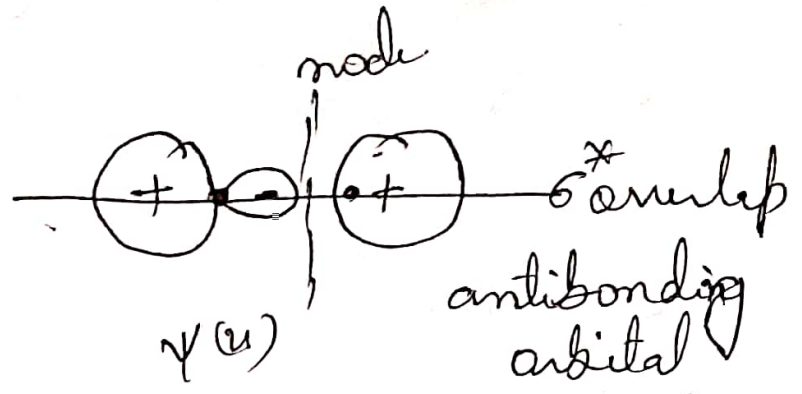
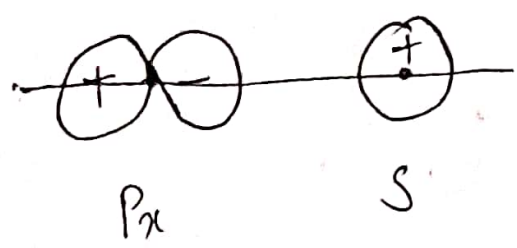
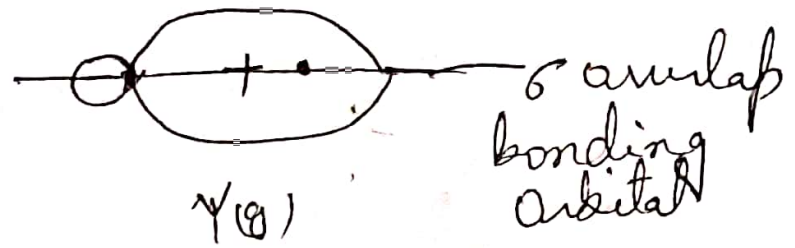
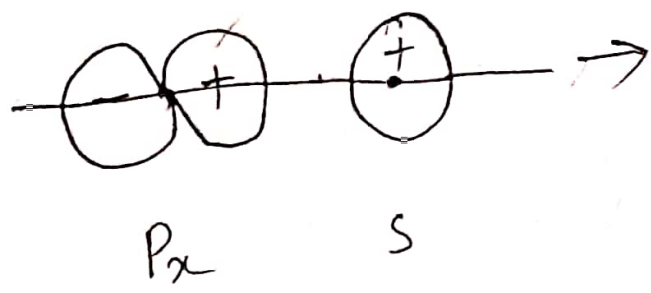


- P combination

atomic orbital

Molecular orbitals



lobes of P_z orbital having same sign overlap with lobes of S orbital bonding molecular orbitals are formed ~~to~~ having greater electron density between the nuclei

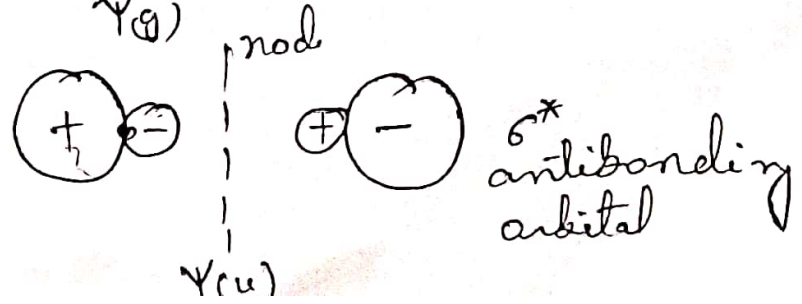
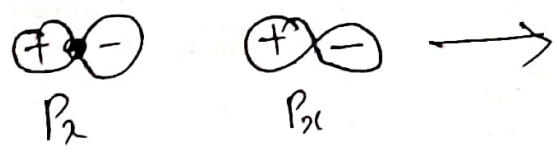
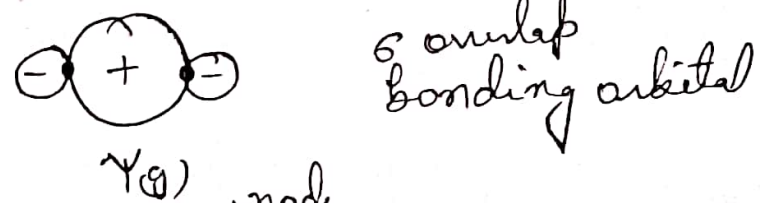
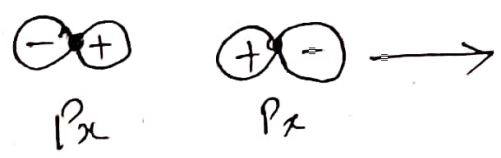
lobes of P_z orbital having opposite sign overlap with lobes of S orbital antibonding molecular orbitals are formed having reduced electron density.

