GEOMETRIA MOLECULAR

LEWIS: CONECTIVIDADE (QUEM ESTÁ LIGADO COM QUEM)

POLARIDADE DAS LIGAÇÕES

SIMPLES, MÚLTIPLAS, ELÉTRONS LIVRES

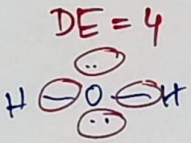
VSEPR: FORMA, POLARIDADE DA MOLÉCULA

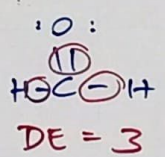
MODELO DE REPULSÃO DOS ELÉTRONS DA CAMADA DE VALÊNCIA

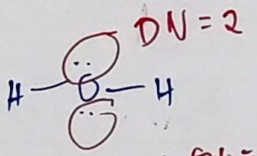
DOMÍNIOS ELETRÔNICOS (DE)

- DOMÍNIO LIGANTE (DL) — ELÉTRONS LIGADOS
- DOMÍNIO NÃO LIGANTE (DN) — ELÉTRONS LIVRES

CONCENTRAÇÃO DE ELÉTRONS EM UMA DIREÇÃO

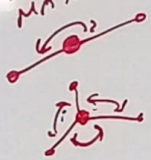


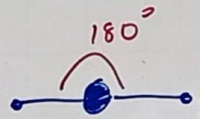


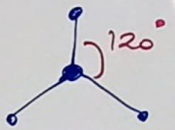


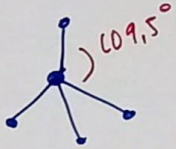
$DE = DL + DN$

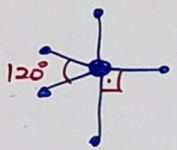
DE	FORMA
2	LINEAR (180°)
3	TRIÂNGULO TRIGONAL PLANA (120°)
4	TETRAÉDRICA (109,5°)
5	BIPIRÂMIDE TRIGONAL (120°)
6	OCTAÉDRICA

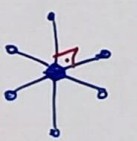


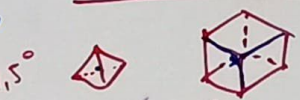


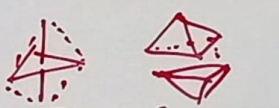




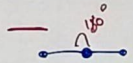
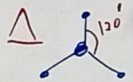
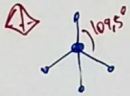
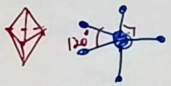
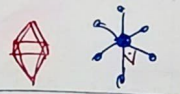




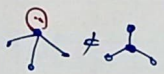
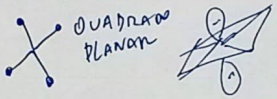




GEOMETRIA MOLECULAR

D.E. (DOMÍNIO ELETRÔNICO)	FORMA	
2		LINEAR
3		TRIGONAL PLANA
4		TETRAÉDRICA
5		BIPIRÂMIDE TRIGONAL
6		OCTAÉDRICA

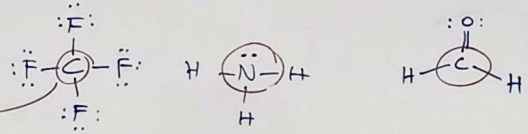
DOMÍNIO LIGANTE: ANGULARES 

PIRÂMIDE TRIGONAL  QUADRADO PLANAR 

DETERMINE A GEOMETRIA MOLECULAR E PROPRIEDADES:

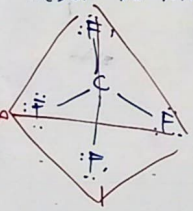
CF_4 NH_3 COH_2

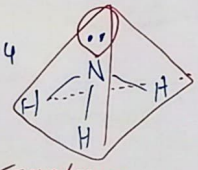
① DETERMINE ESTRUTURA DE LEWIS



ÁTOMO CENTRAL → GEOMETRIA AO REDOR

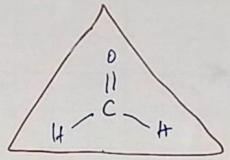
② QUANTOS DOMÍNIOS ELETRÔNICOS AO REDOR DO ÁTOMO CENTRAL ⇒ FORMA

DE = 4 TETRAÉDRICA 

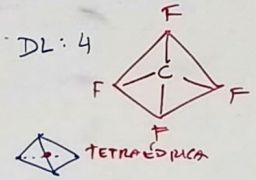
DE = 4 

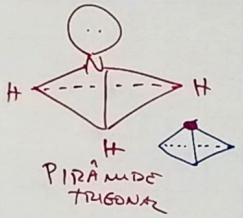
TETRAÉDRICO

① LEWIS
② DE
③ DL

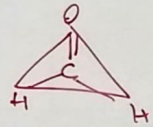
DE = 3 TRIGONAL PLANA 

③ OBSERVAR DOMÍNIO LIGANTE → GEOMETRIA MOLECULAR

DL: 4 



PIRÂMIDE TRIGONAL

DL: 3 

(6) MAIS DE 1 ÁTOMO CENTRAL

ETANO C_2H_6 — DE = 4 — ~120°

ETENO C_2H_4 — DE = 3

ETINO C_2H_2 — DE = 2 — 180°

(4) ÂNGULOS: DEFORMAÇÃO { PAR DE ELE. LIVRES; MULTIPLAS. LIGAÇÕES }

109,5°

REPULSÃO: ELETRONS COMPARTILHADOS < ELETRONS LIVRE

$\theta_1 > \theta_2 > \theta_3$

FORMA: TETRAÉDRICA (DE)

GEOMETRIA: TET., PIRAM. T., ANG.

>120° <120°

REPULSÃO: LIGAÇÕES SIMPLES < LIGAÇÕES MULTIPLAS

(5) DIPOLOS MOLECULARES/RESULTANTES

$\mu = q \cdot r$

DIPOLO DE LIGAÇÃO

DIPOLO DA MOLÉCULA (μ_R): SOMA VETORIAL DOS DIPOLOS DA LIGAÇÃO

$\mu_R = 0$ APOLAR

$\mu_R \neq 0$ POLAR

$\mu_R = 0$ APOLAR

+ ELETRON.

$\mu_R \neq 0$ POLAR

$\mu_R \neq 0$ POLAR

$\mu_R = 0$ APOLAR

1. LEWIS
2. DE
3. DL
4. ÂNGULOS
5. DIPOLO RES.
6. MAIS DE 1 CENTRO

DOMÍNIO LIGANTE: ANGULARES

PIRÂMIDE TRIGONAL ≠ QUADRADO PLANAR

GANGORRA

FORMA DE T

PIRÂMIDE DE BASE QUADRADA

DORS@POLI.DA