Dipole Moment - III

Course on Chemical Bonding for Class XI 2023

Vishal joshi • Lesson 15 • Sept 14, 2021

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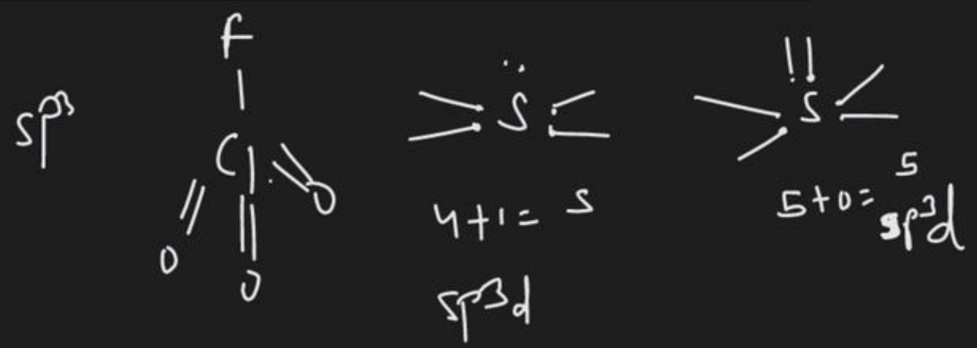
▲ 6 • Asked by Divya N

Please help me with this doubt

35. Hybridisation of $ClFO_3$, SF_4 & SOF_4 respectively will be

(A) ~~sp^3~~, sp^3d sp^3d (B) sp^3, sp^3 sp^3

(C) sp^3, sp^3d^2 sp^3d^2 (D) All sp^3d



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▲ 6 • Asked by Divya N

Sir ek hi me polar and non polar kaise honskte h?

9. The molecule which contain both polar and non-polar covalent bond present in its structure?

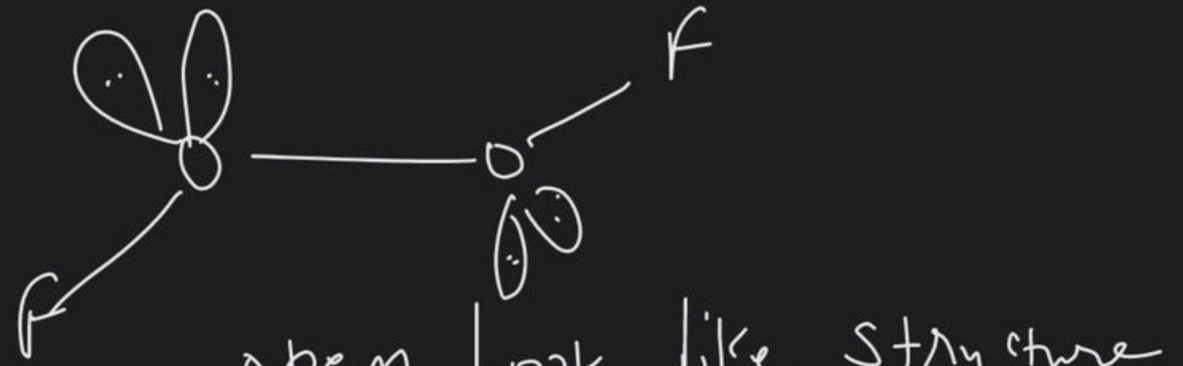
(A) H_2F_2 (B) O_2F_2 (C) O_3 (D) All of these

