DPP
DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

Solutions

Subject : CHEMISTRY
DPP No. : 8

Topic :- Coordination Compounds

1 **(a)**

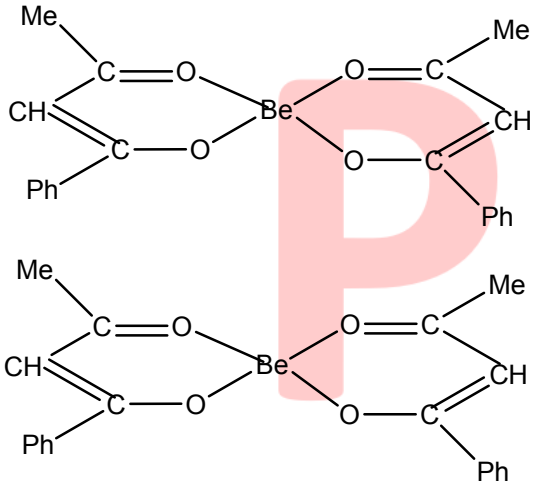
This is Sandmeyer's reaction.

2 **(c)**

p-nitrophenols are more acidic.

3 **(c)**

Benzoylacetonato beryllium exhibit optical isomerism as follows



bis (benzoylacetonato) beryllium (II) complex

4 **(d)**

Cl^- is a weak ligand but Cl^- cause the pairing of electron with large Pt^{2+} and consequently give dsp^2 hybridisation and square planar geometry.

5 **(b)**

It is a double salt;

$FeSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O \longrightarrow Fe^{2+} + 2SO_4^{2-} + 2NH_4^+$

6 **(d)**

Potassium ferrocyanide $K_4[Fe(CN)_6]$ will ionize as

$K_4[Fe(CN)_6] \rightleftharpoons 4K^+ + [Fe(CN)_6]^{4-}$

So, it will give five ions in solution

7 **(b)**

cis-platin is not a organimetallic compound because it has no carbon- metal bonding

8 **(d)**

Follow mechanism of Reimer-Tiemann reaction.

9 **(b)**

When n = even number then for two identical ends, number of geometrical isomers

$= 2^{n-1} + 2^{n/2-1}$

$= 2^1 + 2^0$

$= 3$

10 **(d)**

The characteristics of coordination number.

11 **(d)**

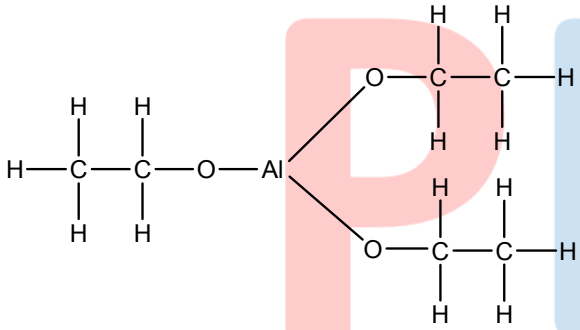
Aliphatic amines are more basic than aromatic amines as the later are more stablised due to resonance.

12 **(d)**

Aromatic hydrocarbons are called arenes with general formula C_nH_{2n-6y}, where $n \prec 6$ and y is no. of cyclic rings. Benzene has one ring and $n = 6$, *i.e.*, no. of carbon atoms. Thus, general formula is C_6H_6. All other aromatic hydrocarbons are derivative of benzene.

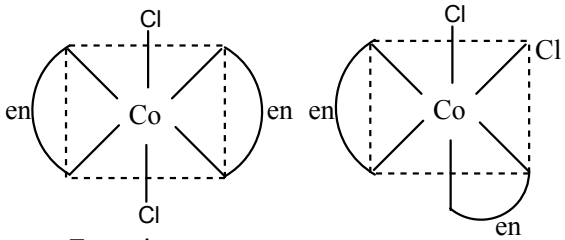
13 **(a)**

$Al(OC_2H_5)_3$ doesn't have metal-carbon bond.(*i.e.*, it is not an example of organometallic compound).



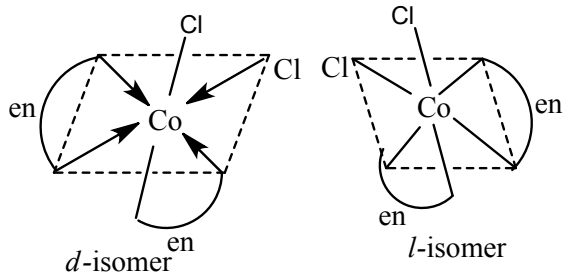
14 **(b)**

In $[Co(en)_2Cl_2]$, four isomers are possible, two geometrical isomers and two optical isomers.



Now, *cis*-isomer also show optical isomerism. *Cis* isomer exists in enantiomeric form as it is unsymmetrical.

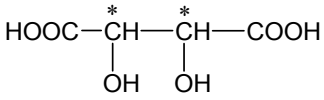
Plane mirror



15 **(b)**

A carbon atom which is attached by four different group is called an asymmetric carbon atom or chiral centre

$HOOC(CHOH)_2COOH$ has two asymmetric carbon atom



16 **(c)**

Each π-electron is delocalised on each C-atom.

17 **(a)**

An orange-red dye is formed with $C_6H_5NH_2$.

19 **(a)**

Thiophene reacts more readily with H_2SO_4 than C_6H_6 giving thiophene sulphonic acid which is water soluble and thus, can be separated from C_6H_6. This can not be made by fractional distillation because thiophene and C_6H_6 both have nearly same b.p.

20 **(b)**

As cobalt is present as CO^{3+} and coordination number of cobalt is 6, the molecular formula of compound should be $CoCl_3.yNH_3$. Now, as it gives a total of three ions when dissolved in water, its structural formula must be

$[CoCl(NH_3)_5]Cl_2$

$[CoCl(NH_3)_5]Cl_2 \rightleftharpoons [CoCl(NH_3)_5]^{2+} + 2Cl^-$

Thus, only one Cl^- ion is satisfying both primary and secondary valency of Co^{3+} in this compound.

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