3) P-P combination of orbitals :-

a) combination of two P orbital along the axis :-

$P_z - P_z$ orbital

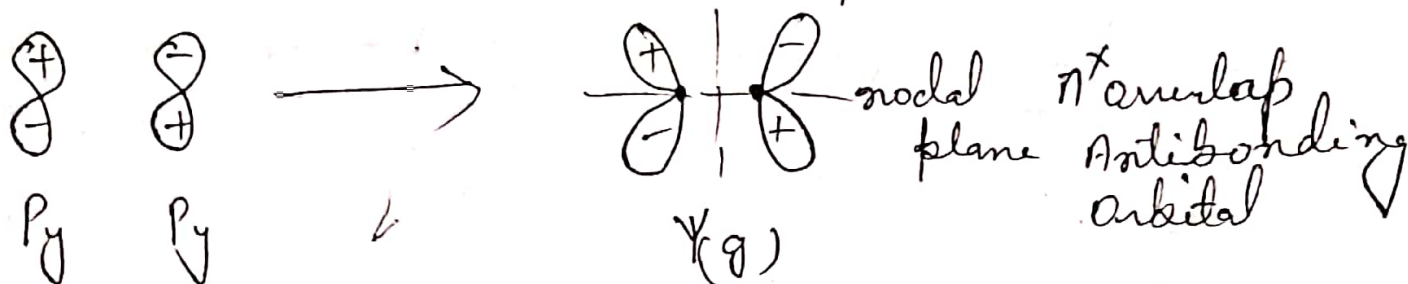
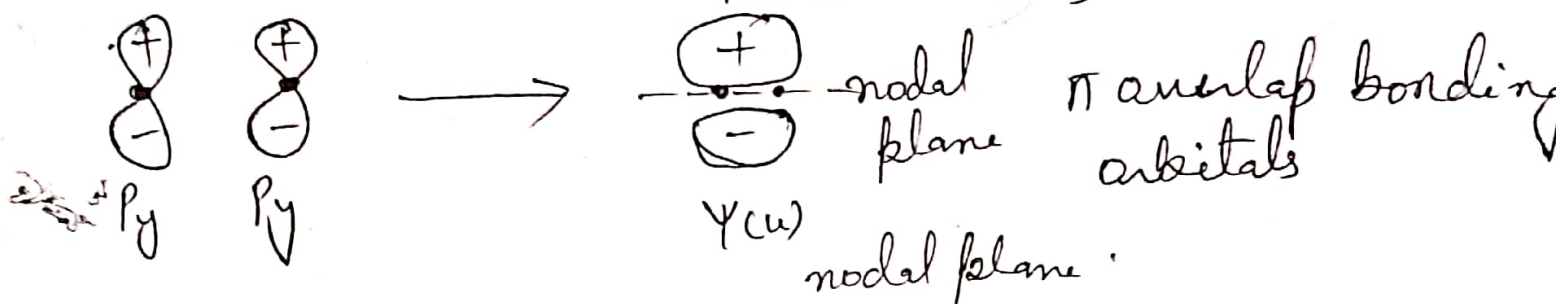
Molecular orbital



> combination of two p orbitals perpendicular to the axis

∴ —

Orbital on y axis p_y - p_y overlap:-
Molecular orbitals



Q. Explain why π bonding ^{no} orbitals are ungerade whereas all σ bonding molecular orbitals are gerade?

Ans. The symmetry of π molecular orbitals is different from σ molecular orbitals. If π bonding molecular is rotated about the internuclear line a change in the sign of the lobe takes place. The π bonding molecular orbitals are therefore ungerade whereas σ bonding molecular orbitals are gerade.