$\overset{+\delta}{H} - \overset{-\delta}{F} \cdots H - F$

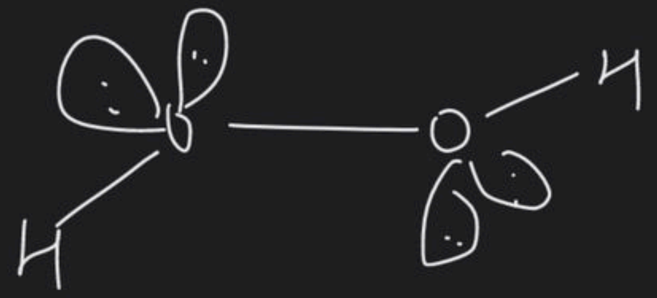
Nonplanar

$\mu \neq 0$

Polar

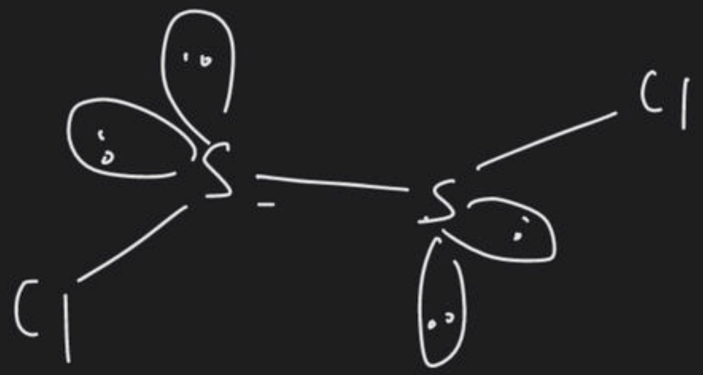


open book like structure



Non planar

$\mu \neq 0$ Polar



Open book like structure

$\mu \neq 0$ polar

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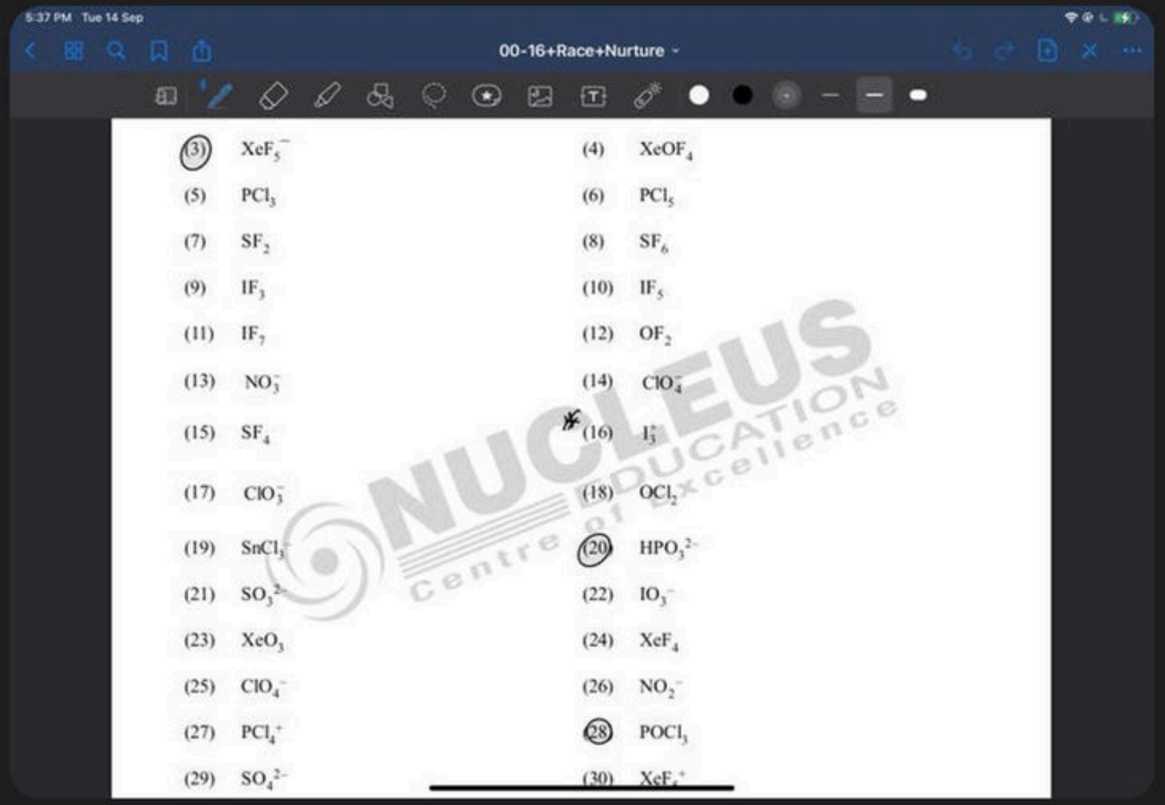
▲ 8 • Asked by Manthan

