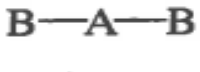
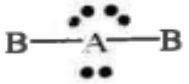
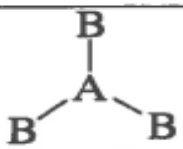
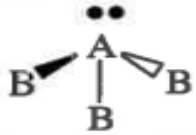
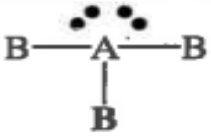
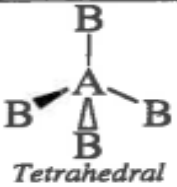
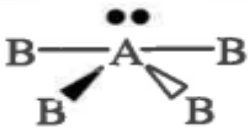
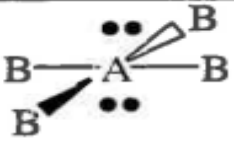
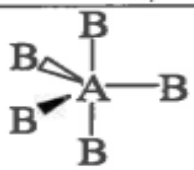
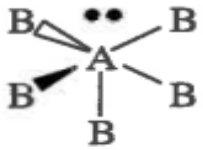
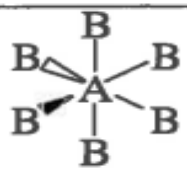
TUTORING AND TESTING CENTER
NOVA SOUTHEASTERN UNIVERSITY

Academic Resource Sheet

CHEM 1300/1310

Geometry of Molecules
AB_n

	0 Lone Pairs	1 Lone Pairs	2 Lone Pairs	3 Lone Pairs
n=2	 *linear* angle: 180 Ex: CO_2, $BeCl_2$ Hybridization: sp	 *Bent (V-Shaped)* angle: <120 Ex: O_3, SO_2, $SnCl_2$ Hybridization: sp^2	 *Bent (V-shaped)* angle: <109.5 Ex: H_2O Hybridization: sp^3	 *Linear* Angle: 180 Ex: XeF_2, $[I_3]^-$ Hybridization: sp^3d^1
n=3	 *Trigonal Planar* Angles: 120 Ex: BCl_3, HCOH, $AlCl_3$ Hybridization: sp^2	 *Trigonal Pyramidal* Angles: <109.5 Ex: NH_3, PCl_3, $SOCl_2$ Hybridization: sp^3	 *T-Shaped* Angles: <180 and <90 Ex: ICl_3 Hybridization: sp^3d^1	
n=4	 *Tetrahedral* Angles: 109.5 Ex: CH_4 Hybridization: sp^3	 *Sea-Saw* Angles: <120, <180, <90 Ex: SF_4 Hybridization: sp^3d^1	 *Square Planar* Angles: 90 Ex: XeF_4 Hybridization: sp^3d^2	
n=5	 *Trigonal Bipyramidal* Angles: 90, 120, and 180 Ex: PF_5 Hybridization: sp^3d^1	 *Square Pyramidal* Angles: 90 and <90 Ex: IF_5 Hybridization: sp^3d^2		
n=6	 *Octahedral* Angles: 90 Ex: $[PCl_6]^-$ Hybridization: sp^3d^2			

●● = 1 lone pair of e⁻ = going into the paper = coming out of the paper

n = number of atoms