DPP – 1

SOLUTION

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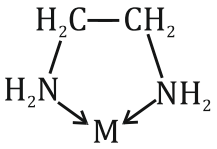
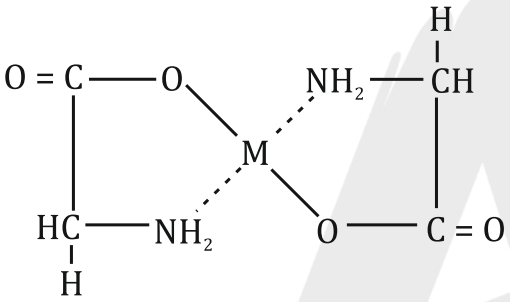
1. **(B)** both have same number of 5 membered ring

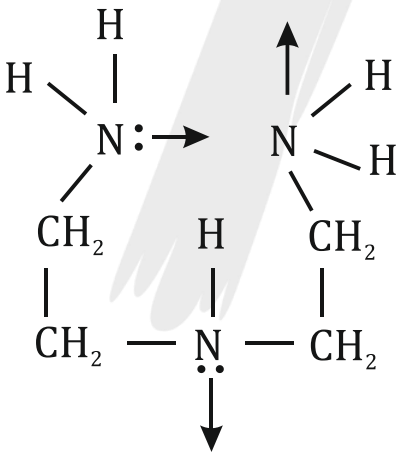


Ethylene Diammine



The structure of chelated metal glycinate

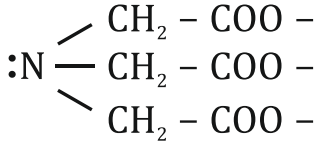
2. **(D)**it is chelating , polydentate as well as tridentate.



3. **(A)**

nta^3 - react with metal ions to form a stable, water-soluble complex. Hence it is a chelating agent but does not have chiral center.

nta^{3-}



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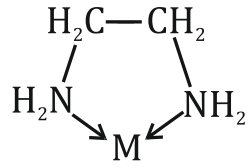
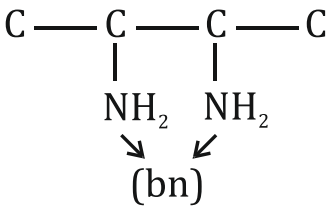
4. **(BC)** both ethylene diamine as well as butylene diamine have same donor atom that is nitrogen.





(bn)

5. **(ABC)**

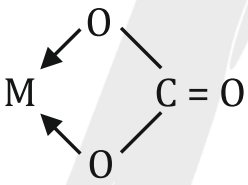
CN^- donate lone pair electrons through C and N, hence CN- is called ambidentate ligand.

$-OCN$ donate lone pair electrons through O and N, hence $-OCN$ is called ambidentate ligand

$NO2^-$ donate lone pair electrons through O and N, hence $NO2^-$ is called ambidentate ligand.

6. **(B)**

Poly-dentate ligands that do not utilise all of their donor atoms to coordinate with the metal ion are known as Flexi-dentate ligands



carbonato complex

unstable

Ethane 1, 2 diamine -Chelating agent

SCN^-- Ambidentate

CO_3^{2-} Flexidentate

NO_2 – Ambidentate

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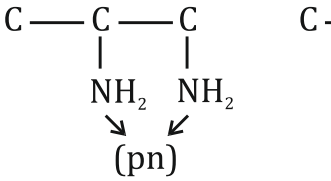
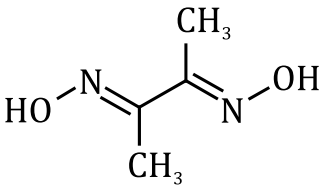
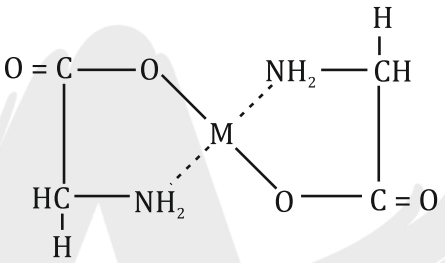
7. **(A)**

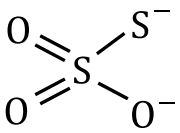
Propyl diamine have chiral centre which cannot be made symmetrical at all giving rotation around any single bond



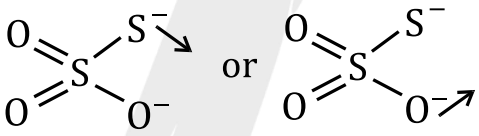




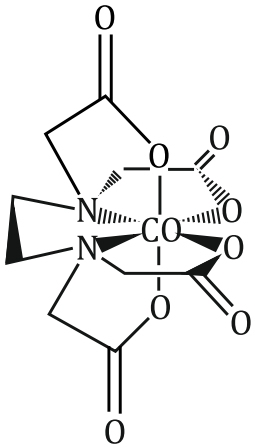
8. **(C)**



It has two donor sites i.e. S^- and 0^- and only one kind of donor site is used for donation. Therefore, it is an ambidentate ligand.



9. **(5)** Total 5 of 5-membered rings present in [Co(EDTA)]– .