Sir 3 circle wale structure nahi ban paye merese

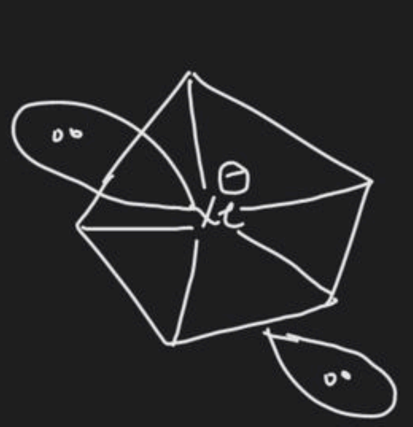


(3)	XeF_5^-	(4)	$XeOF_4$
(5)	PCl_3	(6)	PCl_5
(7)	SF_2	(8)	SF_6
(9)	IF_3	(10)	IF_5
(11)	IF_7	(12)	OF_2
(13)	NO_3^-	(14)	ClO_4^-
(15)	SF_4	(16)	I_3^+
(17)	ClO_3^-	(18)	OCl_2
(19)	$SnCl_3^-$	(20)	HPO_3^{2-}
(21)	SO_3^{2-}	(22)	IO_3^-
(23)	XeO_3	(24)	XeF_4
(25)	ClO_4^-	(26)	NO_2^-
(27)	PCl_4^+	(28)	$POCl_3$
(29)	SO_4^{2-}	(30)	XeF_5^+

