. EDTA

Answer: C



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388. Which of the following is non-ionizable:



Answer: A



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389. The total number of possible isomers of the compound $\left[Cu^I(NH_3)_4 \right] \left[Pt^I Cl_4 \right]$ are:

A. 3

B. 5

C. 4

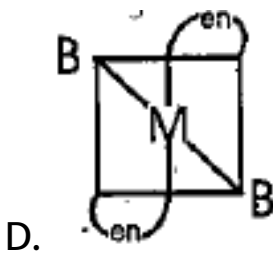
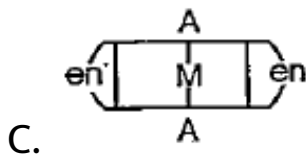
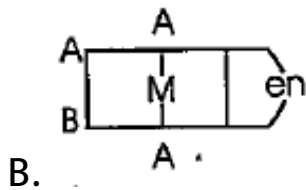
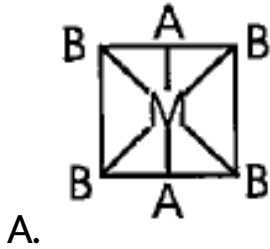
D. 6

Answer: C



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390. The phenomenon of optical activity will be shown by:



Answer: B



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391. The compounds $\left[Co(NO_2)(NH_3)_5\right]Cl_2$ and $\left[Co(ONO)(NH_3)_5\right]Cl_2$ are examples of:

- A. Geometrical isomers
- B. Linkage isomers
- C. Ligand isomers
- D. Ionisation isomers

Answer: B



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392. $K_3[CoF_6]$ is high spin complex. What is the hybrid state of Co atom in this complex:

A. sp^3d

B. sp^3d^2

C. d_2sp_3

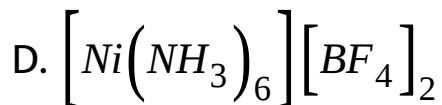
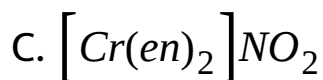
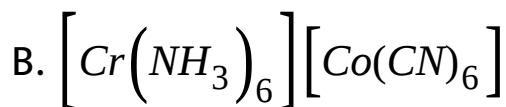
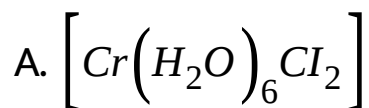
D. dsp_2

Answer: B



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393. Which of the following compounds would exhibit co-ordination isomerism:

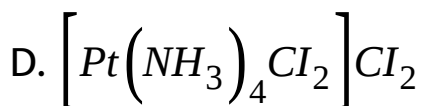
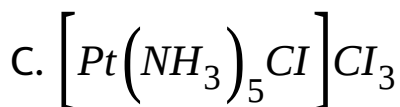
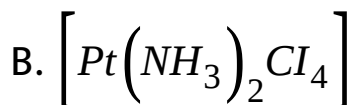
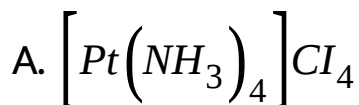


Answer: B



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394. A complex of platinum, ammonia and chlorine produces four ions per molecule in the solution. The structure consistent with the observation is:



Answer: C



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395. Which of the following represents a chelating ligand:

A. Cl^-

B. DMG

C. OH^-

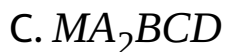
D. H_2O

Answer: B



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396. Which one of the following will be able to show cis/trans isomerism:

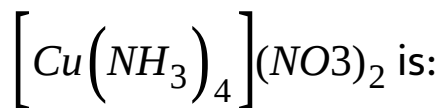


Answer: C



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397. The IUPAC name of the compound



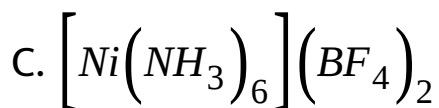
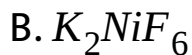
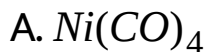
- A. Cuprammonium nitrate
- B. tetra-ammine copper (II)nitrate
- C. Tetra-ammine copper (II) dinitrate
- D. Tetra-ammine copper (III) dinitrate

Answer: B



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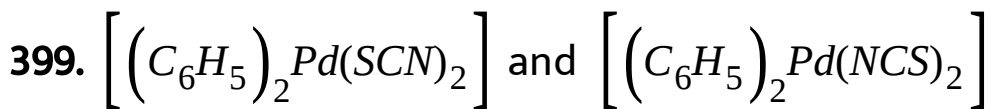
398. Nickel metal is in highest oxidation state in:



Answer: B



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are :

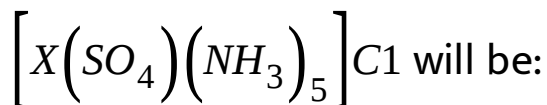
- A. Linkage isomers
- B. Co-ordination isomers
- C. Ionisation isomers
- D. Geometrical isomers

Answer: A



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400. The co-ordination number and oxidation number of X in the following compound



A. 10 and +3

B. 2 and +6

C. 6 and +3

D. 6 and +4

Answer: C



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401. The type of isomerism shown by

$[Co(en)_2(NCS)_2]Cl$ and $[Co(en)_2(NCS)Cl]NCS$ is,

A. Co-ordination

B. Ionisation

C. Linkage

D. All above

Answer: B



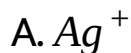
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402. When ammonia, is added to green aqueous solution of nickel (II) sulphate, the colour of the solution changes to blue violet. This is caused by:



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403. Which of the following cations does not form an amine complex with excess of ammonia:



D. Na^+

Answer: D



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404. In hexacyanomanganate (II) ion the Mn atom assumes d^2sp^3 -hybrid states. The number of unpaired electrons in the complex is

A. 1

B. 2

C. 3

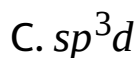
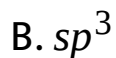
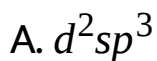
D. 0

Answer: A



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405. Hexafluorocobaltate (III) ion is found to be high spin complex, the probable hybrid state of cobalt in it is:



D. sp^3d^2

Answer: D



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406. The IUPAC name of $K_2[Zn(OH)_4]$ is:

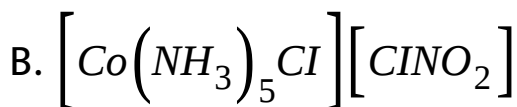
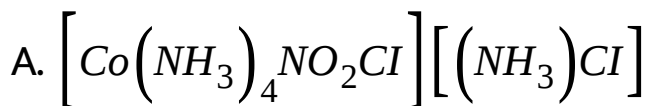
- A. Potassium tetrahydroxyzinc(II)
- B. Potassium tetrahydrozincate(II)
- C. Potassium tetrahydroxyzincate(IV)
- D. Potassium hydroxozinc(II)

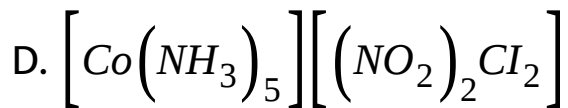
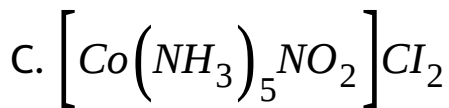
Answer: A



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407. A complex of cobalt has five ammonia molecules, one nitro group and two chlorine atoms for each cobalt atom. One mole of this compound produces three mole ions in aqueous solution which on treating with excess of $AgNO_3$ give two mole of $AgCl$. The formula of the compound is





Answer: C



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408. In lithium tetrahydroaluminate, the ligand is:



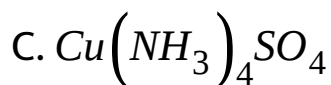
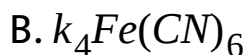
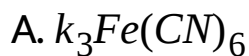
D. None

Answer: C



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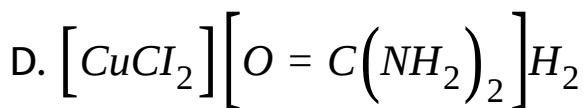
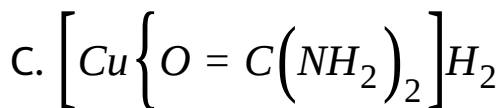
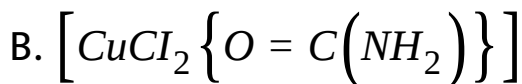
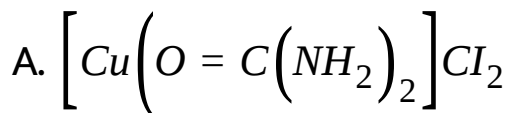
409. In which of the following compounds does the central atom obey EAN rule:



D. All

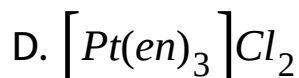
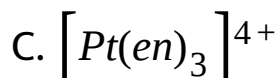
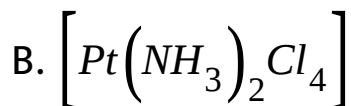
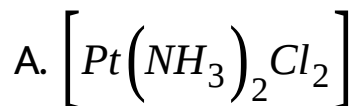
Answer: B

410. The formula of dichlorobis (urea) copper (II) is:



Answer: B

411. Which of the following complexes will show geometrical as well as optical isomerism (where *en* = ethylene diamine)?

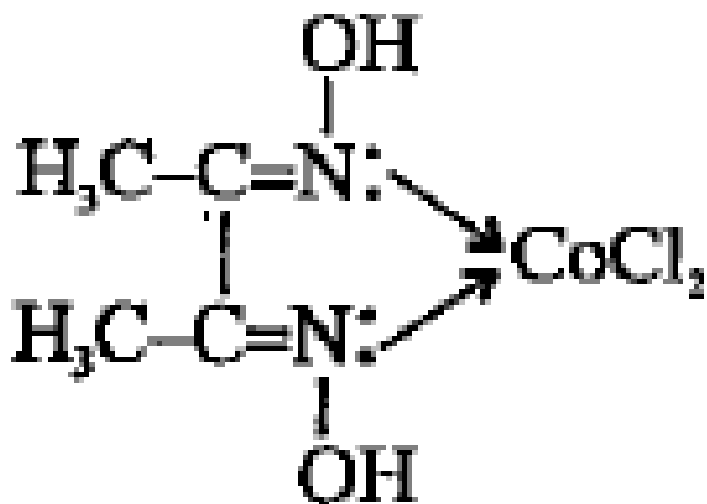


Answer: D



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412. The correct IUPAC name of the complex:



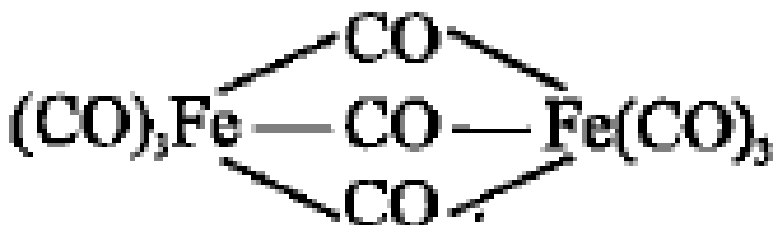
- A. Dichlorodimethylglyoximato cobalt (II)
- B. Bis(dimethylglyoxime) dichloro cobalt (H)
- C. Dimethylglyoxime cobalt(II) chloride
- D. Dichlorodimethylglyoximecobalt(II)

Answer: A



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413. The correct name of



is :

- A. Tri- μ -carbonyl bis (tricarbonyl) iron(0)
- B. Hexacarbonyl iron(III) μ -tricarbonyl ferrate(0)
- C. Tricarbonyl iron(0) μ -tricarbonyl iron(0)
tricarbonyl
- D. Nonacarbonyl iron

Answer: A



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414. 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 sulphocyanate cobalt(II)

Answer: A

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415. The correct IUPAC name of $\text{Fe}(\text{C}_5\text{H}_5)_2$ is:

- A. Cyclopentadienyl iron (II)
- B. Bis(cyclopentadienyl) iron (II)
- C. Dicyclopentadienyl ferrate (II)
- D. Ferrocene

Answer: B

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

- A. Dodecacarbonyl manganate(0)
- B. Dodecacarbonyl mangaiiic(II)
- C. .Dodecacarbonyl trimanganese(0)
- D. Manganic dodecacarbonyl(0)

Answer: C



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417. The IUPAC name of $[CoCl(NO_2)(en)_2]Cl$ is

A. Chloronitro bis(ethylene diammine)

cobaltic(III) chloride

B. Chloronitro bis (ethylene diammine) cobalt (II)

chloride

C. Chloro bis(ethylene diammine) nitro cobalt(III)

chloride

D. Bis(ethylene diammine) chloronitro cobalt (III)

chloride

Answer: C



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418. $K_3 [Al(C_2O_4)_3]$ is called:

- A. Potassium alumino oxalate
- B. Potassium alumino (III) oxalat
- C. Potassium trioxalato aluminate
- D. Potassium trioxalato aluminate (III)

Answer: D



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419. 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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420. The correct name of the compound

$\left[\text{Cu}(\text{NH}_3)_4 \right] (\text{NO}_3)_2$ according to IUPAC system is:

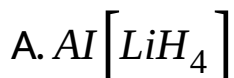
- A. Cuprammonium nitrate
- B. Tetraammine copper (II) dinitrate
- C. Tetraammine copper(II) nitrate
- D. Tetraammine copper(I) dinitrate

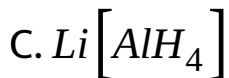
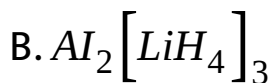
Answer: C



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421. Lithium tetrahydridoaluminate is correctly represented as:





Answer: C



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422. The correct IUPAC name of $K_2 [Zn(OH)_4]$ is:

A. Potassium tetrahydroxyzinc(II)

B. Potassium tetrahydrbxozincate(II)

C. Potassiun tetrahydroxyzincate(IV)

D. Potassium. hydroxozinc(II)

Answer: B



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423. In hexacyanomanganate (II) ion the Mn atom assumes Id^2sp^3 hybrid state. The number of unpaired electrons in the complex is:

A. 1

B. 2

C. 3

D. zero

Answer: A



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424. The correct IUPAC name of $KAl(SO_4)_{2.12}H_2O$ is:

- A. Aluminium potassium sulphate-12-water
- B. Potassium aluminium (III) sulphate-12-water
- C. Potassium aluminate(III) sulphate hydrate
- D. Aluminium (III) potassium sulphate hydrate-12

Answer: B



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425. Out of the following the metal which forms polynuclear carbonyl is:

A. Na

B. Mg

C. Mn

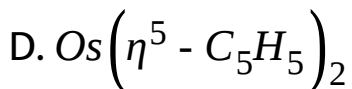
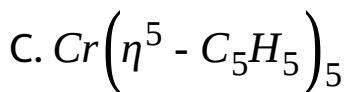
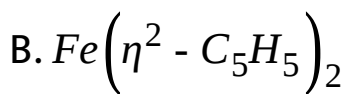
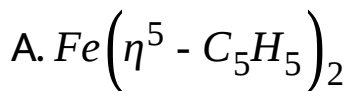
D. All

Answer: C



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426. Ferrocene is:



Answer: A



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427. Number of electrons gained by Pd in $[PdCl_4]^{-2}$

:

A. 4

B. 8

C. 10

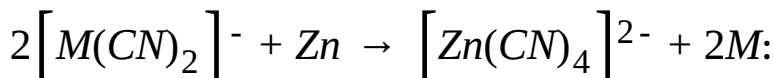
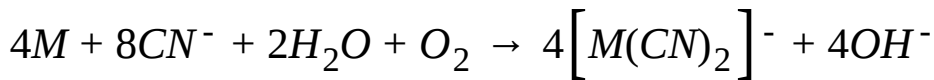
D. Zero

Answer: B



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428. Name the metal M which is extracted on the basis of following reactions



- A. Nickel
- B. Silver
- C. Copper
- D. Mercury

Answer: B



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429. The colour of $\left[\text{Ti}(\text{H}_2\text{O})_6 \right]^{3+}$ is due to:

