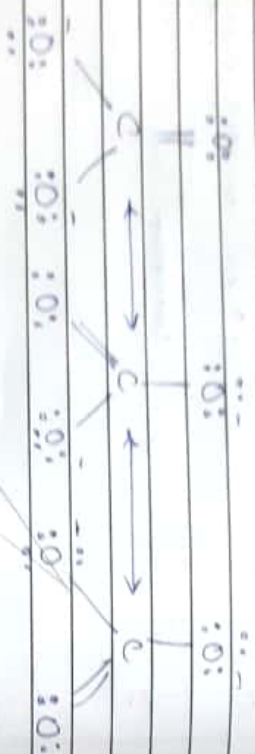


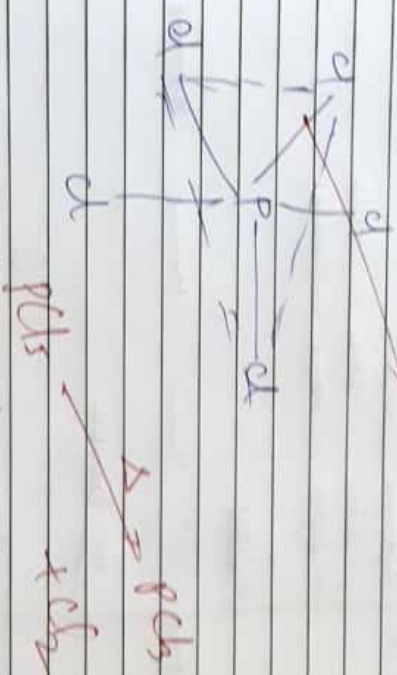
5) Resonance is a phenomenon where a structure cannot describe a molecule accurately, a number of structures with similar energy, position of nuclei, bonding and non bonding pairs of electrons are taken as the same and the structures of the hybrid orbitals describe the molecule accurately.



6) Hybridization is the process of intermixing of the orbitals of slightly different energies so as to redistribute their energies, resulting in the formation of new set of orbitals of equivalent energies and shapes.



No in pCl_6 not all the bonds are same because of their geometry. It is sp^3d^2 hybrid so it will have Trigonal bipyramidal structure.



3-Cl lie in one plane making 120 degree angle with each other and other 2-Cl lie perpendicular to each other. These bonds are called equatorial bonds. The remaining two P-Cl bonds lie above and below the equatorial plane and make an angle 90° with plane. These bonds called axial bonds. As axial bond pair suffer more repulsion hence the equatorial bond pairs, axial bonds are slightly longer than equatorial bonds.