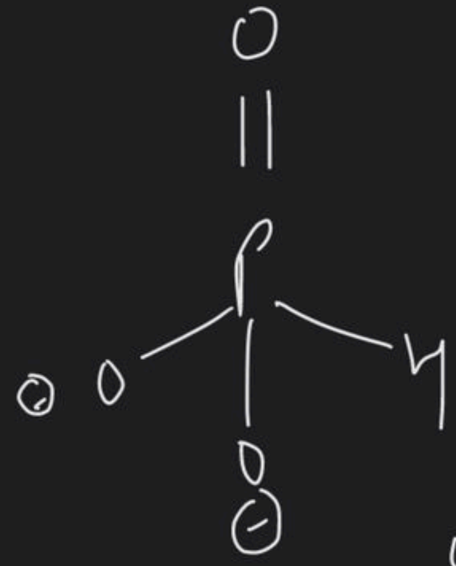
$XeF_5^{\ominus}$

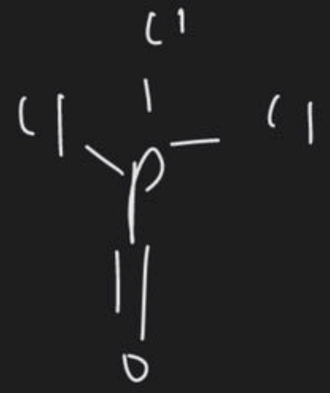
HPO_3^{-2}

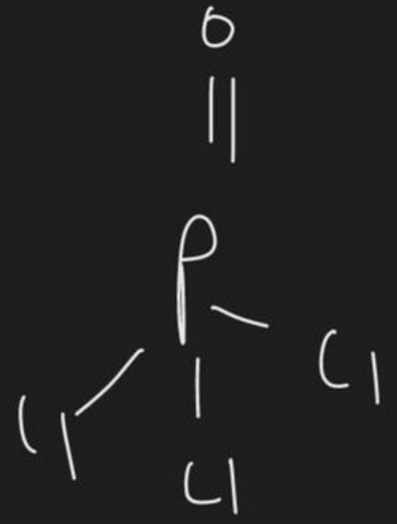
$POCl_3$



Pentagonal planar







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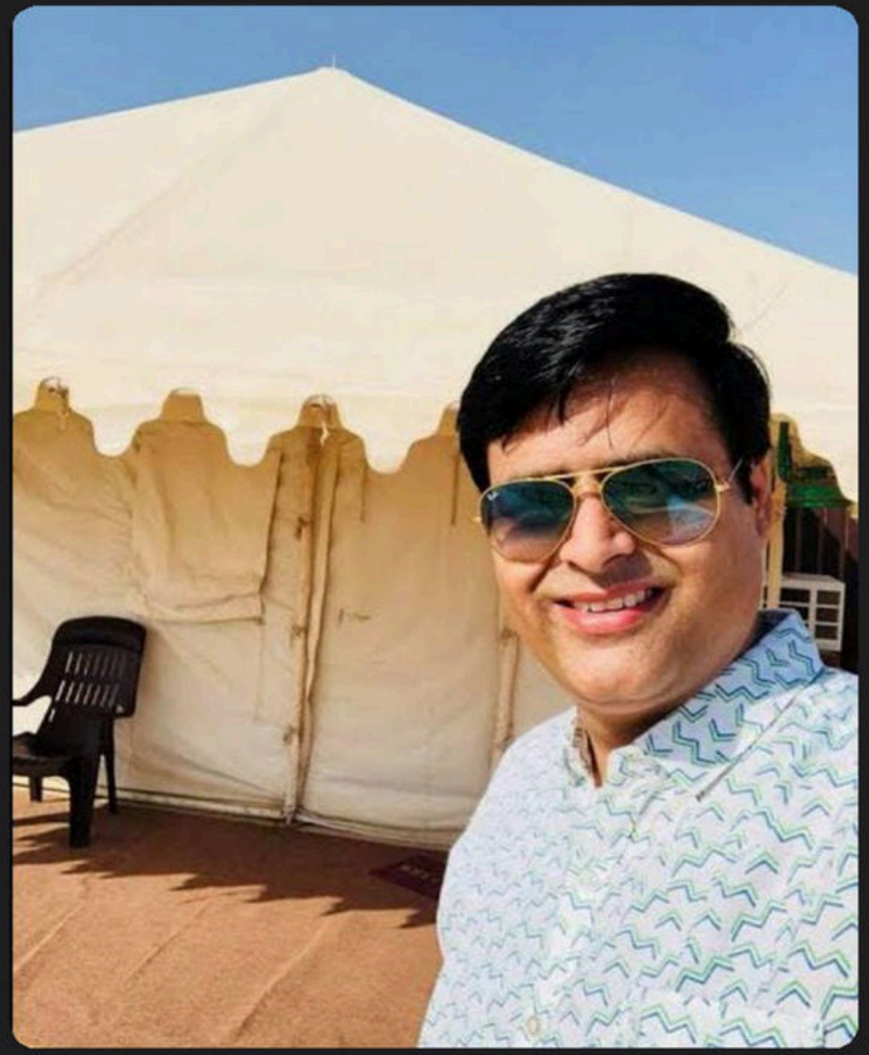
▲ 10 • Asked by Ankitjha

WOW SIR AMAZING .....