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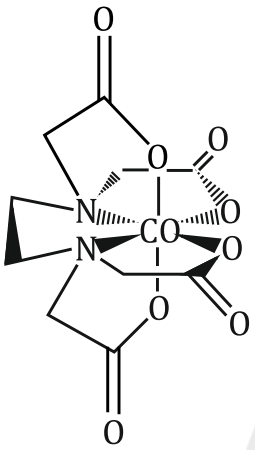
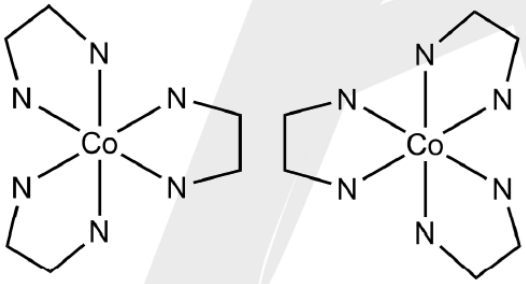
10. (4)

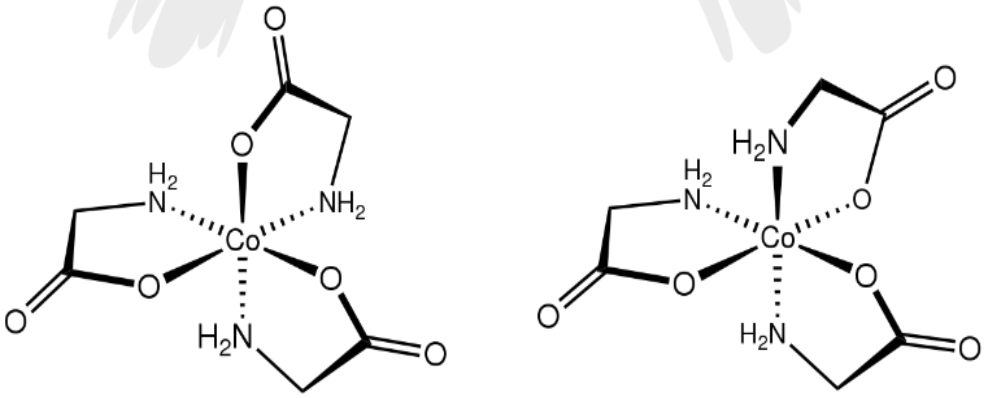
Total 4 complexes have five member chelate ring formed by two carbon atoms, two nitrogen atoms and one central metal



[Co(EDTA)]– have five member chelate ring formed by two carbon atoms, two nitrogen atoms and one central metal



$[Co(en)_3]^{+3}$ - have five member chelate ring formed by two carbon atoms, two nitrogen atoms and one central metal



$[Co(Gly)_3]^0$- do not have five member chelate ring formed by two carbon atoms, two nitrogen atoms and one central metal

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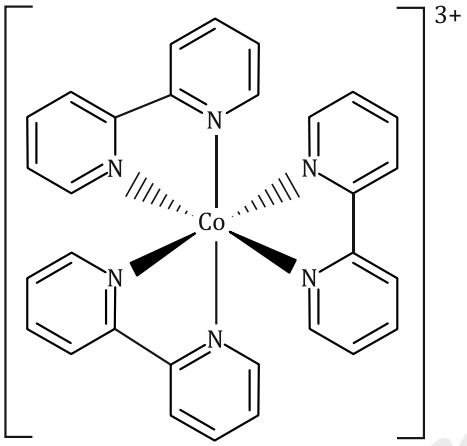
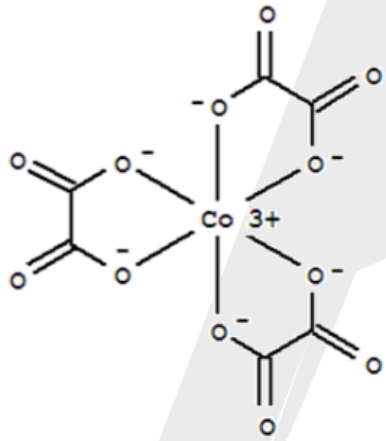
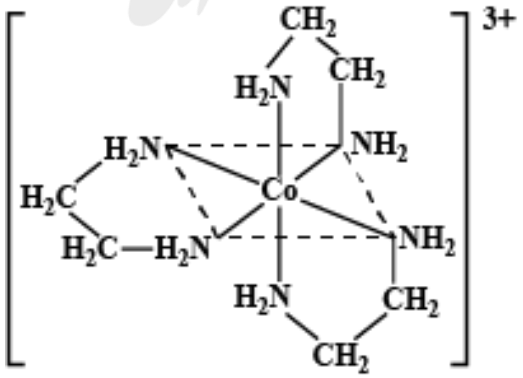


$[Co(bipy)_3]^{+3}$- have five member chelate ring formed by two carbon atoms, two nitrogen atoms and one central metal



$[Co(oxalate)_3]^{-3}$- do not have five member chelate ring formed by two carbon atoms, two nitrogen atoms and one central metal



$[Co(dien)(NH_3)_3]^{+3}$- have five member chelate ring formed by two carbon atoms, two nitrogen atoms and one central metal