- A. Transfer of an electron from one Ti to another
- B. Presence of water molecule
- C. Excitation of electrons from
- D. Intramolecular vibration

Answer: C



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430. If NH_4OH is added to the $(PtCl_2)^{2-}$ ion, the complex formed represents:

- A. Zero dipole
- B. Finite dipole
- C. Infinite-dipole
- D. All of the above

Answer: B



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431. The correct IUPAC name of $AlCl_3(EtOH)_4$ is:

- A. Aluminium(II)chloride-4-ethanol
- B. Aluminium(III)chloride-4-ethanol
- C. Aluminium(IV) chloride-4-hydroxy ethane
- D. Aluminium chloride-4-ethanol

Answer: B



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432. The possible number of isomers for the complex $[MCl_2Br_2]SO_4$ is

A. 1

B. 2

C. 4

D. 5

Answer: D



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433. The oxidation number of Pt in $[Pt(C_2H_4)Cl_3]^-$

is:

A. +1

B. +2

C. +3

D. +4

Answer: B



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434. The number of d-electrons in $\left[Cr(H_2O)_6\right]^{3+}$

is:

A. 2

B. 3

C. 4

D. 5

Answer: B



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435. $Fe_2(CO)_9$ is diamagnetic. Which of the following reasons is correct:

- A. Presence of one CO as bridge group
- B. Presence of monodentate ligand
- C. Metal-metal (Fe-Fe) bond in molecule
- D. Resonance hybridisation of CO

Answer: C



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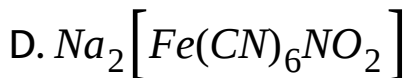
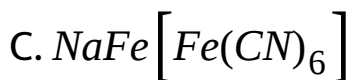
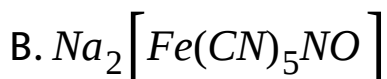
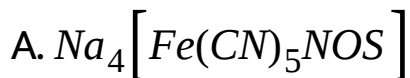
436. The geometry of. $Ni(CO)_4$ and $Ni(PPH_3)_2Cl_2$
are :

- A. Both square planar
- B. Tetrahedral, and square planar respectively
- C. Both tetrahedral
- D. Square planar and tetrahedral respectively

Answer: B

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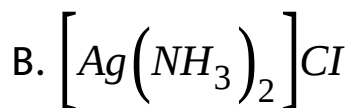
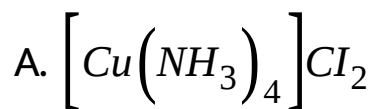
437. The formula of sodium nitroprusside is:



Answer: B

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438. The compound which does not show paramagnetism is:



C. NO

D. NO_2

Answer: B



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439. How many ions can be produced from

$\left[Co(NH_3)_6\right]Cl_3$ in aqueous solution.

A. 6

B. 4

C. 3

D. 2

Answer: B



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440. Which is. not an organometallic compound:

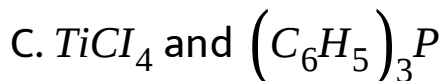
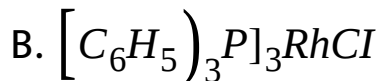
- A. Trimethyl boron
- B. Trimethyl .orthoborate
- C. Diethyl magnesium
- D. Butylethyl, mercury

Answer: B



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441. Wilkinson's catalyst is:



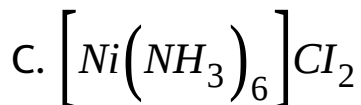
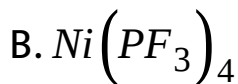
Answer: B



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442. In which of the following compounds the oxidation state of the nickel atom is zero,



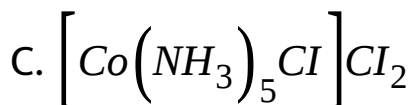
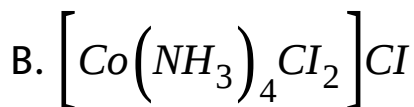
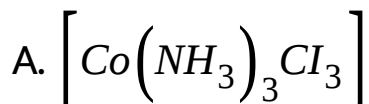


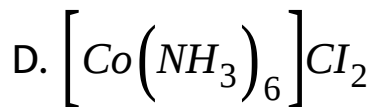
Answer: D



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443. Which of the following is non-ionizable:





Answer: A



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444. The IUPAC name of $Ni(CO)_4$ is

- A. Tetracarbonyl nickel (II)
- B. Tetracarbonylnickel (0)
- C. Tetracarbonylnickel (II)
- D. Tetracarbonylnickel (0)

Answer: B



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445. Which of the following systems has maximum number of unpaired electrons:

A. d^4 (octahedral)

B. d^9 (octahedral)

C. d^7 (octahedral)

D. d^5 (octahedral)

Answer: D



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446. Out of the following which metal forms polynuclear carbonyl :

A. Na

B. Mg

C. Mn

D. All

Answer: C



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447. The planar complex $[M_{ABCD}]$ gives:

- A. Two optical isomers
- B. Two geometrical isomers
- C. Three optical isomers
- D. Three geometrical isomers

Answer: D

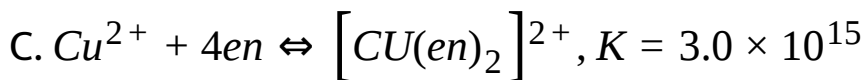
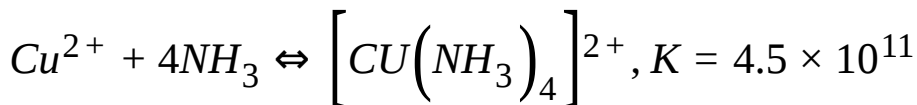


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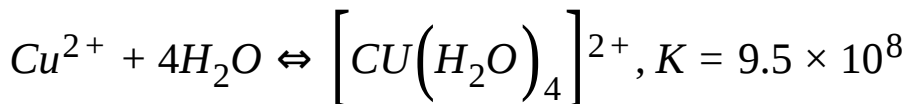
448. From the stability constant (hypothetical values) given below, predict which is the strongest

ligand:

A.



D.

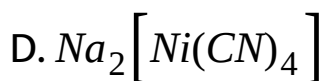
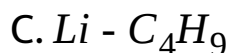
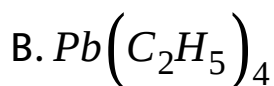
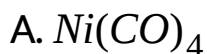


Answer: B



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449. Organometallic compound used in the purification of its metals is:



Answer: A



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450. The incorrect among the following is:

A. Pyridine is a monodentate ligand

B. $[Ni(CN)_4]^{2-}$ is tetrahedral and diamagnetic

C. Organometallic compounds contain, at least one metal-carbon bond

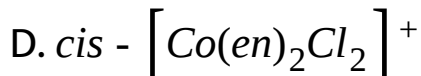
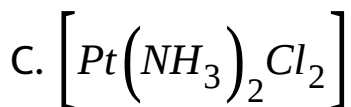
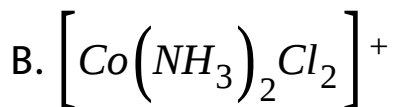
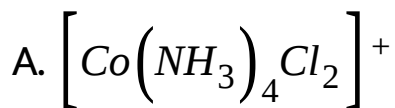
D. The oxidation-state of nickel in $[Ni(CO)_4]$ is zero

Answer: B



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451. Which of the following complexes can form d and l isomers:



Answer: D



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452. An alloy which does not contain copper is :

A. Solder

B. Bronze

C. Anode mud

D. Electrolyte

Answer: A



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453. Which of the following formed during electrorefining of copper can yield gold:

A. Cathode

B. Cathode mud

C. Anode mud

D. Electrolyte

Answer: C



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454. The molten matte obtained from the blast furnace during smelting of copper contains approximately:

A. 90 % Cu

B. 45 % Cu

C. 29 % Cu

D. 80 % Cu

Answer: B



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455. On strongly heating $AgNO_3$ the gases evolved are:

A. N_2O and NO

B. NO_2 and o_2

C. NO and O_2

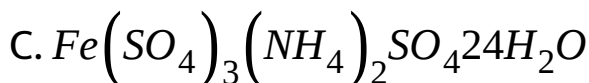
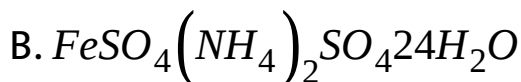
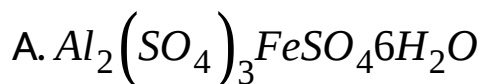
D. NO_2 and NO

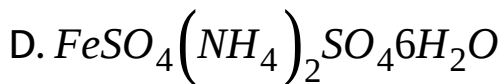
Answer: B



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456. Which of the following represents ferric alum:



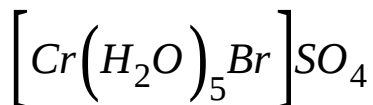


Answer: C



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457. Write the ionisation isomer of



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458. Give an example of two coordination isomers.



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459. Give the preparation of nickel tetra carbonyl.

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460. Write the chemical equation preparation of Ferrocene.

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461. What is tonsil ? Write its functions.

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462. What is the coordination number of EDTA. ?



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463. What is EDTA (Ethylenediamine tetraacetic acid) ?

Give one use.



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464. What type of hybridisation is associated with N

in NH_3 ?



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465. What is double salt ?



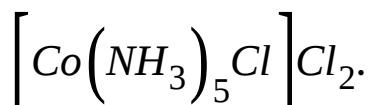
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466. Define coordination number.



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467. Write the name of coordination compound



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

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

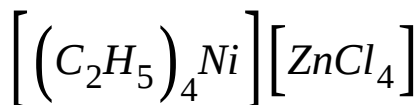
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470. What is the shape of hexacyanoferrate (II) ion ?



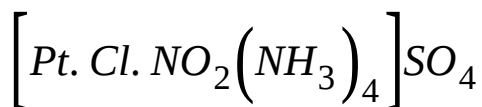
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471. Write IUPAC name of the compound



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472. What is the IUPAC name of the compound



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473. Write the formula of the compound Potassium pentacyanonitrosyl ferrate (III).

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474. Write the IUPAC name of $[Co(en)_2Cl_2]SO_4$

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475. $[Ag(NH_3)_2]NO_3$ is formula of ____.

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476. The composition of carnallite is ____.

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477. Oxidation state of Ni in $[Ni(CO)_4]$ ____.

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478. IUFAC name of $K_3[Co(NO_2)_6]$ is ____.

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479. Fill in the blanks

EDTA is a ligand.



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480. Fill in the blanks

The IUPAC name of $Fe(CO)_5$ is



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481. Fill in the blanks

Ethylene diamine is an example of ligand.



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482. $\left[Co(NH_3)_5Br\right]SO_4$ and $\left[Co(NH_3)_5SO_4\right]Br$ are _____ isomers while $\left[Co(NH_3)_5NO_2\right]Cl_2$ and $\left[Co(NH_3)_5ONO\right]Cl_2$ are _____ isomers.



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483. EDTA is a bidentate ligand . True or False?



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484. Ligand NO is named as :



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485. Alum is an example of simple salt. True or false?



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486. Ethylene diamine is an example of hexadentate

ligand:True/false



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487. $K[PtCl_3(C_2H_4)]$ is Fischer salt.



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488. Donor atom is cyanate is 'S'.



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489. What is ligand ? Give examples.



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490. Write the name of different types of ligands.

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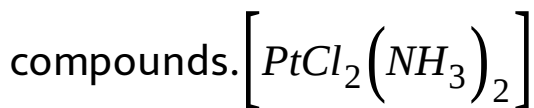
491. What meant by chelate ? Give an example.

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492. Write the IUPAC name of following coordinate compounds. $[CoCl(en)_2NH_3]^{2+}$

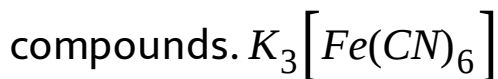
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493. Write the IUPAC name of following coordinate



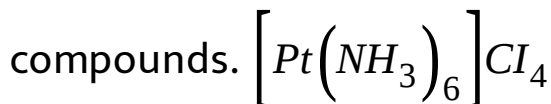
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494. Write the IUPAC name of following coordinate



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495. Write the IUPAC name of following coordinate



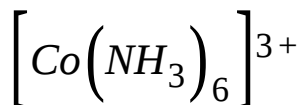
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496. Write the structure of following compound:



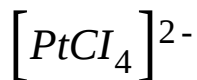
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497. Write the structure of following complex ion



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498. Write the structure of following compounds.



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



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



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501. Define normal salt.



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502. What is complex salt ?



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503. What is chelating ligand ?



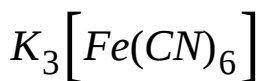
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504. What is Werner's coordination theory ?



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505. What is the IUPAC name of the compound



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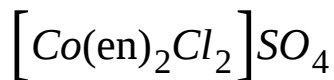
506. Write the formula of the following compound:

Ammonium diamine tetra-thiocyanato chromate (III)



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507. Write the name of the compound :



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508. Write the formula of the following complexes:

Potassium pentachloromonoammine platinate (IV).

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509. What is isomerism ?

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510. What is ligand?



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511. What is chelating ligand ?



Watch Video Solution

512. Define ambidentate ligands. Give one example.



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513. What is EAN rule ?

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514. Give the IUPAC names of



 [Watch Video Solution](#)

515. What is EDTA (Ethylenediamine tetraacetic acid) ?

Give one use.

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516. What is EAN rule ? Give an example.



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517. Explain coordination number with examples.



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518. Mention the geometrical shapes shown by the following types of hybrid orbitals. sp^3



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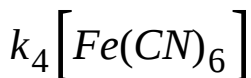
519. Mention the geometrical shapes obtained by the following types of hybrid orbitals dsp^2

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

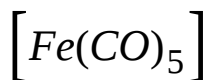
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521. Write the IUPAC name of following complexes.



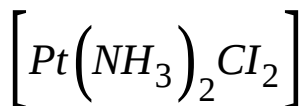
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522. Write the IUPAC name of following complexes.



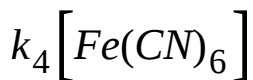
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523. Write the IUPAC name of following complexes.



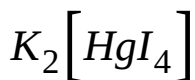
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524. Write the IUPAC name of following complexes.



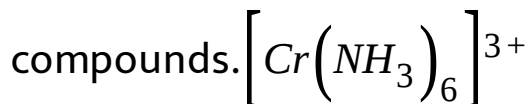
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525. Write the IUPAC name of following complexes.



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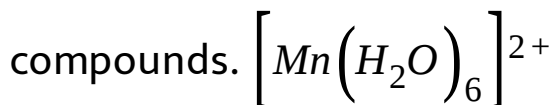
526. Write the IUPAC name of following coordination





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527. Write the IUPAC name of following coordination



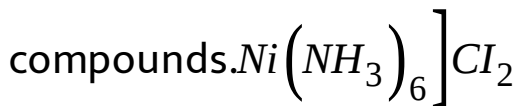
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528. Write the IUPAC name of the following



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529. Write the IUPAC name of following coordination



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530. How coordination compounds are used in analytical chemistry ?



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531. Explain hydrate isomerism. Give some examples.



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532. Distinguish between double salt and complex salt



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533. What are the different types of complexes ?



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534. What are the primary valencies ?



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535. What are the secondary valencies ?

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536. What are the drawbacks of Werner's coordination theory ?

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537. What is functional isomerism ? Give one example.

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538. What is Werner's coordination theory ?



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539. What is isomerism ? Discuss structural isomerism in coordination compounds with examples.



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

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541. What is optical isomerism in coordination compounds ? Explain with examples.

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

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



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544. Discuss colour in coordination compounds.



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545. Describe limitations of crystal field theory.



[Watch Video Solution](#)

546. Explain bonding in metal carbonyls.



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547. Discuss various applications of coordination compounds.



