DPP
DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

Solutions

Subject : CHEMISTRY
DPP No. : 4

Topic :- Coordination Compounds

1 **(a)**

According to Werner's theory, only those ions are precipitated which are attached to the metal atoms with ionic bonds and are present outside the coordination sphere.

$[Pt(NH_3)_6]Cl_4 \rightleftharpoons Pt(NH_3)_6^{4+} + 4Cl^-$

2 **(d)**

It is a fact.

3 **(d)**

In acidic solution, proton coordinate with ammonia to form NH_4^+.NH_4^+ does not act as ligand because nitrogen atom has no lone pair of electrons which it can donate to metal atom

4 **(d)**

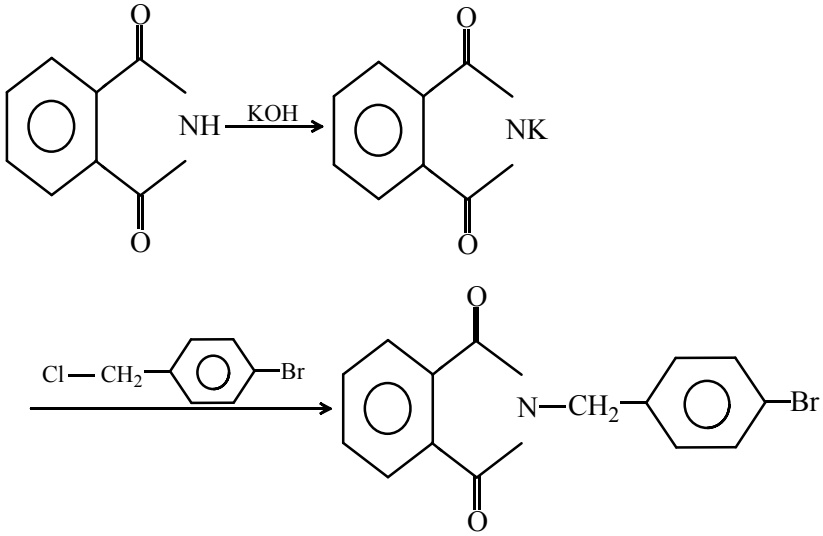
Disubstituted cyclic compounds and disubstituted alkenes show geometrical isomerism

5 **(d)**

$Ag(NH_3)_2^+$ has *sp*-hybridization and linear complex.

7 **(a)**

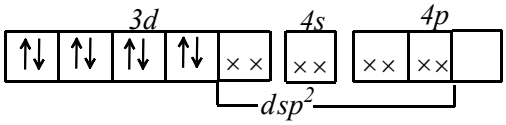
The replacement of Cl is due to the formation of stable benzyl carbocation. Alternatively Cl is present in side chain and thus replaced whereas Br is attached in benzene nucleus.



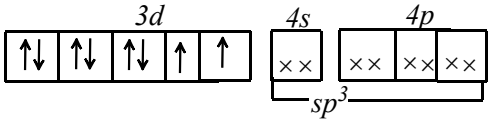
8 **(d)**

The electronic configuration of Ni in $[Ni(CN)_4]^{2-}$, $[Ni(Cl)_4]^{2-}$ and $Ni(CO)_4$ are:

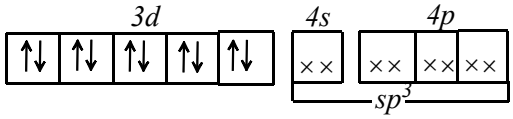
Ni^{2+} in $[Ni(CN)_4]^{2-}$:



Ni^{2+} in $[Ni(Cl_4)]^{2-}$:



Ni in $[Ni(CO)_4]$:



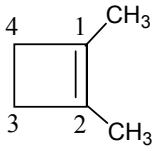
9 **(b)**

Replacement of N_2Cl by halogen atom of $CuX - HX$ from benzene diazonium chloride is called Sandmeyer's reaction.