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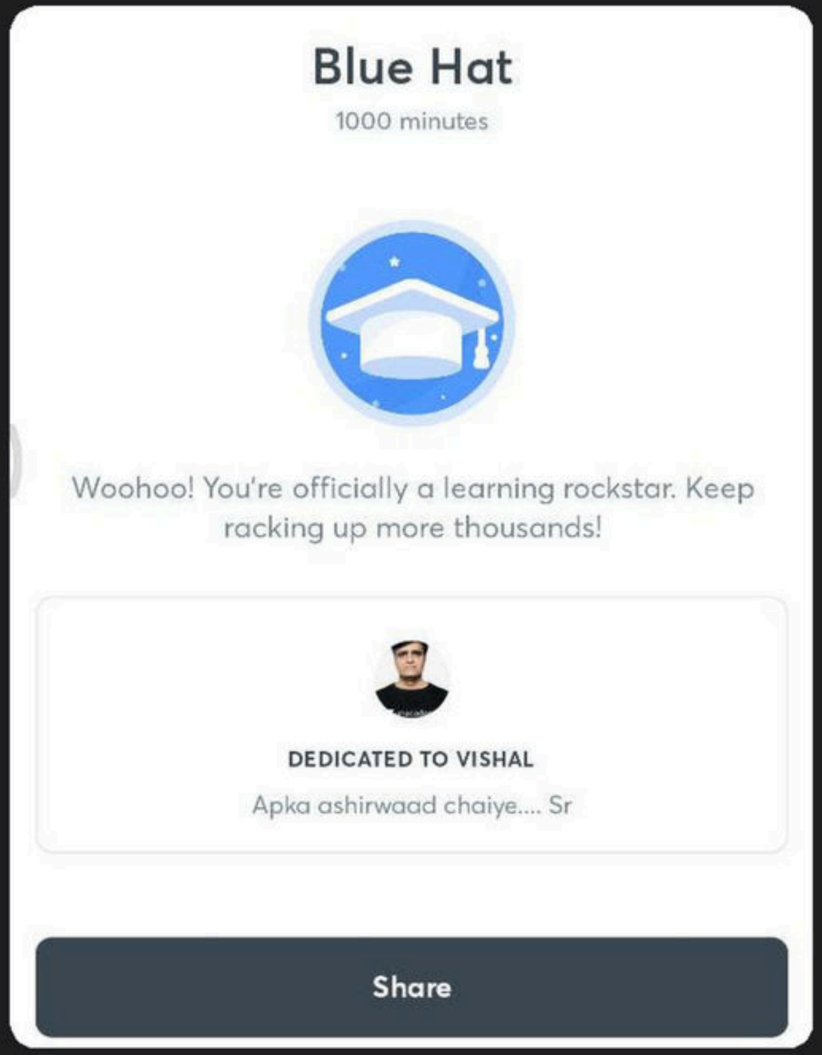
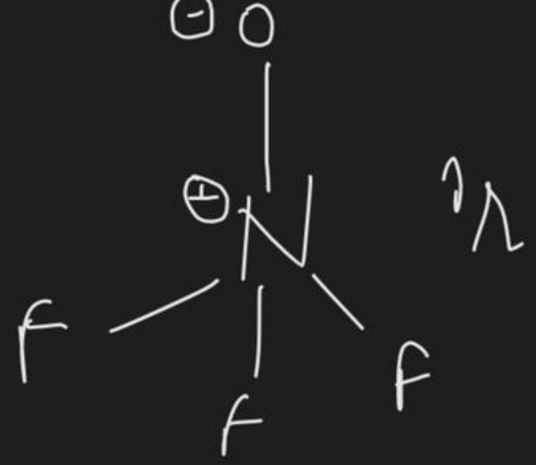
▲ 4 • Asked by Sameer