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548. From argentite (Ag_2S) ore the method used for obtaining metallic silver is:

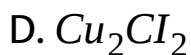
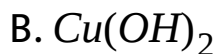
- A. Fused mixture of Ag_2S and KCl is electrolysed
- B. Ag_2S is reduced with CO
- C. Ag_2S is roasted to Ag_2O which is reduced with carbon
- D. Treating argentite with NaCN solution followed by metal displacement with zinc

Answer: D



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549. Which of the following is known as Ruby Copper:



Answer: A



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550. Thermal decomposition method is used to purify:

A. Ni

B. Ti

C. Zr

D. Cr

Answer: A



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551. When ferric chloride is treated with potassium ferrocyanide, we get:

A. Turnbull blue

B. Zeise salt

C. Prussian blue

D. None

Answer: C



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552. Anhydrous $FeSO_4$ is:

A. White

B. Black

C. Green

D. Brown

Answer: A



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553. Chinese white is:

A. ZnO

B. $ZnCO_3$

C. ZnS

D. $ZnS + BaSO_4$

Answer: A



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554. Which of the following has highest ionisation energy:

A. Cu

B. Ag

C. Au

D. All have same ionisation energy

Answer: C



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555. Hair dyes contain:

A. Copper .nitrate

B. Gold chloride

C. Silver nitrate

D. Copper sulphate

Answer: C



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556. Percentage of gold in Fool's gold is:

A. 0

B. 0.08

C. 0.16

D. 0.29

Answer: A



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557. Cu_2Cl_2 absorbs:

A. CO_2

B. SO_2

C. H_2SO_4

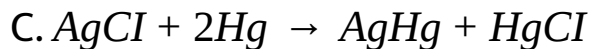
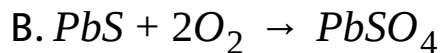
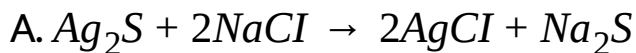
D. CO

Answer: D



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558. Which is an example of chlorodising roasting:



D. Both (a) and ©

Answer: D



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559. Auto-reduction process is used in the extraction of

A. Cu and Hg

B. Zn and Hg

C. Cu and Al

D. Fe and Pb

Answer: A



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560. Wolframite is:

A. SnO_2

B. 98% pure zinc

C. $\text{Na}_2\text{CO}_3 + \text{K}_2\text{CO}_3$

D. $FeMnWO_4$

Answer: D



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561. Oxidation state of mercury in amalgams is:

A. Zero

B. One

C. Two

D. Three

Answer: A



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562. An alloy consisting of 80% Ag + 20% Cu is:

- A. Coinage silver
- B. Sterling silver
- C. Silver amalgam
- D. Worm silver

Answer: B



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563. 860 fine silver means:

A. 14% Cu + 86%Ag

B. 8.6% Ag +91.4% Cu

C. 86%Ag+14%Cu

D. 86%Ag + 26%Cu

Answer: C



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564. The colour of FeF_3 is:

A. Brown

B. Red brown

C. Light green

D. White

Answer: D



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565. The deep red colour of $Fe(SCN)_3$ or $Fe(SCN)_4^-$

is destroyed by addition of:

A. f^-

B. CN^-

C. SCN^-

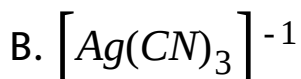
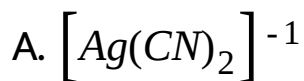
D. Fe^+

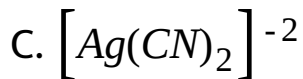
Answer: A



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566. Silver dissolves in the solution of an alkali cyanide in the presence of oxygen to form:



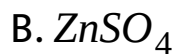
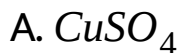


Answer: A



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567. Ferrous sulphate isomorphous with:



Answer: B



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568. All ligands are

- A. Lewis acid
- B. Lewis base
- C. Neutral
- D. None

Answer: B



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569. The scientist who explained the structure of coordination complexes is

A. Sidgwick

B. Pauling

C. Powell

D. Werner

Answer: D



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570. 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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571. Diethylene triamine is:

- A. Chelating agent
- B. Polydentate ligand
- C. Tridentate
- D. All

Answer: D



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572. 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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573. The hybridisation of $[Ni(CN)_4]^{-2}$ ion is:

A. dsp^2

B. sp^2d^2

C. d^2sp

D. sp^2

Answer: A



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574. The IUPAC name of $\left[Cr(NH_3)_4Cl_2\right]NO_3$ is:

A. Tetra amino dishloro chromium nitrate

B. Tetra amino dichloro chromium (III) nitrate

C. Dichloro tetra ammine chromium (III) nitrate

D. Tetra amino dichloro chromium (II) nitrate

Answer: C



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575. Transition elements form complexes because of:

A. Small size of cation

B. Vacant d-orbitals

C. Large ionic charge

D. All

Answer: D



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

A. 36

B. 38

C. 28

D. 54

Answer: A



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577. 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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578. The colour of $FeSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O$ is:

A. Red

B. White

C. Green

D. Blue

Answer: C



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

A. 46

B. 86

C. 36

D. 84

Answer: B



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

A. Inert gas configuration

B. Duplet

C. Octet

D. Quartet



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581. The EAN of nickel in $K_2[Ni(CN)_4]$ is:

A. 35

B. 34

C. 36

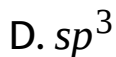
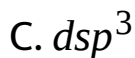
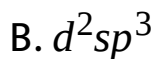
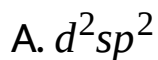
D. 38

Answer: C



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582. The hybridisation of Fe in $K_4[Fe(CN)_6]$ complex is:



Answer: B



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583. The structure of iron pentacarbonyl is:

- A. Square planar
- B. Trigonal bipyramid
- C. Triangular
- D. None

Answer: B



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584. The number of ions formed in aqueous solution

by the compound $\left[Co(NH_3)_4Cl_2\right]Cl$ is:

A. 2

B. 3

C. 4

D. 7

Answer: A



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

- A. Ligands
- B. Radicals
- C. Primary valencies
- D. None

Answer: A



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586. AgO in $Ag(II)$ complex is

- A. Diamagnetic
- B. paramagnetic
- C. Ferromagnetic
- D. Neutral

Answer: A



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587. Nickel (II) tetracyanide complex hasgeometry:

- A. Linear
- B. Tetrahedral

C. Square planar

D. None

Answer: C



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

A. -6

B. +3

C. -3

D. +6

Answer: B



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589. Which statement is not correct

A. $Fe(CO)_5$ reacts with Br_2CI_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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590. Complex forming tendency increases with:

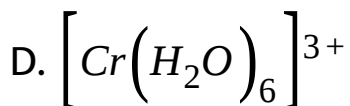
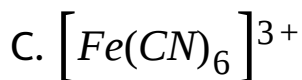
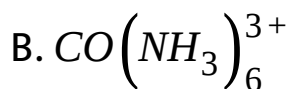
- A. Increase in size of cation
- B. Decrease in size of cation
- C. Increase in size of anion
- D. None

Answer: B



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



Answer: A

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

A. Paramagnetic

B. Diamagnetic

C. Square planar

D. None

Answer: A



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

A. Ca

B. Mg

C. Na

D. K

Answer: B



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595. Among $[\text{Ni}(\text{CN})_4]^{2-}$, $[\text{NiCl}_4]^{2-}$ and $[\text{Ni}(\text{CO})_4]$

:

A. $\text{Ni}(\text{CN})_2^{2-}$ is square planar and NiCN_2^{2-} and

$\text{Ni}(\text{CO})_4$ are tetrahedral

B. NiCN_2^{2-} is square planar and $\text{Ni}(\text{CN})_4^{2-}$ and

$\text{Ni}(\text{CO})_4$ are tetrahedral

C. $\text{Ni}(\text{CO})_4$ is square planar and $\text{Ni}(\text{CN})_4^{2-}$ and

$[\text{NiCl}_4]^{2-}$ are tetrahedral

D. None

Answer: A



596. Among $[Ni(CN)_4]^{2-}$, $[NiCl_4]^{2-}$ and $[Ni(CO)_4]$

:

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

$Ni(CN)_4^{2-}$ is paramagnetic

Answer: C



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597. Co-ordination no. of Fe in $K_3[Fe(CN)_6]$ is:

A. 2

B. 3

C. 4

D. 6



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598. EAN of Fe in $K_3[Fe(CN)_6]$ is.

A. 36

B. 37

C. 38

D. 35

Answer: D



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599. 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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600. 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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601. 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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602. $[Cr(H_2O)_6]^{3+}$ ion has d-electrons equal to:

A. 2

B. 3

C. 4

D. 5

Answer: B



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

- A. Double salt
- B. Complex salt
- C. Acid salt
- D. Acid salt

Answer: A



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

A. Thiocyanato-N

B. Cyanato-N

C. Thiocyanato-S

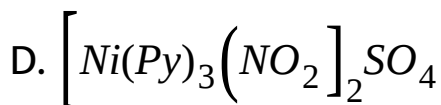
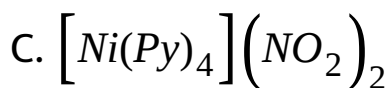
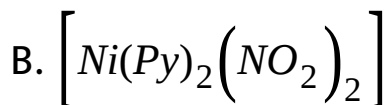
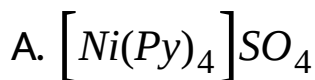
D. Cyanato-S

Answer: A



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

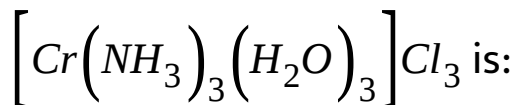


Answer: C



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606. The co-ordination number of Cr in



A. 3

B. 4

C. 6

D. 2

Answer: C



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607. $\left[Co(NH_3)_4Cl_2\right]$ possesses:

A. Square planar geometry

B. Tetrahedral geometry

C. Tetrahedral nature

D. Octahedral geometry

Answer: D



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608. 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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609. Addition of KI to HgI_2 forms complex $K_2[HgI_4]$

having.....

- A. Red colour

B. Blue colour

C. Violet colour

D. Colourless nature

Answer: D



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610. EDTA is a.....ligand:

A. Monodentate

B. Hexadentate

C. Bidentate

D. Tridentate

Answer: B



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

A. $PbCl_2$

B. $AgNO_3$

C. KI

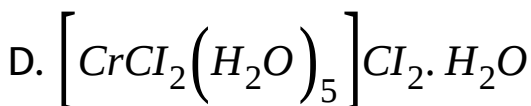
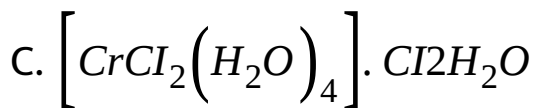
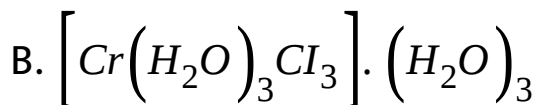
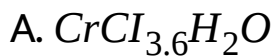
D. None

Answer: A



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612. Which of the following is most likely structure of $CrCl_3 \cdot 6H_2O$ if $1/3$ of total chlorine of the compound is precipitated by adding $AgNO_3$ to its aqueous solution



Answer: C



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613. Complexes with bidentate ligands are called:

- A. Ligands
- B. Chelates
- C. Complexes
- D. None

Answer: B



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

A. Zero

B. 1

C. 2

D. 3

Answer: A



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

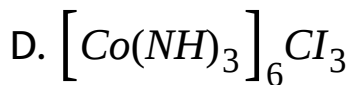
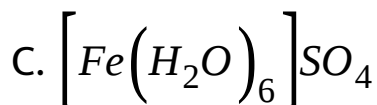
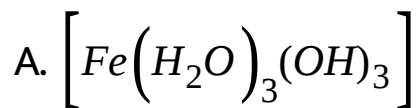
- A. Small size of the metal ion
- B. Large ionic or nuclear charge
- C. Low basicity of metal ions
- D. Non-availability of d-orbitals

Answer: D



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



Answer: B



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617. The number of ions formed on dissolving one molecule of $FeSO_4(NH_4)_2SO_4 \cdot 6H_2O$ in water is:

A. 4

B. 5

C. 3

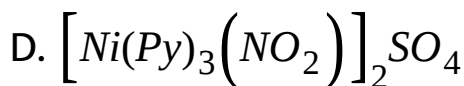
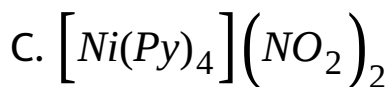
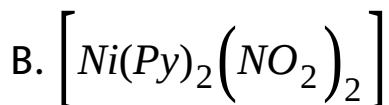
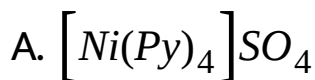
D. 6

Answer: B



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



Answer: C



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

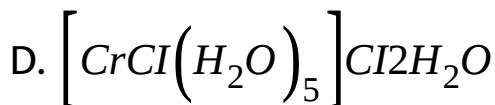
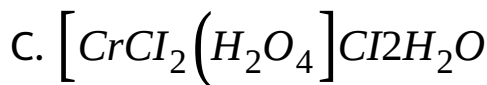
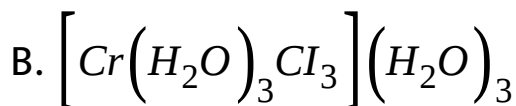
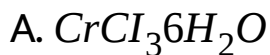
- A. Linkage isomerism
- B. Ionisation isomerism
- C. Co-ordination isomerism
- D. No isomerism

Answer: D



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620. Which of the following is most likely structure of $CrCl_3 \cdot 6H_2O$ if $1/3$ of total chlorine of the compound is precipitated by adding $AgNO_3$ to its aqueous solution



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621. 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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622. The correct IUPAC name of $Fe(C_5H_5)_2$ is:

- A. Cyclopentadienyl iron (II)
- B. Bis (cyclopentadienyl) iron (II)
- C. Dicyclopentadienyl ferrate (II)
- D. Ferrocene

Answer: B



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

- A. Mercury tetrathiocyanato cobaltate(II)

B. Mercury cobalt tetrasulphocyno (II)

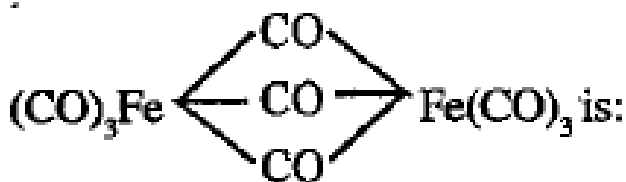
C. Mercury tetrasulphocyanide cobaltate (II)

D. Mercury sulphocyanato cobalt (II)

Answer: A

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624. The correct IUPAC name of



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

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

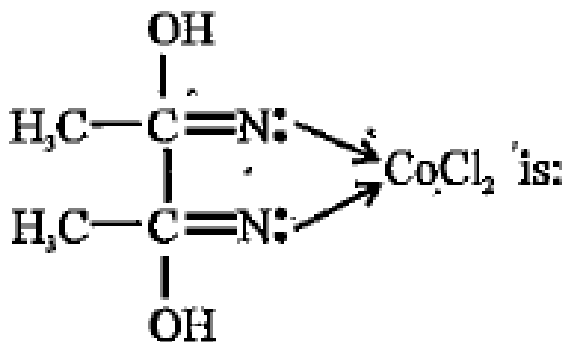
C. Tricarbonyl iron (0) μ -tricarbonyl iron (0) tricarbonyl

D. Nonacarbonyl iron



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625. The correct IUPAC name of the complex:



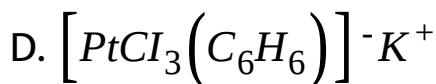
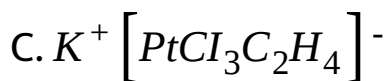
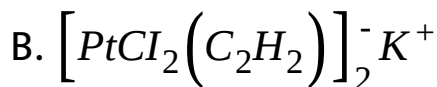
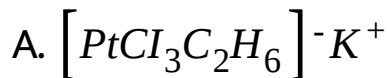
- A. Dischlorodimethylglyoximato cobalt (II)
- B. Bis (dimethylglyoxime) dichloro cobalt (II)
- C. Dichlorodimethyl cobalt (II) chloride
- D. Dichlorodimethyl glyoxime-N, N-cobalt (II)

