INDIAN SCHOOL NIZWA - WORKSHEET

CHEMISTRY

CH:8 COORDINATION COMPOUNDS

Name: _____ Date:_____ Class:XII Sec: ___

I Write the formula of the following

Di ammine silver (I) cation

Copper hexa cyano ferrate (II)

Potassium tetra cyano nickelate(II)

Pentaammine chlorido platinum (IV) chloride

Potassium tetra cyano nickelate (II)

2. Write IUPAC names of the following

a. $[Co(NH_3)_4Cl_2]^+$

b. $[Cr(H_2O)_5Cl]Cl_2$

c. $[Ni(H_2O)_6](ClO_4)_2$

d. $[Pt(NH_3)_2Cl_4]^{2-}$

e. $Na_3[Cr(OH)_2F_4]$

3. Arrange the following complexes in increasing order of electrical conductivity.

$Co[(NH_3)_5Cl]Cl_2$, $Co[(NH_3)_6]Cl_3$, $Co[(NH_3)_5Cl]Cl$, $[Co(NH_3)_3Cl_3]$

4. Draw the structures of geometrical isomers of the following coordination compounds.

$[Co(NH_3)_3Cl_3]$ and $[CoCl_2(en)_2]^+$

5. Which among $[Ag(NH_3)_2]Cl$, $[Ni(CN)_4]^{2-}$ and $[CuCl_4]^{2-}$ are colourless in aqueous solution and why?

6. Among the coordination complexes $[Co(en)_2(ONO)Cl]$ & $[Ni(CN)_4]^{2-}$

i) which has square planar geometry?

ii) which remains colourless in aqueous solutions and why?

7. Name the type of isomerism exhibited by the following.

a. $[Pt(NO_2)(H_2O)(NH_3)_2]Br$ and $[Pt(NH_3)_2(H_2O)(Br)]NO_2$

b. $[Cr(H_2O)_5SCN]^{2+}$ and $[Cr(H_2O)_5NCS]^{2+}$

c. $[Co(NH_3)_5(NO_2)](NO_3)_2$

8. Draw the structures of the following complexes

   a) $[Pt(NH_3)_4]\,[NiCl_4]$ b) $[Co(NH_3)_4\,(H_2O)_2\,]\,Cl_3$

9. Write the IUPAC name of the coordination isomer of the complex, $[Co(en)_3]\;[Cr(CN)_6]$.

10. Draw the structures of the following complexes

    a)$[Pt(NH_3)_4]\,[NiCl_4]$ b) $[Co(NH_3)_4\,(H_2O)_2\,]\,Cl_3$

    c)Trans $[Co(NH_3)_4\,Cl_2\,]^{+}$ d) cis $[Cr\,Cl_2(ox)_2]^{3-}$

11. Explain how $[Pt(NH_3)_2\,Cl_2]$ and $[Pt(NH_3)_6]Cl_2$ will differ in their electrolytic conductances. Give the hybridization states of Pt in these compounds.[At no: 78]

12. Explain why a chelating complex is more stable than a non chelated complex.

13. CO is a stronger complexing agent than NH_3. Why?

14. Which among the following is more stable complex and why?
    $[Co(NH_3)_6]^{3+}$ and $[Co(en)_3]^{3+}$

15. What type of isomerism is exhibited by the complex $[Co(NH_3)_5\,NO_2]^{2+}$

16. When a coordination compound $CoCl_3.6NH_3$ is mixed with $AgNO_3$, 2 mols of AgCl are precipitated per mole of the compound.
    a) Write the structural formula of the complex.
    b) What is the IUPAC name of the complex?