Please help me with this doubt

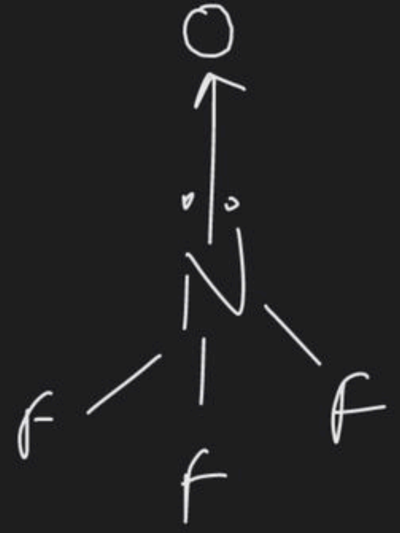


Q.1 Which of the following molecule does not exist

(1) NOF_3

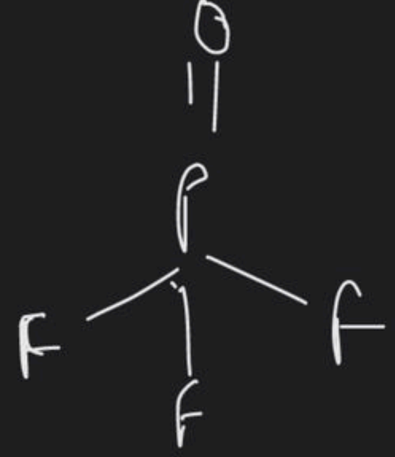


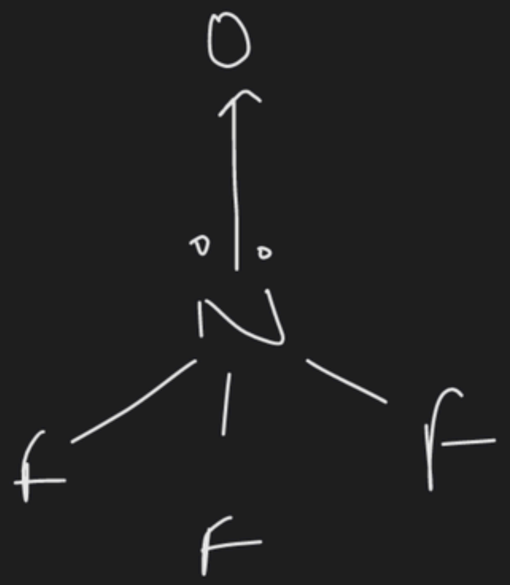
(2) POF_3

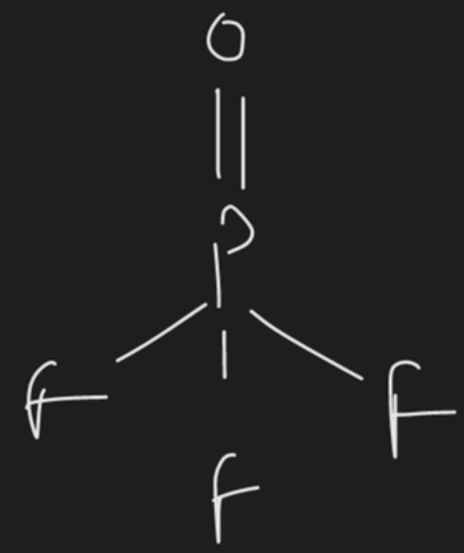


(3) both

(4) both exist

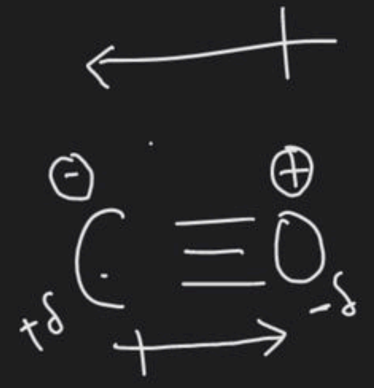



O
N
F
F
F


O
P
F
F
F

Ans Correct direction of dipole moment in CO

(1) C to O ✓ (2) O to C

$C \equiv O$ or 

$C \equiv O$ [net direction]