10 **(c)**

Optical isomerism is shown by the type $[M(AA)X_2Y_2]$, $[M(AA)_3]$, $[M(AA)_2X_2]$

11 **(d)**



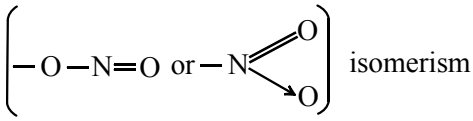
1,2-dimethyl cyclobut-1-ene

12 **(b)**

$HNO_3 + 2H_2SO_4 \longrightarrow NO_2^+ + 2HSO_4^- + H_3O^+$.

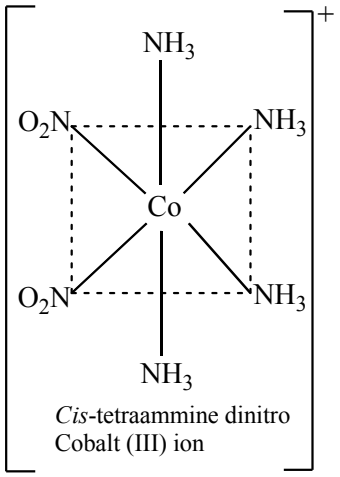
14 **(d)**

(i) $-NO_2$ can show linkage



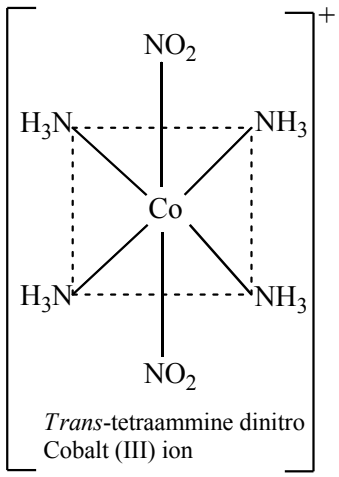
isomerism

(ii)



Cis-tetraammine dinitro Cobalt (III) ion

and



Trans-tetraammine dinitro Cobalt (III) ion

(iii) Also $[Co(NH_3)_4(NO_2)_2]Cl$ has its ionisation isomer as $[Co(NH_3)_4NO_2Cl]NO_2$.

15 **(d)**

Complex	Hybridization
$[Ni(CO)_4]$	sp^3
$[Ni(CO)_4]^{2-}$	dsp^2
$[CoF_6]^{3-}$	sp^3d^2
$[Fe(CN)_6]^{3-}$	d^2sp^3

16 **(d)**

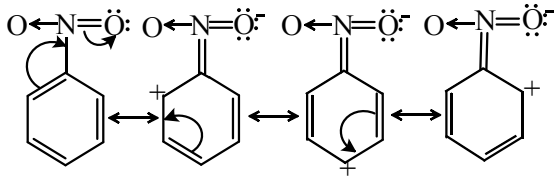
2, 4, 6-trinitrophenol is known as picric acid, an explosive.

17 **(c)**

It is a fact.

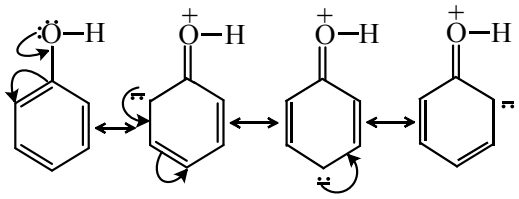
19 **(b)**

OH gp., an *o*- and *p*-directing group activates ring for reactions. The presence of *m*-directing groups in benzene nucleous simply decreases electron density at *o*- and *p*-, whereas no change in electron density at *m*-position is noticed.



On the contrary *o*-and *p*-directing groups in nucleus increases the electron density at *o*- and *p*-position.

Thus, presence of *o*- and *p*-directing groups provide seats for $S_E$reactions or activates the ring, whereas presence of *m*-directing groups does not activate the ring and thus, deactivate the ring for S_E reactions



20 **(a)**

If magnetic moment is zero the species should not have unpaired electrons.

ANSWER-KEY										
Q.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A.	**A**	**D**	**D**	**D**	**D**	**B**	**A**	**D**	**B**	**C**
Q.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
A.	**D**	**B**	**C**	**D**	**D**	**D**	**C**	**D**	**B**	**A**