Answer: D



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



Answer: C



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627. 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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628. 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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629. Which represents a chelating ligand:

A. Cl^-

B. DMG

C. OH^-

D. H_2O

Answer: B



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630. The compounds $[Co(NO_2)(NH_3)_5]Cl_2$ and $[Co(ONO)(NH_3)_5]Cl_2$ are examples of:

A. Geometrical isomers

B. Linkage isomers

C. Ligand isomers

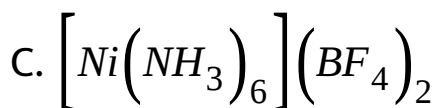
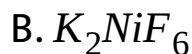
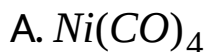
D. Ionisation isomers

Answer: B



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



Answer: B



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632. The IUPAC name of $[CoCl(NO_2)(en)_2]Cl$ is

- A. Chloronitrobis (ethylene diammine) cobaltic (III) chloride
- B. Chloronitrobis (ethylene diammine) cobalt(n) chloride
- C. Chlorobis (ethylene diammine) nitro cobalt (III) chloride

D. Bis (ethylene diammine) chloronitrocobalt (III)

chloride-

Answer: C



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633. The correct name of the compound

$\left[\text{Cu}(\text{NH}_3)_4 \right] (\text{NO}_3)_2$ according to IUPAC system is:

A. Cuprammonium nitrate

B. Tetrammine copper (II) dinitrate'

C. Tetrammine copper (II) nitrate

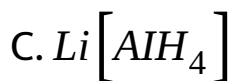
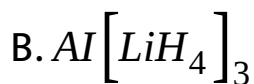
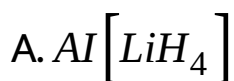
D. Tetrammine copper (II) dinitrate

Answer: C



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634. Lithium tetrahydridoaluminate is correctly represented as:



Answer: C



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635. 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 number 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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636. The co-ordination number and oxidation number of X in the following compound

$\left[X(SO_4)(NH_3)_5 \right]Cl$ will be:

A. 10 and 3

B. 2 and 6

C. 6 and 3

D. 6 and 4

Answer: C



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637. The type of isomerism shown by

$[Co(en)_2(NCS)_2]Cl$ and $[Co(en)_2(NCS)Cl]CNS$ is:

A. Co-ordination

B. Ionisation

C. Linkage

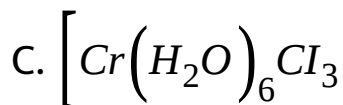
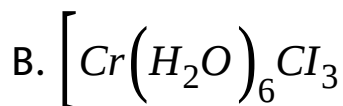
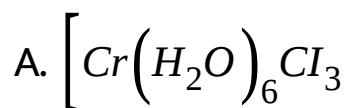
D. All above

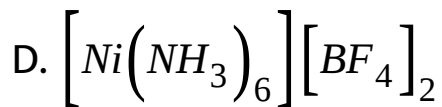
Answer: B



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638. Which of the following compounds would exhibit co-ordination isomerism:





Answer: B



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639. Which is used for the extraction of cadmium from cadmium sulphate ?

- A. Linkage isomerism
- B. Coordination isomerism
- C. Ionisation isomerism
- D. Geometrical isomerism

Answer: A



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640. The complexes given below show and

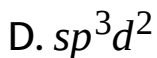
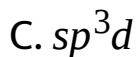
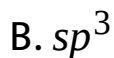
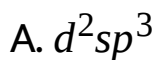
- A. Optical isomerism
- B. Co-ordination isomerism
- C. Geometrical isomerism
- D. Bridged isomerism

Answer: C



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641. Hexafluorocobaltate (III) ion is found to be high spin complex, the probable hybrid state of cobalt in it is:



Answer: D



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642. In hexacyanomanganate (II) ion the Mn atom assumes d^2sp^3 hybrid state. The number of unpaired electrons in the complex is

A. 1

B. 2

C. 3

D. zero

Answer: A



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643. $Fe_2(CO)_9$ is diamagnetic. Which of the following reasons is correct:

- A. Presence of one CO as bridge group
- B. Presence of monodentate ligand
- C. Metal-Metal (Fe-Fe) bond in molecule
- D. Resonance hybridization of CO

Answer: C



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644. Chlorophyll contains the metal:

A. Al

B. Fe

C. Mg

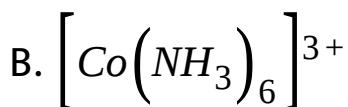
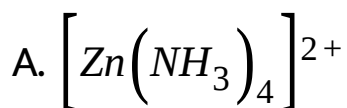
D. Ca

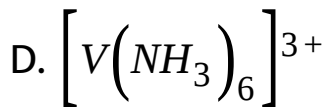
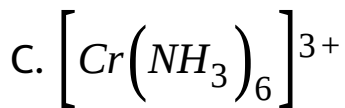
Answer: C



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645. In which there is outer orbital hybridisation:





Answer: D



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646. Ligands in a complex salt are :

A. Anions linked by coordinate bonds to a central metal atom or ion

B. Cations linked by coordinate bonds to a central metal or ion

C. Any species linked by coordinate bonds to a central metal or ion

D. Ions or molecules linked by coordinate bonds to a central atom or ion

Answer: D



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647. A group of atoms can function as a ligand only when:

A. It is a small molecule

B. It has an unshared electron pair

C. It is a negatively charged ion

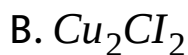
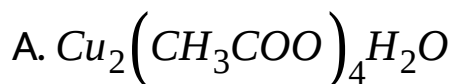
D. It is a positively charged ion

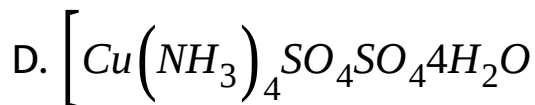
Answer: B



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648. Which is colourless complex:





Answer: B



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649. The structure of $\left[\text{Cu}(\text{H}_2\text{O})_4 \right]^{2+}$ ions is:

- A. Square planar
- B. Tetrahedral
- C. Octahedral
- D. Distorted rectangle

Answer: A



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650. The complex $\left[Pt(NH_3)_6\right]Cl_4$ furnishes:

A. 5 ions

B. 6 ions

C. 4 ions

D. 2 ions

Answer: A



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651. $K_4[Fe(CN)_6]$ is used to detect the presence of:

A. Metallic ion

B. Ferrous ion

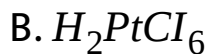
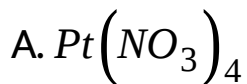
C. Ferric ion

D. None



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652. Aqua regia reacts with Pt to yield:



Answer: B



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653. The shape of cobalt hexa-ammine cation, which has its central cobalt atom surrounded by six ammonia molecules is:

A. Tetrahedral

B. Octahedral

C. Square planar

D. Trigonal

Answer: B



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654. Blue colour/ precipitate will be obtained when

$K_4[Fe(CN)_6]$ reacts with :

A. Fe(II)ions

B. Cu(II) ions

C. Fe(III) ions

D. Cu(I) ions



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655. Ligand in the complex $[FeCN)_6]^{3-}$ ion is

A. CN^-

B. N

C. Fe

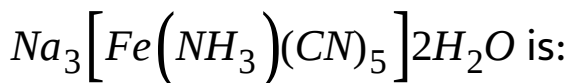
D. C

Answer: A



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656. The oxidation state of Fe in



A. -1

B. +1

C. +2

D. +3

Answer: C



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657. The primary valency of Fe in $K_3[Fe(CN)_6]$ is

A. 3

B. 2

C. 1

D. Zero

Answer: C



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658. The shape of $[Cu(NH_3)_4]Cl_2$ is:

- A. Tetrahedral
- B. Octahedral
- C. Square planar
- D. Pyramidal

Answer: C



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659. If a compound absorbs violet colour from the sunlight, then the observed colour is:

A. Yellow

B. Orange

C. Blue

D. Green

Answer: A



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660. The oxidation state of Cu in $\left[Cu(NH_3)_4 \right] SO_4$

is:

A. -1

B. +1

C. +2

D. Zero

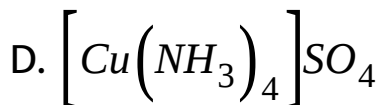
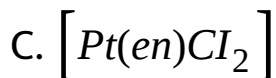
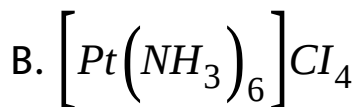
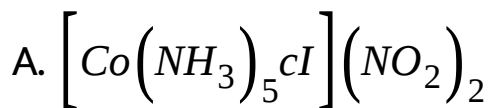
Answer: C



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661. Which will give a white precipitate with $AgNO_3$

in



Answer: B



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662. In $\left[Co(NH_3)_4Cl_2\right]Cl$ the co-ordination number of cobalt is

A. 4

B. 6

C. 2

D. 7

Answer: B



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663. The co-ordination number of Cu in copper ammonium sulphate is:

A. 2

B. 4

C. 3

D. 6

Answer: B



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664. The number of ions given by $\left[Co(NH_3)_4\right]Cl_3$

in aqueous solution is:

A. 2

B. 3

C. 1

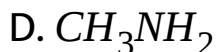
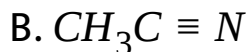
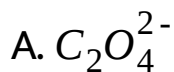
D. 4

Answer: D



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665. Which ligand is expected to be bidentate:



Answer: A



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666. A group of atoms can function as a ligand only when:

- A. It is a small molecule
- B. It has an unshared electron pair
- C. It is negatively charged ion
- D. It is positively charged ion

Answer: B



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667. In $\left[Cr(NH_3)_4Cl_2\right]Cl$ the ligands are:

- A. NH_3
- B. Cl^- only

C. Both NH_3 and Cl^-

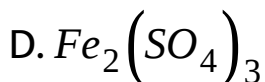
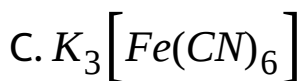
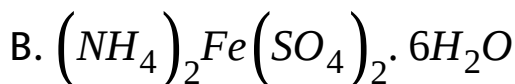
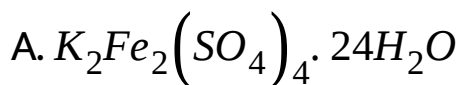
D. Cr , NH_3 , Cl^-

Answer: C



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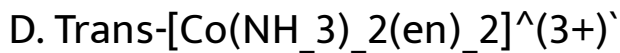
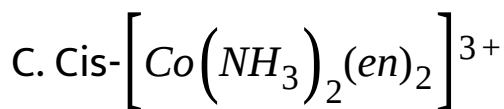
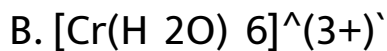
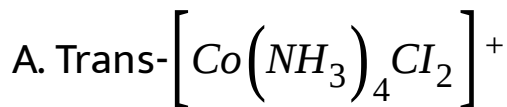
668. Which will not give the usual test for iron:



Answer: C

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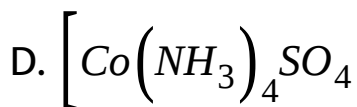
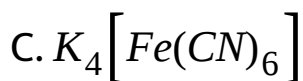
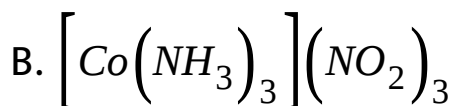
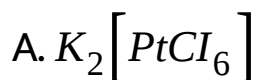
669. Which of the following shows optical activity ?



Answer: C

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670. Pick a poor electrolytic conductor complex in solution:



Answer: D



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671. The complex $\left[Co(NH_3)_3Cl_3\right]$ when dissolved in water gives how many ions:

A. 2

B. 4

C. 3

D. zero

Answer: D



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672. Turnbull's blue is:

- A. Ferricyanide
- B. Ferrous ferricyanide
- C. Ferrous cyanide
- D. Ferri-ferrocyanide

Answer: B



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673. The number of isomeric forms in which

$\left[Co(NH_3)_4Cl_2\right]^+$ ion can occur is :

- A. 2

B. 3

C. 4

D. 1

Answer: A



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674. What is the IUPAC name of the following compound $K_3[Fe(CN)_6]$

A. Potassium hexcyanoferrate (III)

B. Potassium ferrocyanide ion (III)

C. Potassium hexacyanoferrate(II)

D. potassium cyanohexaferrate (II)

Answer: A



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675. The total number of ions produced when one

molecule of $\left[Co(NH_3)_6\right]Cl_3$ undergoes ionisation

is :

A. 1

B. 2

C. 3

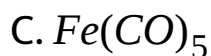
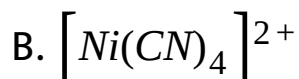
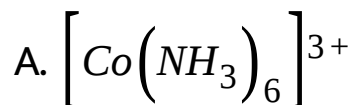
D. 4

Answer: D



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676. Which molecule has tetrahedral geometry



Answer: D



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677. Oxidation number of Fe in $K_3[Fe(CN)_6]$ is:

A. +3

B. +2

C. +10

D. 1

Answer: A



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678. The complex $\left[Co(NH_3)_3Cl_3\right]$ is :

A. Neutral

B. Cationic

C. Anionic

D. None

Answer: A



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679. Complexation is shown by :

A. Ag

B. Au

C. Cu

D. All

Answer: D



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680. A solution of CuCl in NH_4OH is used to measure title amount of which gas is a sample by simply

measuring change in volume:

A. CO_2

B. H_2

C. CO

D. All

Answer: C



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681. Ionisation of $K[Ag(CN)_2]$ will give :

A. K^+ and $[Ag(CN)_2]^-$ ion

B. KCN and AgCN

C. K^+ , Ag^+ , CN^-

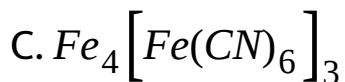
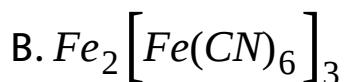
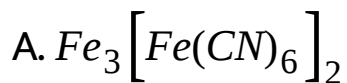
D. None

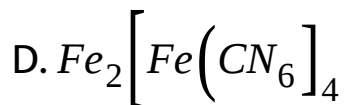
Answer: A



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682. The probable formula for prussian blue is :





Answer: C



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683. The number of ions given by $[Pt(NH_3)_2Cl_4]$ in aqueous solution is :

A. Zero

B. 1

C. 2

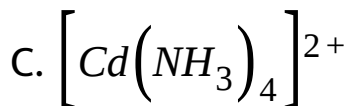
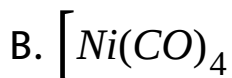
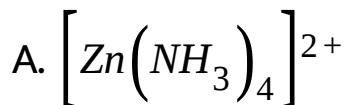
D. 4

Answer: A



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684. Which possesses tetrahedral shape (sp^3 -hybridisation of central atom):



D. All are correct

Answer: D



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685. Which of the following is π complex:

A. Trimethyl aluminum

B. Ferrocene

C. Diethyl zinc

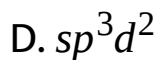
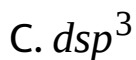
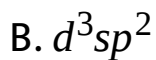
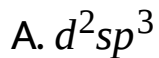
D. Nickel carbonyl

Answer: B



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686. The hybridisation involved in $[CoF_6]^{3-}$ is:

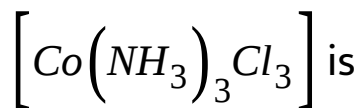


Answer: D



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687. The coordination number of cobalt in



A. 6

B. 5

C. 4

D. 3

Answer: A



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688. The number of ions given by K_2PtCl_6 in aqueous solution is:

A. 2

B. 3

C. 4

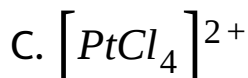
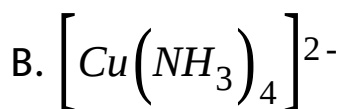
D. Zero

Answer: B



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689. Which complex has square planar shape dsp^2 hybridisation:



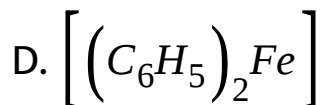
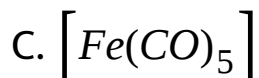
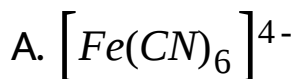
D. All

Answer: D



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690. Formula of ferrocene is:



Answer: D



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691. The number of ions given by $K[Pt(NH_3)Cl_5]$ in aqueous solution is :

A. 2

B. 3

C. 4

D. 1

Answer: A



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692. Which is the strongest field ligand:

A. CN^-

B. NO_3^-

C. NH_3

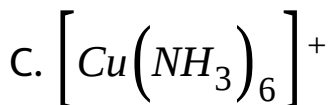
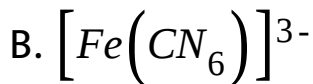
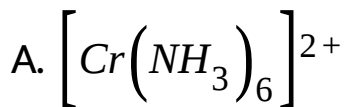
D. En

Answer: A



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693. Which have octahedral shape (d^2sp^3)
hybridisation of central atom :



D. All are correct

Answer: D



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694. The number of precipitable halide ions in

$[Pt(NH_3)Cl_2Br]Cl$ is :

A. 2

B. 3

C. 4

D. 1

Answer: D

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

the examples of :

- A. Linkage isomerism
- B. Geometrical isomerism
- C. Ionisation isomerism
- D. Optical isomerism

Answer: C

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696. The hybridisation involved in $K_3[Fe(CN)_6]$ is :

A. Sp^2

B. d^2sp^3

C. d^3sp^2

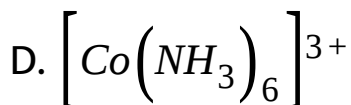
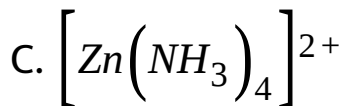
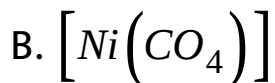
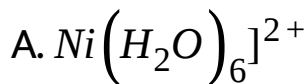
D. sp^3

Answer: B



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697. Which is expected to be paramagnetic:

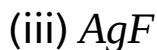


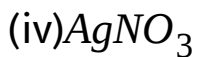
Answer: A



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698. Out of the following which are soluble in-water:





A. (i) (ii) (iii)

B. (iii) (iv) (v)

C. (i) (v) (ii)

D. (ii) (iii) (i)

Answer: B



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699. The alloy of steel that is used for making automobile parts and utensils is :

- A. Nickel steel
- B. Chromium steel
- C. Tungsten steel
- D. Stainless steel

Answer: B



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700. Dental amalgam is composed of:

- A. $\text{Hg} + \text{Ag} + \text{Cd} + \text{Au} + \text{Fe}$
- B. $\text{Cu} + \text{Sn} + \text{Hg} + \text{Ag} + \text{Zn}$

C. Cd + Cu + Ni+Au + Fe

D. Cu + Sn+Au+Hg + CO

Answer: B



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701. Paris green is an insecticide made up of:

A. Arsenious oxide + Copper sulphate + Acetic acid

B. Arsenious oxide + Acetic acid + Copper acetate

C. Stannous chloride + Acetic acid + Copper sulphate

D. Stannous chloride + Acetic acid + Copper acetate

Answer: B



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702. In order to refine blister copper it is melted in a furnace and is stirred with green logs of wood. The purpose is:

- A. To expel the dissolved gases in blister copper
- B. To bring the impurities to surface and oxidise them
- C. To increase carbon content of copper
- D. To reduce the metallic oxide impurities with hydrocarbon gases liberated from the wood

Answer: D



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703. Which reagent would enable you to remove SO_4^{2-} ions from solution containing both SO_4^{2-} and Cl^- ions?

A. NaOH

B. $Pb(NO_3)_2$

C. $BaSO_4$

D. KOH

Answer: B



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704. $AgNO_3$ gives yellow ppt. with:

A. KIO_3

B. KI

C. CHI_3

D. CH_2I_2

Answer: B



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705. Acidic solution of a salt producing deep blue colour with starch and KI . The salt is:

A. Chloride

B. Nitrite

C. Acetate

D. Bromide

Answer: B



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706. On passing H_2S in II gp, sometimes a white turbidity is formed. This is due to:

A. Colloidal sulphur

B. SnS_2

C. Bi_2S_3

D. ZnS

Answer: A



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707. Some salts, although containing two different metal elements give test for only one of them in, solution, such salts are:

A. Normal salts

B. Double salts

C. Complex salts

D. Basic salts

Answer: C



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708. An orange precipitate of II group is dissolved in conc. HCl. The solution when treated with excess of water turns milky due to formation of:

A. $\text{Sn}(\text{OH})\text{Cl}$



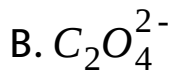
Answer: C



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709. An inorganic salt is heated with ethyl alcohol and . cone. H_2SO_4 , vapours evolved produces green-edged flame on ignition , It indicates the presence of :





Answer: C



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710. An aqueous solution contains Hg^{2+} , Hg_2^{2+} , Pb^{2+} and Sb^{3+} . The addition of HCl (6N) will precipitate :



B. $PbCl_2$ only

C. $PbCl_2$ and Hg_2Cl_2

D. $PbCl_2$ and $HgCl_2$

Answer: C



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711. Arrange :

I Explosive

A- NaN_3

II Artificial gem

A- NaN_3

III Self reduction

C-Sn

IV Magnetic material

D- Al_2O_3

E- $\text{Pb}(\text{N}_3)_2$

F- Fe_2O_3

G-Sn

H-SiC

A. I-A,II-D,III-G,iv-B

B. I-E,II-H,III-C,IV-F

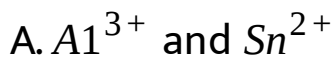
C. I-A,II-D,III-G,IV-F

D. I-E,II-D,III-G,IV-B

Answer: D

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712. Concentrated aqueous sodium hydroxide can separate a mixture of:



Answer: B

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713. Addition of $FeCl_3$ to $K_4Fe(CN)_6$ gives :

A. Prussian blue

B. $Fe_4[Fe(CN)_6]_3$

C. Feniferrocyanide

D. All

Answer: D



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714. Which one is water-soluble:

A. $MgSO_4$

B. $BeSO_4$

C. $CaSO_4$

D. All

Answer: D



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715. Which is not decomposed by $dil.H_2SO_4$

A. Chloride

B. Carbonate

C. Nitrite

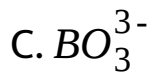
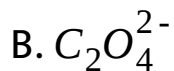
D. Acetate

Answer: A



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716. Which are interfering radicals:



D. All

Answer: D



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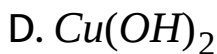
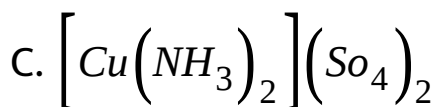
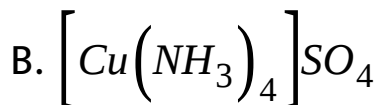
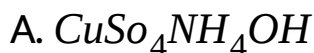
717. A salt which gives brown vapours with cone.

H_2SO_4 and turns water yellow is:

- A. Nitrate
- B. Chloride
- C. Bromide
- D. Iodide

Answer: C

718. In $CuSO_4$ solution, on adding excess of NH_4OH the solution turns blue due to the formation of:



Answer: B

719. Transition metals can form complexes. in:

A. Zero oxidation state (

B. Cation form

C. Anion form

D. All

Answer: D



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720. Bidentate ligand is :

A. CH^-

B. Ethylene diamine

C. EDTA

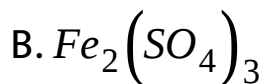
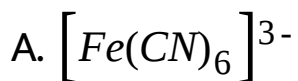
D. SCN^-

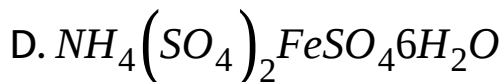
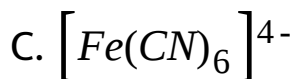
Answer: B



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721. Which will give Fe^{3+} ions in solution :





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

A. 2

B. 4

C. 6

D. 8

Answer: C



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723. The neutral ligand is :

A. Chloro •

B. Hydroxo

C. Ammine

D. Oxalato

Answer: C



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724. The action that does not form an amine complex with excess of ammonia is:

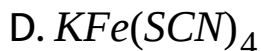
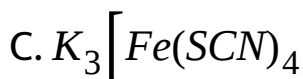
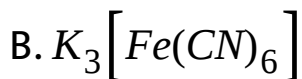
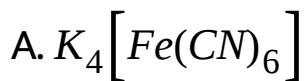


Answer: A



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725. Potassium hexacyanoferrate (II) is:



Answer: A



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726. The EAN of Ni in $Ni(CN)_4^{2-}$ is:

A. 34

B. 35

C. 36

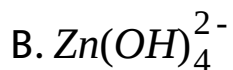
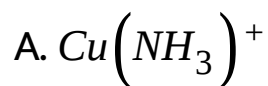
D. 28

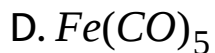
Answer: A



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727. Which does not obey EAN rule:





Answer: A



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728. Which statement about co-ordination number of a cation is true :

A. Most metal ions exhibit only a single characteristic co-ordination number

B. The coordination number is equal to the number of ligands bonded to the central atom

C. The coordination number is determined solely by the tendency to surround the central atom with the same number of electrons as one of the rare gases

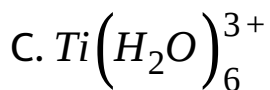
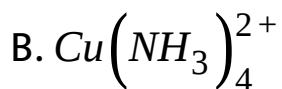
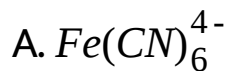
D. For most complexes, the coordination number depends on the size, structure and charge of the ligands

Answer: D



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729. Which complex is diamagnetic:



D. None

Answer: A



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730. Which ion shows usually co-ordination number

6:



D. All

Answer: D



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731. For which transition metal ions spin paired or complexes possible:



D. All are correct

Answer: D



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732. Which ion produces a small crystal field splitting (a weak ligand field) :

A. I^-

B. Cl^-

C. F^-

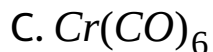
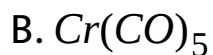
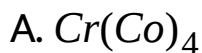
D. All

Answer: D



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733. Chromium carbonyl is:



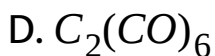
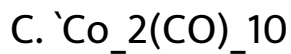
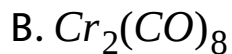
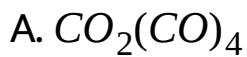
D. None

Answer: C



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734. The formula of a carbonyl complex $[(CO)_nCo - Co(CO)_n]$ in which there is a single covalent $Co - Co$ bond is :



Answer: B



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735. The co-ordination number of Ni in

$[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$ complex is :

A. 2

B. 4

C. 6

D. 5

Answer: C



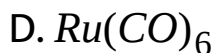
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736. Ruthenium carbonyl is:

A. $Ru(CO)_4$

B. $Ru(CO)_5$

C. $Ru(CO)_8$



Answer: B



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737. For which transition metal ions are high spin or spin free complexes possible



D. All are correct

Answer: D



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738. Which ligand produces a high crystal field splitting:

A. CO

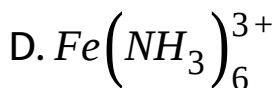
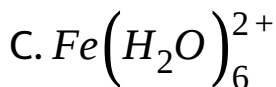
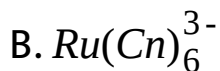
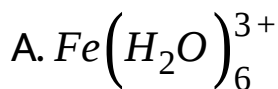
B. NO_2^-

C. CN^-

D. All are correct

Answer: D

739. Of the following complexes, the one with the largest value of the crystal field splitting is:



Answer: B

740. Which ion shows only the co-ordination number 4 in complexes :



Answer: A



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741. Complexes with halide ligands are generally:

A. High spin complexes

B. Low spin complexes,

C. Both (a) and (b)

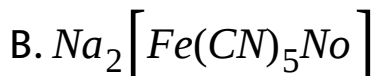
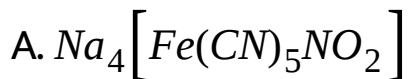
D. None

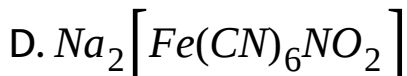
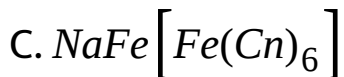
Answer: A



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742. The formula of sodium nitroprusside is:





Answer: B



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743. $[Co(NH_3)_6]Cl_3$ is called :

A. Hexammine cobalt (II) chloride

B. Amino cobalt chloride (DI)

C. Cobalt chloride hexammine

D. Hexammine tricobalt -chloride

Answer: A



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744. Which is correct in the case of $[Ni(CN)_4]^{2-}$ complex :

- A. It involves dsp^2 - hybridisation
- B. It has square planar shape
- C. It is diamagnetic
- D. All are correct

Answer: D



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745. Which is correct in the case of $[NiCl_4]^{2-}$ complex:

A. sp^3 hybridized

B. Paramagnetic

C. Tetrahedral

D. All are correct

Answer: D



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746. The IUPAC name of $Pt. \left(NH_3 \right)_4 NO_2 Cl \left] SO_4 \right.$ is :

A. Chloronitro platinum (IV) sulphate

B. Tetra-ammine chloronitrito platinum (IV)
sulphate

C. Chloronitro tetra-ammine platinum (IV)
sulphate

D. Platinum(IV) tetra-ammine nitrochloro
sulphate

Answer: C



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747. Formation of complex compound can be detected by:

- A. Change in colour
- B. Change in solubility
- C. Change in pH
- D. All are correct

Answer: C



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748. Which is correct in the case of $[Fe(CN)_6]^{4-}$ complex:

- A. Diamagnetic
- B. Octahedral
- C. d^2sp^3 -hybridisation
- D. All are correct

Answer: D



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749. The no. of ions given by $[\text{Pt}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}_2$ in aqueous solution is :

A. 2

B. 3

C. 4

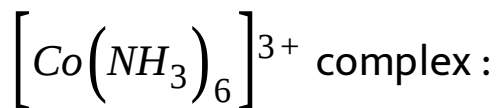
D. 5

Answer: B



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750. Which statement is not correct in the case of



- A. It is octahedral in shape
- B. It involves sp^2 -hybridisation
- C. It has diamagnetic nature
- D. None

Answer: B



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751. Which is true in the case of $[Ni(CO)_4]$ complex:

- A. hybridisation
- B. Tetrahedral shape of the molecule
- C. Diamagnetic
- D. All are correct

Answer: D



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752. The shape of $\left[\text{Cu}(\text{NH}_3)_4 \right]^{2+}$ is square planar:

Cu in this complex is :

A. sp^3 - hybridised

B. dsp^2 -hybridised

C. sp^3d^2 - hybridised

D. sp^3d -hybridised

Answer: B



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753. IUPAC name of $\text{Na}_3[\text{Co}(\text{ONO})_6]$ is :

- A. Sodium cobaltinitrite
- B. Sodium hexanitritocobaltate (III)
- C. Sodium hexanitrocobalt (III)
- D. Sodium hexanitritocobaltate(II)

Answer: B



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754. Which is true in the case of $[\text{Fe}(\text{CN})_6]^{3-}$ complex:

A. d^2sp^3 -hybridisation of Fe

B. Paramagnetic

C. One unpaired electron

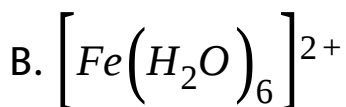
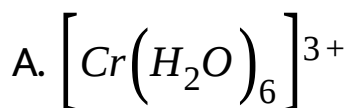
D. All are correct

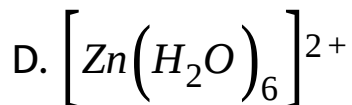
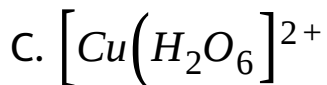
Answer: D



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755. Which has highest paramagnetism:





Answer: B



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756. Colour of transition metal complexes can be explained by:

A. Completely filled J-orbitals

B. Vancant J-orbitals

C. d-d transition

D. None

Answer: C



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757. In complexes, metal atom acts as:

A. Lewis base

B. Bronsted base

C. Bronsted base

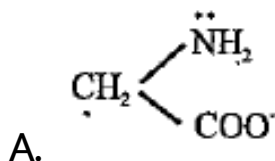
D. Lewis base

Answer: D



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758. Glycinato ligand is:



B. Bidentate ligand

C. Two donor sites N and O^-

D. All

Answer: D



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759. The IUPAC name of $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2]\text{Cl}$ is :

- A. Tetrahydro dichloro chromium (III) chloride
- B. Tetraaquo dichloro chromium (III) chloride
- C. Tetraaquo dichloro chromium(I)chloride
- D. None

Answer: B



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760. The element which does not form mononuclear carbonyl is:

A. Fe

B. Mn

C. Ni

D. W

Answer: B

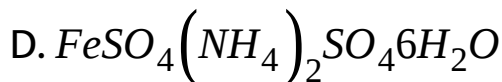
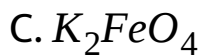


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761. Iron has lowest oxidation state in:

A. $Fe(Co)_5$

B. Fe_2O_3



Answer: A



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762. The charge on cobalt in $[Co(CN)_4]^{3-}$ is:

A. -6

B. +6

C. - + 1

D. -3

Answer: C



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763. Which is not true about ligand- metal complex:

- A. Larger the ligand, the more stable is the metalligand complex
- B. Highly charged ligand forms stronger bonds
- C. Larger the permanent dipole moment of ligand, the more stable is the bond

D. Greater the ionisation potential of central metal, the stronger the bond

Answer: A



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764. Which is not a π -bonded complex:

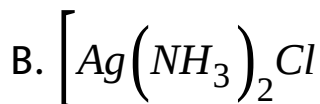
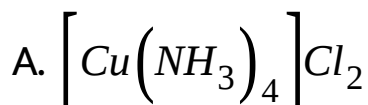
- A. Zeise salt
- B. Ferrocene
- C. Dibenzene chromum
- D. Tbtetraethyl lead

Answer: D



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765. The compound which does not show paramagnetism:



C. No

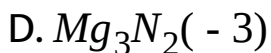
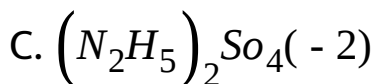
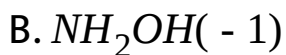
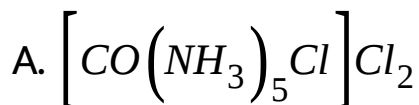


Answer: B



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766. Oxidation state of nitrogen is not correctly given for the compound



Answer: A



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767. Ligands in a complex salt are :

A. Anions linked by co-ordinate bonds to a central metal atom or ion

B. Cations linked by co-ordinate bonds to a central metal atom or ion

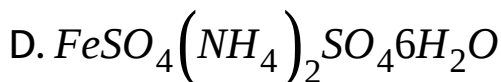
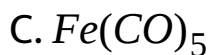
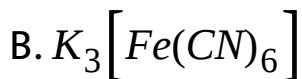
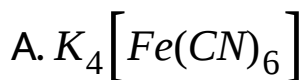
C. Molecules linked by co-ordinate bonds to a central metal or ion

D. Ions or molecules linked by co-ordinate bonds to a central atom or ion,

Answer: D

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768. Iron shows least oxidation number in:



Answer: C

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769. An example of double salt is :

A. Bleaching powder

B. $K_4[Fe(CN)_6]$

C. Hypo

D. Potash, alum'

Answer: D



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770. Oxidation number of Fe in the compound

$Na_4[Fe(CN)_5NO](SO_4) \cdot 2H_2O$ is:

A. 0

B. +1

C. +2

D. +3

Answer: C



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771. Which follows EAN rule:

A. $Fe(Co)_5$

B. $Ni(CO)_4$

C. $\text{K}_4\text{Fe}(\text{CN})_6$

D. All are Correct

Answer: D



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772. In haemoglobin the iron shows oxidation state:

A. +2

B. +3

C. +1

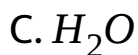
D. +4

Answer: A



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773. Which one is monodentate ligand:



D. All are correct

Answer: D



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774. The oxidation no. of nickel in $K_4[Ni(CN)_4]$ is :

- A. -2
- B. +2
- C. -1
- D. Zero

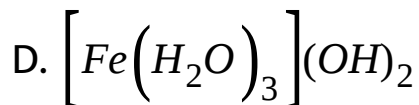
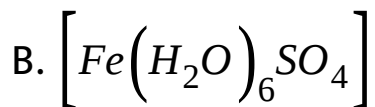
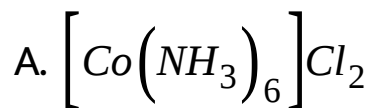
Answer: B



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775. In which complex is the transition metal in zero.

oxidation state:



Answer: C



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776. The number of ions formed when copper ammonium sulphate, is dissolved in water is:

A. 1

B. 2

C. 4

D. Zero

Answer: B



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777. The brown ring complex compound is formulated as $\left[Fe(H_2O)_5(NO)\right]SO_4$. The oxidation state of iron is:

A. +1

B. +2

C. +3

D. 0

Answer: A



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778. The number of d-electrons of Cr(Z=24) in $[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$ ion :

A. 2

B. 3

C. 4

D. 5

Answer: B



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779. NH_2NH_2 serves as :

A. Monodentate ligand

B. Chelating ligand

C. Chelating ligand

D. (a) and (c) both

Answer: D



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780. The oxidation state of Ni in $[Ni(CN)_4]^{2-}$ ion is:

A. -2

B. +2

C. +4

D. 0

Answer: B



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781. The oxidation state of Mo in its oxo-complex

species $\left[Mo_2O_4(C_2H_4)_2(H_2O)_2 \right]^{2-}$ is:

A. +2

B. +3

C. +4

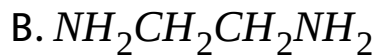
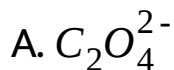
D. +5

Answer: B



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782. Which one is bidentate ligand:



C. Both

D. None

Answer: C



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783. The value of X on the $[\text{Ni}(\text{CN})_4]^x$ is:

A. +2

B. +3

C. Zero

D. Zero

Answer: B



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784. The IUPAC name of $Ni(CO)_4$ is

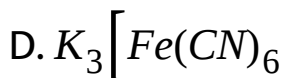
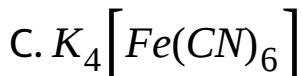
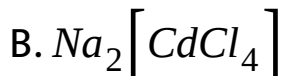
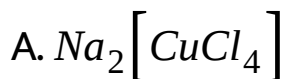
- A. Tefetracarbonyl nickelate (0)
- B. Tbtracarbonyl nickelate (II)
- C. Tetracarbonyl nickel (0)
- D. Tbtracarbonyl nickel (II)

Answer: C



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785. Which of the following compounds is not coloured :



Answer: B



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786. $K_4Fe(CN)_6$ is a :

A. Double salt

B. Basic salt

C. Complex compound

D. Simple salt

Answer: C



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787. In triethylenediamine cobalt (III) chloride the coordination number of cobalt is:

A. 3

B. 4

C. 6

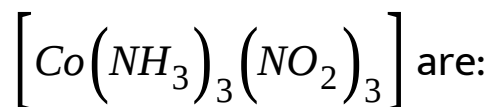
D. 7

Answer: C



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788. The number of geometrical isomers of,



A. Zero

B. 2

C. 3

D. 4

Answer: B



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789. The EAN of Cr in $[Cr(SCN)_6]^{3-}$ is:

A. 35

B. 33

C. 34

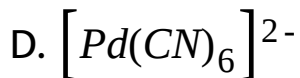
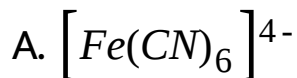
D. 37

Answer: B



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790. In which of the following 10ns has the metal atom EAN as 36:

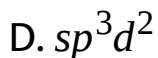
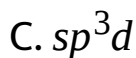
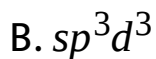
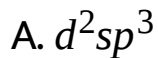


Answer: A



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791. The hybridisation of $[PtCl_6]^{2-}$ ion is:



Answer: D



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792. The tendency to show complex formation is maximum in Elements :

A. s-block

B. p-block

C. d-block

D. f-block

Answer: C



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793. The complex that violates the E AN:

A. Potassium ferrocyanide

B. Potassium ferricyanide

C. Nickel carbonyl,

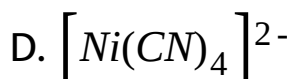
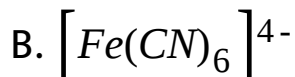
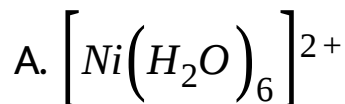
D. Cobalt (II) hexamine chloride

Answer: B



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794. Which ion is paramagnetic



Answer: A



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795. Complexes with CN^- ligands are usually:

- A. High spin complexes
- B. Low spin complexes
- C. Both (a) and (b)
- D. None

Answer: B



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796. The effective atomic number rule is less likely to apply if the metal-ligand bond:

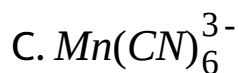
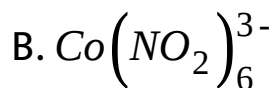
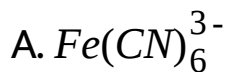
- A. Is extremely weak
- B. Has a covalent character
- C. Has a large amount of ionic character
- D. None is correct

Answer: C



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797. Which is low spin complex:



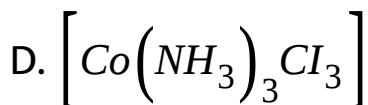
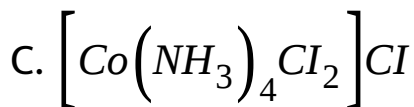
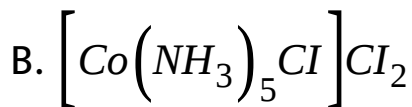
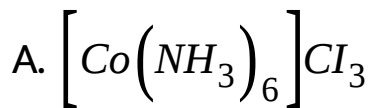
D. All

Answer: A



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798. Which exhibits highest molar conductivity:



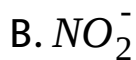
Answer: A



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799. Which ligand is capable of forming low spin well as high spin complexes:

A. CO



Answer: D



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800. The tetrahedral crystal field splitting is only of the octahedral splitting:

A. $1/9$

B. $2/9$

C. 4/9

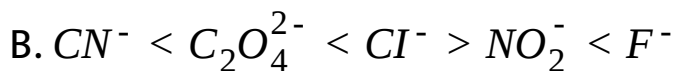
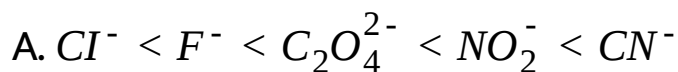
D. 5/9

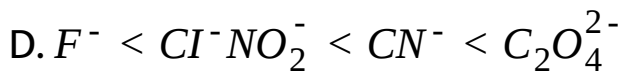
Answer: C



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801. Which order is correct in spectrochemical series of ligands:



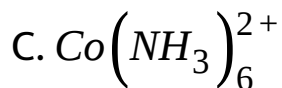
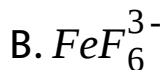


Answer: A



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802. Which is high spin complex:



D. All are correct

Answer: D



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803. A complex shown below can exhibit:

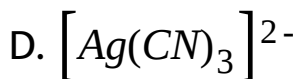
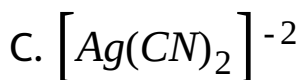
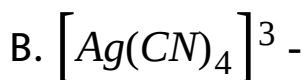
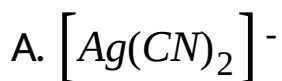
- A. Optical isomerism only
- B. Geometrical isomerism only
- C. Both optical and geometrical isomerism
- D. None

Answer: A



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804. Silver dissolves in the solution of an alkali cyanide in the presence of oxygen to form:

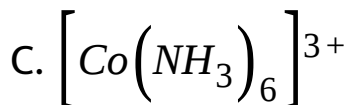
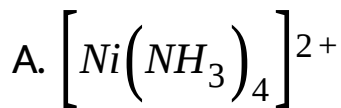


Answer: A



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805. Which ion is paramagnetic

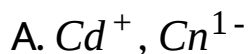
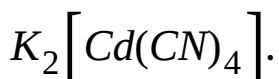


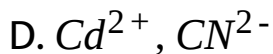
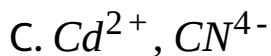
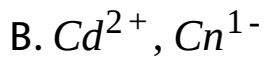
Answer: A



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806. Point out the central ion ligand in the complex



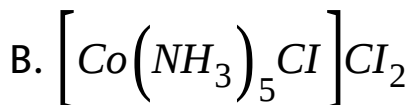
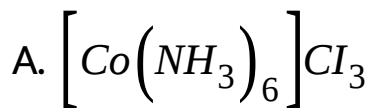


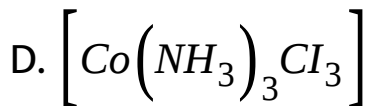
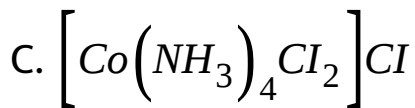
Answer: B



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807. Which one of the following does not give a white precipitate with silver nitrate solution:





Answer: D



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808. in solid $CuSO_4 \cdot 5H_2O$ copper is co-ordinated to:

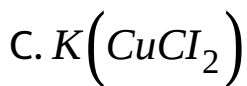
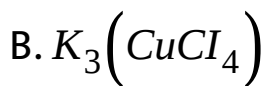
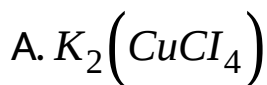
- A. 4 water molecules
- B. 5 water molecules
- C. One sulphate molecule
- D. One water molecule

Answer: A



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809. CuCl is sparingly soluble in H_2O but it dissolves in KCl solution due to the formation of:



D. None

Answer: B

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810. The co-ordination number of copper in the complex formed by adding excess of NH_3 to $CuSO_4$ solution is:

A. 4

B. 2

C. 6

D. 5

Answer: A

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811. The central ion in $\left[\text{Cu}(\text{H}_2\text{O})_4 \right]^{2+}$ ion is :

A. 4

B. 2

C. 6

D. 5

Answer: A



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812. Magnetic moment of $[Ag(CN)_2]^-$ is zero. How many unpaired electrons are there:

A. Zero

B. 4

C. 3

D. 1

Answer: A



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813. CuSO_4 reacts with KCN solution forming a complex. Co-ordination number of copper in the complex is:

A. 2

B. 3

C. 4

D. 6

Answer: C



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814. The unpaired electrons in $[Ni(CO)_4]$ are:

A. Zero

B. 1

C. 2

D. 3



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815. The shape of the complex $Ag(NH_3)_2^+$ is:

A. Octahedral

B. Square planar

C. Tetrahedral

D. Linear

Answer: D



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816. The fraction of chlorine precipitated by $AgNO_3$

solution from $[Cu(NH_3)_5Cl]Cl_2$ is:

A. 1/2

B. 2/3

C. 1/3

D. 1/4

Answer: B



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817. $[Fe(CN)_6]^{4-}$ ion is:

A. Octahedral

B. Square planar

C. Bipyramidal

D. Tetrahedron

Answer: A



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818. Lead sulphate is insoluble in:

A. tConc. HNO_3

B. Ammonium acetate

C. Ammonium hydroxide

D. All

Answer: D



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819. A solution of salt in HCl when diluted with water turns milky. It indicates the presence of:

A. Sn

B. Bi

C. Sb

D. All

Answer: D



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820. The reagent NH_4Cl and aq.ammonia will precipitate:



Answer: B



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821. KCN is used for separating:

A. Co^{2+} and Ni^{2+}

B. Mn^{2+} and Zn^{2+}

C. Ba^{2+} and Ca^{2+}

D. None

Answer: A

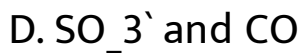
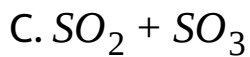