Imp. order of dipole moment

$HCl > HF > HBr > HI$

$CH_3Cl > CH_2Cl_2 > CHCl_3 > CCl_4$

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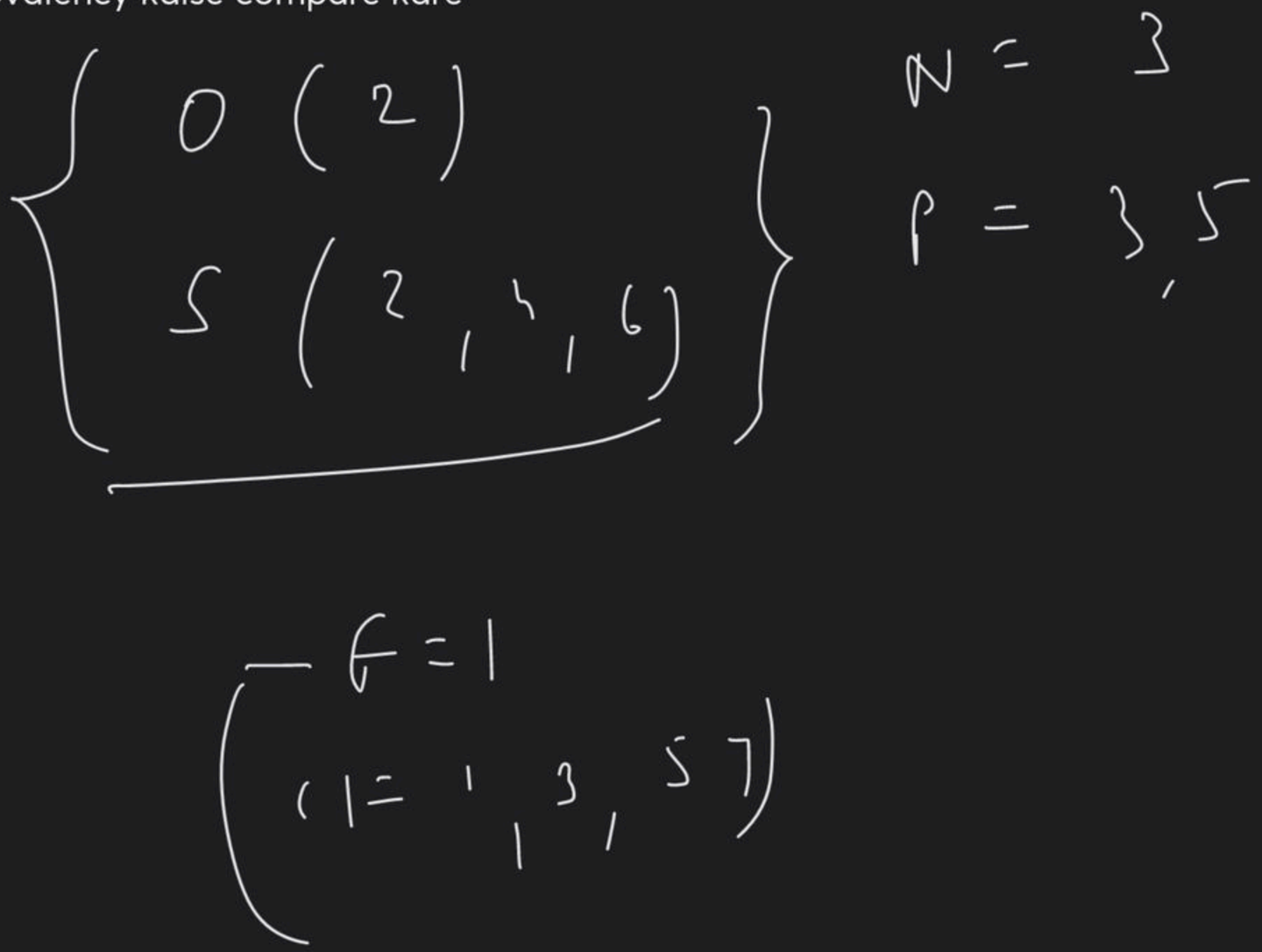
▲ 5 • Asked by Divya N

Sir same griup ke elements ki covalency kaise compare kare
for ex. O AND S



Homework (JEE Mains)

Single Correct

1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17

18, 20, 21, 22, 23, 24, 26, 27, 30

31, 32, 33, 36

37, 46, 48, 49, 50

51,

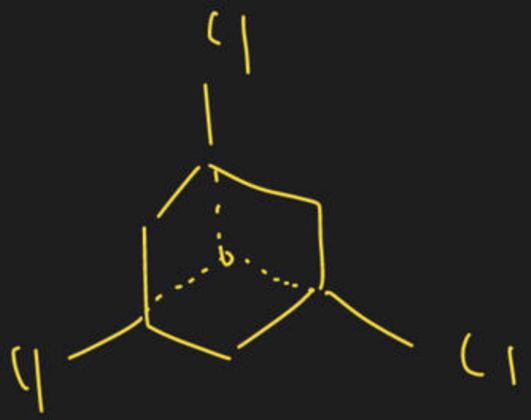
Q4 Which of the following bond is least polar

(1) N–H (2) P–H (3) As–H (4) Sb–H

2.12 2.10

C_6H_6 has dipole moment equal to

(a) 

(b) 

(c) 

