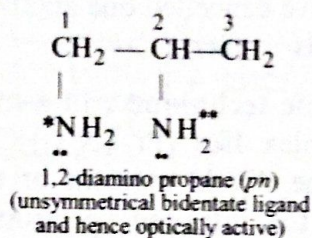
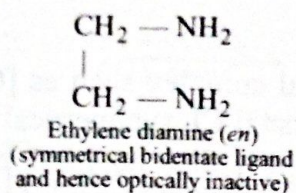
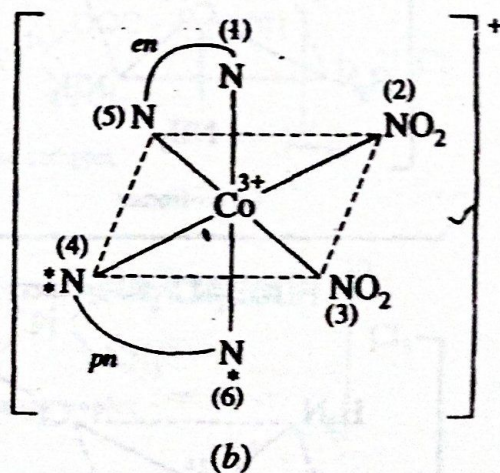
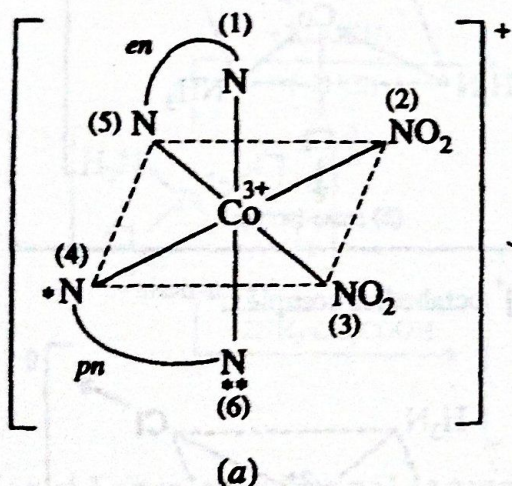


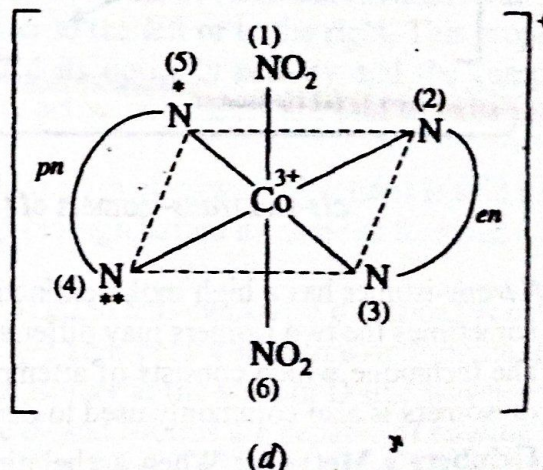
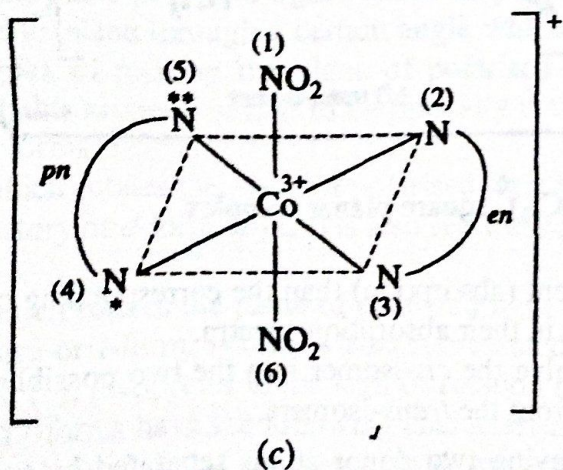
(13) Octahedral complexes containing optically active bidentate ligands : $[\text{Co}^{3+}(\text{en})(\text{pn})(\text{NO}_2)_2]^{+}$ ion is an important example of such type of octahedral complexes. Here *en* and *pn* are ethylene diamine and 1, 2-diamino propane (also called propylene diamine) respectively. Both of these ligands are bidentate ligands and their structures are given below:



From their structures it is evident that both the ligands are bidentate with two neutral donors *viz.* N-atoms and that *en* is symmetrical and hence optically inactive while *pn* is unsymmetrical and hence optically active. To differentiate the two donor atoms *viz.* N-atoms of *pn* they have been shown with one and two asterisks. $[\text{Co}(\text{en})(\text{pn})(\text{NO}_2)_2]^{+}$ ion exists in three geometrical forms; two are *cis* and one is *trans*.



cis-isomers



trans-isomers