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822. Heating of oxalic acid with cone. H_2SO_4 gives:

A. $\text{CO} + \text{O}_2$

B. CO_2 and CO



Answer: B



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823. Sulphur dioxide may be recognised by its:

A. Characteristic pungent smell of burning

sulphur

B. Ability to turn dichromate paper green

C. Ability to decolourise acidified $KMnO_4$ solution

D. All

Answer: D



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824. Sulphur trioxide gas is:

A. Prepared by heating ferric sulphate

B. An anhydride of H_2SO_4

C. Used for preparing oleum

D. All

Answer: D



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825. Iodine can be obtained from NaI solution by the action of:

A. Cl_2

B. Br_2

C. F_2

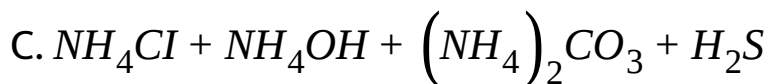
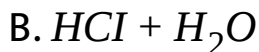
D. All

Answer: D



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826. The group reagent for the analysis of group IIIB is:



Answer: A



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827. Sulphides of cations of analytic group IIB are precipitated by H_2S in:

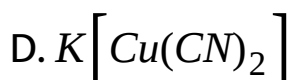
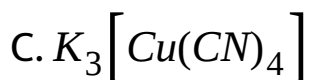
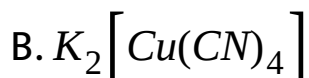
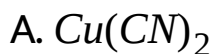
- A. Acidic medium
- B. Neutral medium
- C. Alkaline medium
- D. None of these

Answer: A



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828. CuSO_4 solution reacts with excess of KCN solution to form:

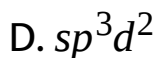
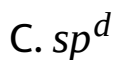
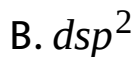
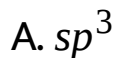


Answer: C



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829. An octahedral complex is formed when central metal atom undergoes hybridisation amongst theorbitals:

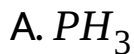


Answer: D



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830. Which one does not belong to ligand:

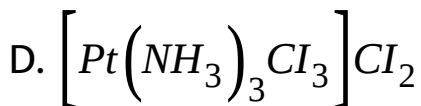
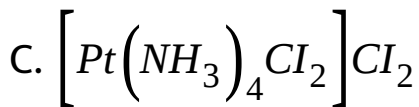
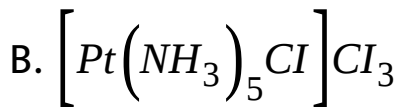
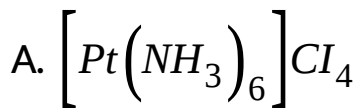


Answer: C



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831. Which of the following has the highest molar conductivity in solution:



Answer: A



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832. $CuSO_4$ reacts with KCN solution forming a complex. Co-ordination number of copper in the complex is:

A. 1

B. 2

C. 4

D. 6

Answer: B



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833. Geometrical isomerism is found in coordination compounds having coordination number:

A. 2

B. 3

C. 4 (tetrahedral)

D. 6

Answer: D



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834. Cis-trans-isomerism is found in square planar complexes of the molecular formula: (a and b are monodentate ligands)

A. Ma_4

B. Ma_3b

C. ma_2b_2

D. Mab_3

Answer: C



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835. The two complexes, given below are:

A. Geometrical isomers

B. Position isomers

C. Optical isomers

D. Identical

Answer: D



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836. Hexafluoroferrate(III)ion is an outer orbital complex. The number of unpaired electrons present in.it is:

A. 1

B. 5

C. 4

D. Unpredictable

Answer: B



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837. The oxidation state of Ag in Tollen's reagent is:

A. Zero

B. +1

C. +2

D. +1.5

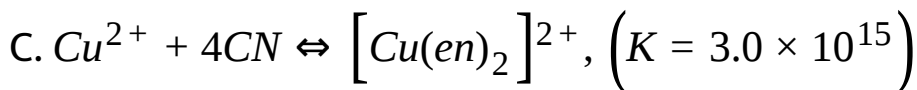
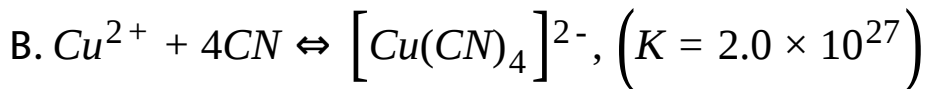
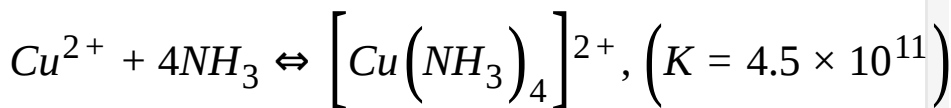
Answer: B



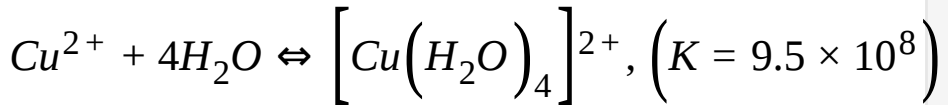
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838. From the stability constant (hypothetical values) given below, predict which is the strongest ligand:

A.



D.



Answer: B



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839. A square planar complex is represented as:

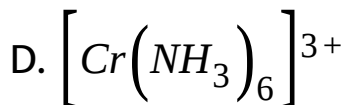
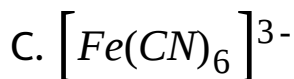
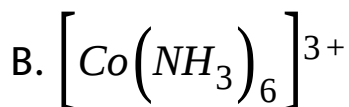
- A. Geometrical isomers
- B. Optical isomerism
- C. Linkage isomerism
- D. None

Answer: A



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840. Which of the following complex species do not involve d_2sp^3 hybridisation:



Answer: A



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841. In the complex $\text{Fe}(\text{CO})_x$, the value of x is:

A. 3

B. 4

C. 5

D. 6

Answer: C



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842. The complex ion $\left[\text{Cu}(\text{NH}_3)_4 \right]^{2+}$ has:

- A. The tetrahedral configuration with one unpaired electron configuration
- B. Square planar configuration with one unpaired electron
- C. Tetrahedral configuration with all electrons paired
- D. Square planar configuration with all electrons paired

Answer: B



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843. The hardness of water is estimated by:

- A. Conductivity method
- B. EDTA method
- C. Titrimetric method
- D. Distillation method

Answer: B



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844. en is an example of a:

- A. Monodentate
- B. Bidentate ligand
- C. Tridentate ligand
- D. Hexadentate ligand

Answer: B



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845. A reagent used for identifying nickel ion is:

A. Potassium ferrocyanide

B. Phenolphthalein

C. Dimethyl glyoxime

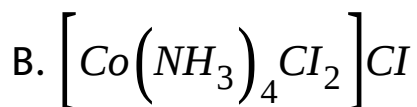
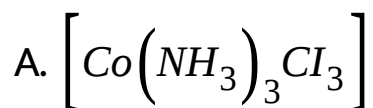
D. EDTA

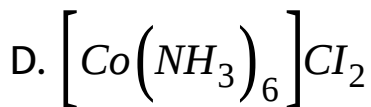
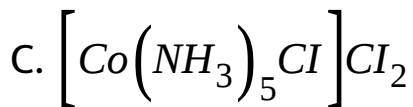
Answer: C



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846. Which of the following is non-ionizable:





Answer: A



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847. The total number of possible isomers of the

compound $\left[Cu^I(NH_3)_4\right]\left[Pt^I Cl_4\right]$ are:

A. 3

B. 5

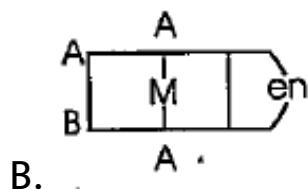
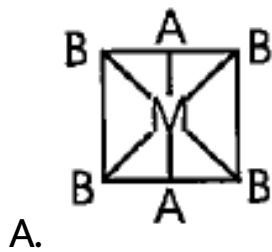
C. 4

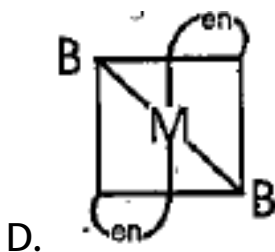
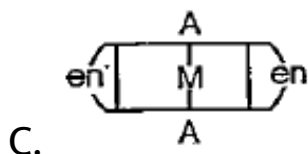
D. 6

Answer: C

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848. The phenomenon of optical activity will be shown by:





Answer: B

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849. The compounds $\left[Co(NO_2)(NH_3)_5\right]Cl_2$ and $\left[Co(ONO)(NH_3)_5\right]Cl_2$ are examples of:

A. Geometrical isomers

B. Linkage isomers

C. Ligand isomers

D. Ionisation isomers

Answer: B

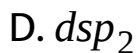
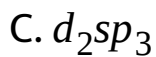


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850. $K_3[CoF_6]$ is high spin complex. What is the hybrid state of Co atom in this complex:

A. sp^3d

B. sp^3d^2

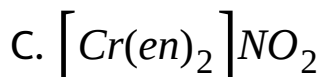
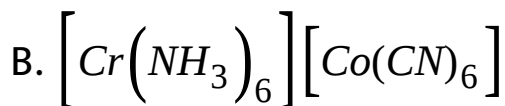
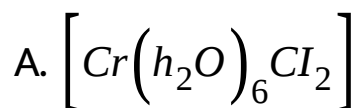


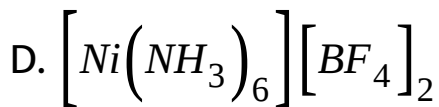
Answer: B



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851. Which of the following compounds would exhibit co-ordination isomerism:

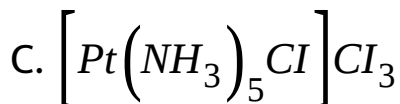
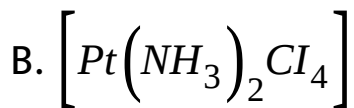
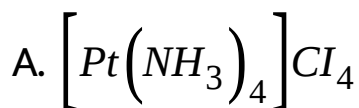


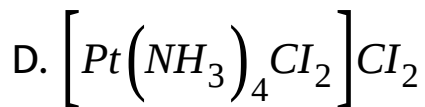


Answer: B

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852. A complex of platinum, ammonia and chlorine produces four ions per molecule in the solution. The structure consistent with the observation is:



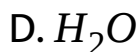


Answer: C



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853. Which of the following represents a chelating ligand:

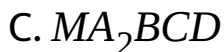


Answer: B



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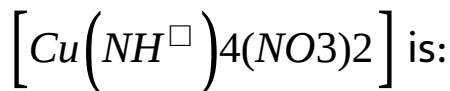
854. Which of the following compounds will exhibit cis-trans isomerism ?



Answer: C

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855. The IUPAC name of the compound

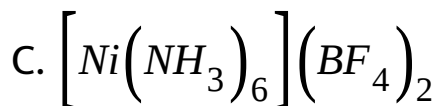
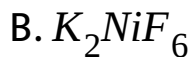


- A. Cuprammonium nitrate
- B. Dinitrato tetra-ammine copper (II)
- C. Tetra-ammine copper (II) dinitrite
- D. Tetra-ammine copper (I) dinitrite

Answer: B

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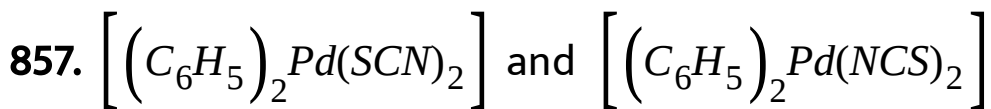
856. Nickel metal is in highest oxidation state in:



Answer: B



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are :

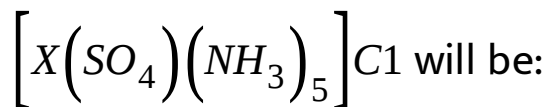
- A. Linkage isomers
- B. Co-ordination isomers
- C. Ionisation isomers
- D. Geometrical isomers

Answer: A



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858. The co-ordination number and oxidation number of X in the following compound



- A. 10 and +3
- B. 2 and +6
- C. 6 and +3
- D. 6 and +4

Answer: C



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859. What type of isomers are the following



A. Co-ordination

B. Ionisation

C. Linkage

D. All above

Answer: B



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860. When ammonia, is added to green aqueous solution of nickel (II) sulphate, the colour of the solution changes to blue violet. This is caused by:

- A. Nickel undergoing a change in oxidation state
- B. Ammonia molecules replacing water molecules surrounding nickel
- C. Change in co-ordination number of nickel
- D. Change in pH value of the s

Answer: B



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861. Which of the following cations does not form an amine complex with excess of ammonia:



Answer: D



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862. In hexacyanomanganate (II) ion the Mn atom assumes d^2sp^3 hybrid state. The number of unpaired electrons in the complex is

A. 1

B. 2

C. 3

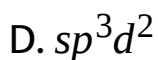
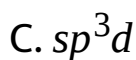
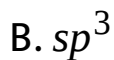
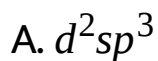
D. 0

Answer: A



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863. Hexafluorocobaltate (III) ion is found to be high spin complex, the probable hybrid state of cobalt in it is:



Answer: D



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864. The IUPAC name of $K_2[Zn(OH)_4]$ is:

- A. Potassium tetrahydroxyzinc(II)
- B. Potassium tetrahydrozincate(II)
- C. Potassium tetrahydrozincate(IV)
- D. Potassium hydroxozinc(II)

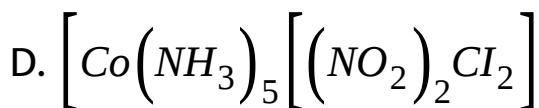
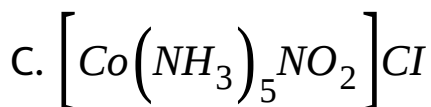
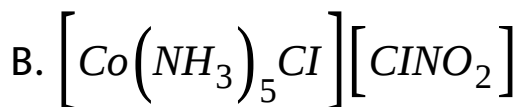
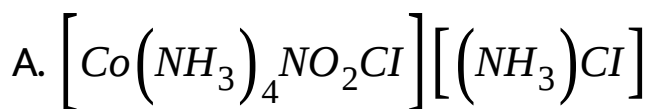
Answer: A



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865. A complex of cobalt has five ammonia molecules, one nitro group and two chlorine atoms

for each cobalt atom. One mole of this compound produces three mole ions in aqueous solution which on treating with excess of $AgNO_3$ give two mole of $AgCl$. The formula of the compound is



Answer: C



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866. Fill in the blanks : In the compound lithium tetrahydrido aluminate, the ligand is

A. Al^+

B. H

C. H^-

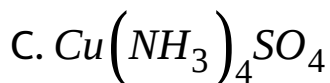
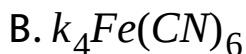
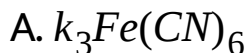
D. None

Answer: C



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867. In which of the following compounds does the central atom obey EAN rule:



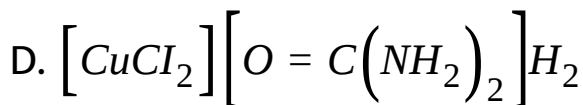
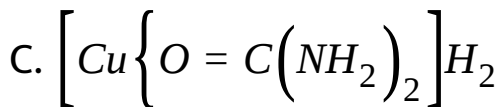
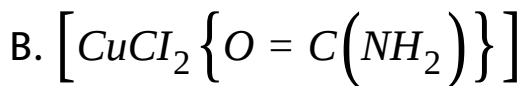
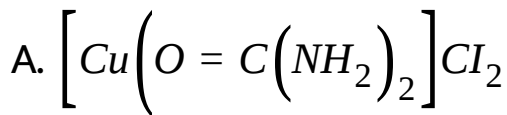
D. All

Answer: B



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868. The formula of dichlorobis (urea) copper (II) is:

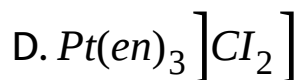
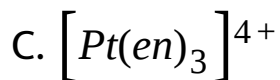
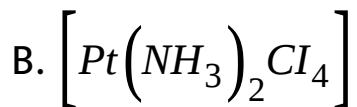
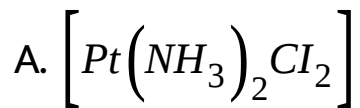


Answer: B



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869. Which of the following complexes will show geometrical as well as optical isomerism (where *en* = ethylene diamine)?

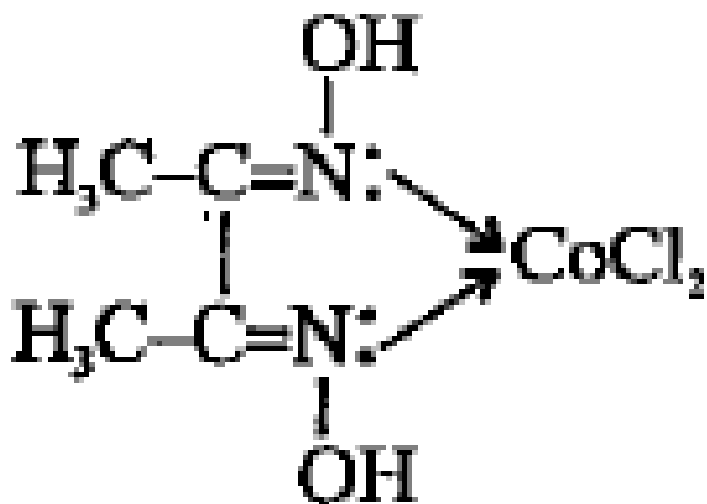


Answer: D



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870. The correct IUPAC name of the complex:



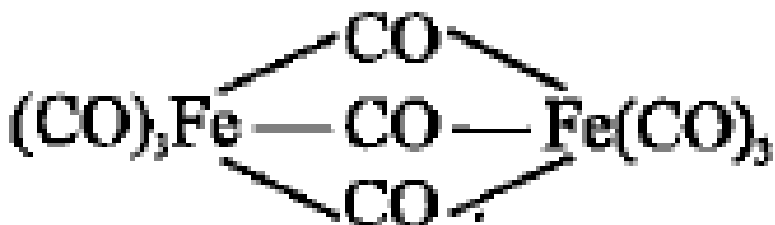
- A. Dichlorodimethylglyoximato cobalt (II)
- B. Bis(dimethylglyoxime) dichloro cobalt (II)
- C. Dimethylglyoxime cobalt(II) chloride
- D. Dichlorodimethylglyxime-N, N-cobalt(II)

Answer: A



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871. The correct name of



is :

- A. Tri- μ -carbonyl bis (tricarbonyl) iron(0)
- B. Hexacarbonyl iron(III) μ -tricarbonyl ferrate(0)
- C. Tricarbonyl iron(0) μ -tricarbonyl iron(0)
tricarbonyl
- D. Nonacarbonyl iron

Answer: A



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872. 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 sulphocyanate cobalt(II)

Answer: A

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873. The correct IUPAC name of $\text{Fe}(\text{C}_5\text{H}_5)_2$ is:

- A. Cyclopentadienyl iron (II)
- B. Bis(cyclopentadienyl) iron (II)
- C. Dicyclopentadienyl ferrate (II)
- D. Ferrocene

Answer: B

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

- A. Dodecacarbonyl manganate(0)
- B. Dodecacarbonyl mangaiiic(II)
- C. .Dodecacarbonyl trimanganese(0)
- D. Manganic dodecacarbonyl(0)

Answer: C



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875. The IUPAC name of $[CoCl(NO_2)(en)_2]Cl$ is

A. Chloronitro bis(ethylene diammine)

cobaltic(III) chloride

B. Chloronitro bis (ethylene diammine) cobalt (II)

chloride

C. Chloro bis(ethylene diammine) nitro cobalt(III)

chloride

D. Bis(ethylene diammine) chloronitro cobalt (III)

chloride

Answer: C



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876. $K_3 [Al(C_2O_4)_3]$ is called:

- A. Potassium alumino oxalate
- B. Potassium alumino (III) oxalat
- C. Potassium trioxalato aluminate
- D. Potassium trioxalato aluminate (III)

Answer: D



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877. 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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878. The correct name of the compound

$\left[\text{Cu}(\text{NH}_3)_4 \right] (\text{NO}_3)_2$ according to IUPAC system is:

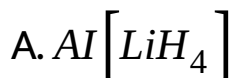
- A. Cuprammonium nitrate
- B. Tetraammine copper (II) dinitrate
- C. Tetraammine copper(II) nitrate
- D. Tetraammine copper(I) dinitrate

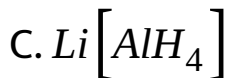
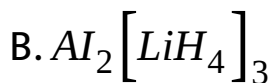
Answer: C



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879. Lithium tetrahydridoaluminate is correctly represented as:





Answer: C



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880. The IUPAC name of $K_2 [Zn(OH)_4]$ is:

A. Potassium tetrahydroxyzinc(II)

B. Potassium tetrahydrbxozincate(II)

C. Potassiun tetrahydroxyzincate(IV)

D. Potassium. hydroxozinc(II)

Answer: B



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881. In hexacyanomanganate (II) ion the Mn atom assumes d^2sp^3 hybrid state. The number of unpaired electrons in the complex is

A. 1

B. 2

C. 3

D. zero

Answer: A



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882. The correct IUPAC name of $KAl(SO_4)_2 \cdot 12H_2O$ is:

- A. Aluminium potassium sulphate-12-watered
- B. Potassium aluminium (III) sulphate-12-water
- C. Potassium aluminate(III) sulphate hydrate
- D. Aluminium (III) potassium sulphate hydrate-12

Answer: B



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883. Out of the following which metal forms polynuclear carbonyl :

A. Na

B. Mg

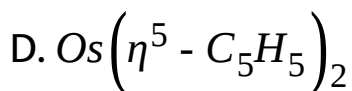
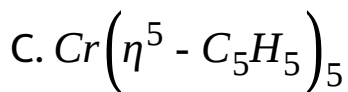
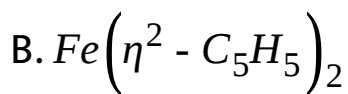
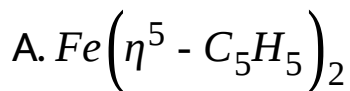
C. Mn

D. All

Answer: C

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884. Formula of ferrocene is:



Answer: A

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885. Number of electrons gained by Pd in $[PdCl_4]^{-2}$

:

A. 4

B. 8

C. 10

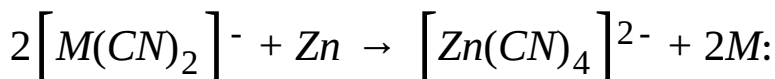
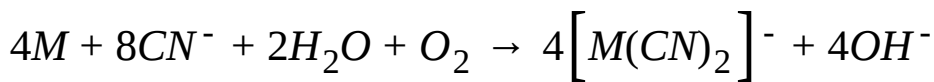
D. Zero

Answer: B



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886. Name the metal M which is extracted on the basis of following reactions



- A. Nickel
- B. Silver
- C. Copper
- D. Mercury

Answer: B



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887. The colour of $\left[\text{Ti}(\text{H}_2\text{O})_6 \right]^{3+}$ is due to:

- A. Transfer of an electron from one Ti to another
- B. Presence of water molecule
- C. Excitation of electrons from
- D. Intramolecular vibration

Answer: C



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888. If NH_4OH is added to the $(PtCl_2)^{2-}$ ion, the complex formed represents:

- A. Zero dipole
- B. Finite dipole
- C. Infinite-dipole
- D. All of the above

Answer: B



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889. The correct IUPAC name of $AlCl_3(EtOH)_4$ is:

- A. Aluminium(n)chloride-4-ethanol
- B. Aluminium(in)chloride-4-ethandl
- C. Aluminium(IV) chloride-4-hydroxy ethane
- D. Aluminium chloride-4-ethanol

Answer: B



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890. The possible number of isomers for the complex $[MCl_2Br_2]SO_4$ is

A. 1

B. 2

C. 4

D. 5

Answer: D



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891. The oxidation number of Pt in $[Pt(C_2H_4)Cl_3]^-$

is:

A. +1

B. +2

C. +3

D. +4

Answer: B



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

A. 2

B. 3

C. 4

D. 5

Answer: B



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893. $Fe_2(CO)_9$ is diamagnetic. Which of the following reasons is correct:

- A. Presence of one CO as bridge group
- B. Presence of monodentate ligand
- C. Metal-metal (Fe-Fe) bond in molecule
- D. Resonance hybridisation of CO

Answer: C



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894. The geometry of $Ni(CO)_4$ and $Ni(PPh_3)_2Cl_2$

are :

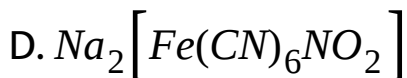
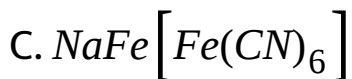
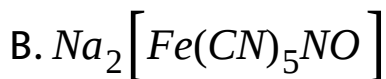
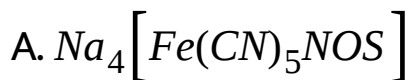
- A. Both square planar
- B. Tetrahedral, and square planar respectively
- C. Both tetrahedral
- D. Square planar and tetrahedral respectively

Answer: B



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895. The formula of sodium nitroprusside is:

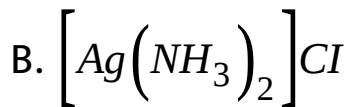
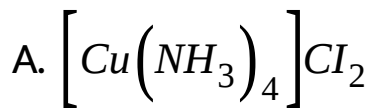


Answer: B



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896. The compound which does not show paramagnetism:



C. NO

D. NO_2

Answer: B



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897. How many ions can be produced from

$\left[\text{Co}(\text{NH}_3)_6 \right] \text{Cl}_3$ in aqueous solution.

A. 6

B. 4

C. 3

D. 2

Answer: B



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898. Which is not an organometallic compound:

A. Trimethyl boron

B. Trimethyl .orthoborate

C. Diethyl magnesium

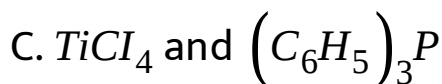
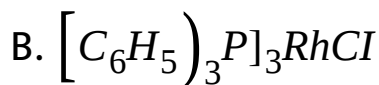
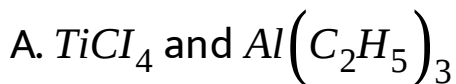
D. Butylethyl, mercury

Answer: B



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899. What is Wilkinson catalyst?

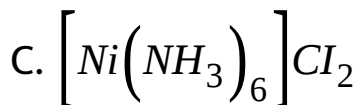
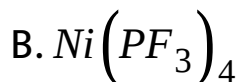


Answer: B



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900. In which of the following compounds the oxidation state of the nickel atom is zero,

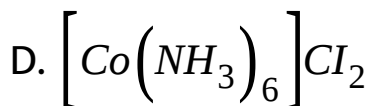
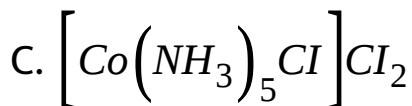
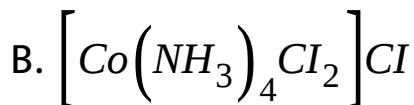
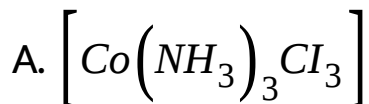


Answer: D



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901. Which of the following is non-ionizable:



Answer: A



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902. The IUPAC name of $\text{Ni}(\text{CO})_4$ is

A. Tetracarbonyl nickel (II)

B. Tetracarbonylnickel (0)

C. Tetracarbonylnickel (II)

D. Tetracarbonylnickel (0)

Answer: B



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903. Which of the following has the maximum number of unpaired electrons ?

A. d^4 (octahedral)

B. d^9 (octahedral)

C. d^7 (octahedral)

D. d^5 (octahedral)

Answer: D



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904. Out of the following which metal forms polynuclear carbonyl :

A. Na

B. Mg

C. Mn

D. All

Answer: C



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905. The planar complex $[M_{ABCD}]$ gives:

A. Two optical isomers

B. Two geometrical isomers

C. Three optical isomers

D. Three geometrical isomers

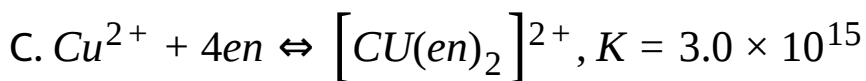
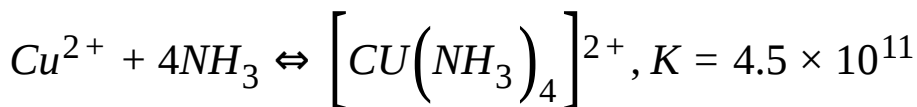
Answer: D



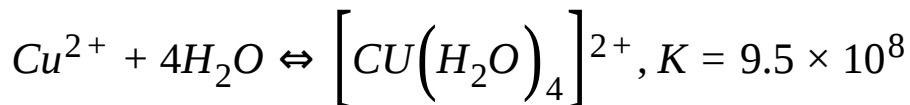
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906. From the stability constant (hypothetical values) given below, predict which is the strongest ligand:

A.



D.

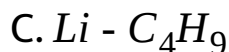
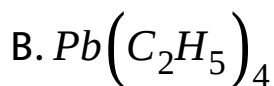
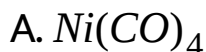


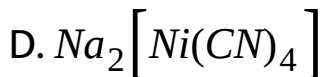
Answer: B



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907. Organometallic compound used in the purification of its metals is:





Answer: A



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908. The incorrect among the following is:

- A. Pyridine is a monodentate ligand
- B. $[\text{Ni}(\text{CN})_4]^{2-}$ is tetrahedral and diamagnetic
- C. Organometallic compounds contain,
at least one metal-carbon bond

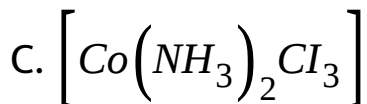
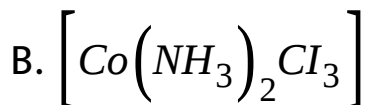
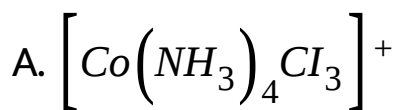
D. The oxidation-state of nickel in $[Ni(CO)_4]$ is

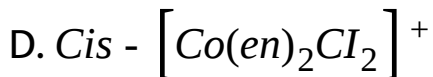
zero

Answer: B

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909. Which of the following complexes can form d and l isomers:





Answer: D



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910. Which of the following alloys does not contain copper?

A. Solder

B. Bronze

C. Anode mud

D. Electrolyte

Answer: A



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911. Which of the following formed during electrorefining of copper can yield gold:

- A. Cathode
- B. Cathode mud
- C. Anode mud
- D. Electrolyte

Answer: C

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912. The molten matte obtained from the blast furnace during smelting of copper contains approximately:

A. 90 % *Cu*

B. 45 % *Cu*

C. 29 % *Cu*

D. 80 % *Cu*

Answer: B

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913. On strongly heating $AgNO_3$ we get :

A. N_2O and NO

B. NO_2 and O_2

C. NO and O_2

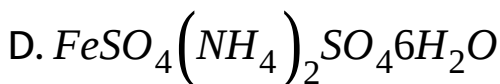
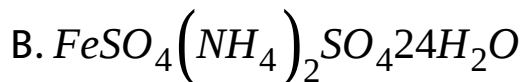
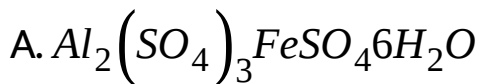
D. NO_2 and NO

Answer: B



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914. Which of the following represents ferric alum:



Answer: C



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