(d) both (e) none

Ans

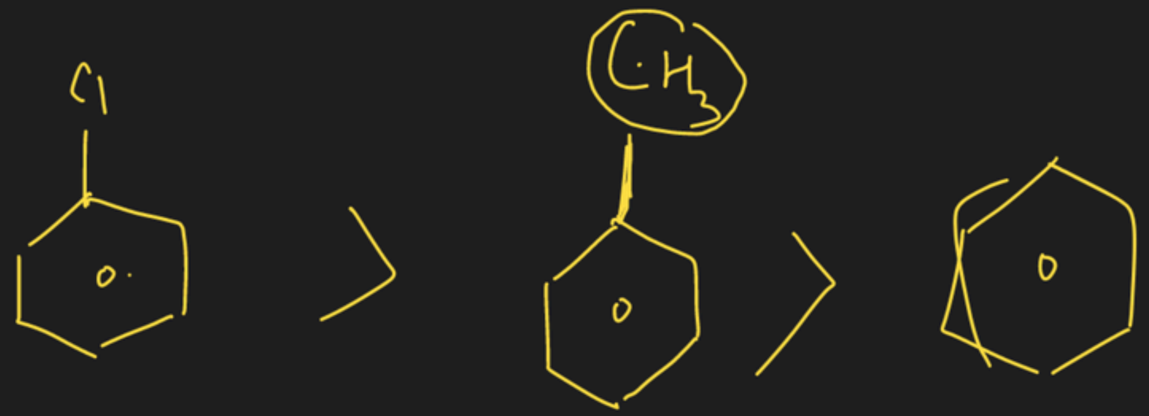
Compare dipole moment

(a) C_6H_6 > C_6H_5Cl > Toluene

(b) < <

(c) C_6H_5Cl > Toluene > C_6H_6

(d) = =


Cl
CH3

Solid state hyb.

☆

$PI_5 \longrightarrow \underline{PI_4^+} + I^{\ominus}$

$PCl_5 \longrightarrow PCl_4^+ + PCl_6^{\ominus}$

$PBr_5 \longrightarrow PBr_4^+ + Br^{\ominus}$

$N_2O_5 \longrightarrow NO_2^+ + NO_3^-$

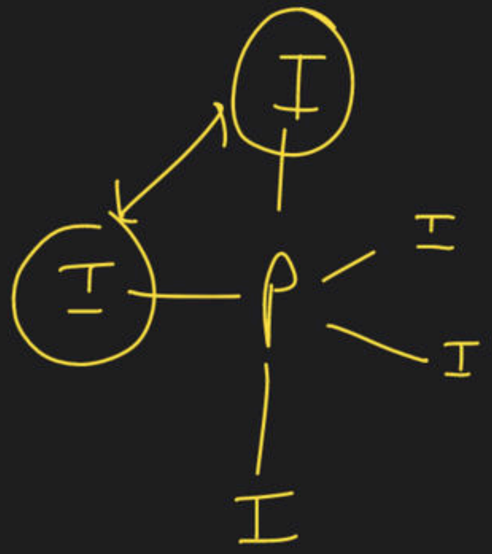
$N_2O_4 \longrightarrow NO^+ + NO_3^-$

$XeF_6 \longrightarrow XeF_5^+ + F^-$

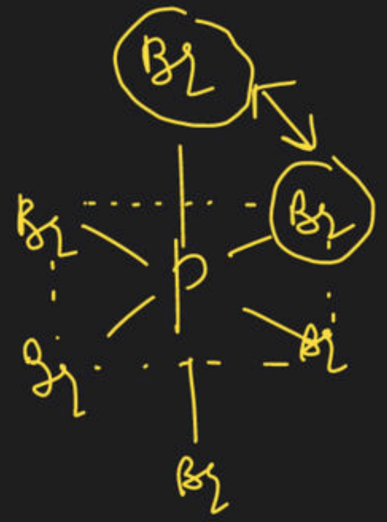
$Cl_2O_6 \longrightarrow ClO_2^+ + ClO_4^-$

(liq.) $I_2Cl_6 \longrightarrow ICl_2^+ + ICl_4^-$

(liq.) $I_2 \longrightarrow I_3^{\ominus} + I^{\oplus}$



steric rep.



d^2 doesnot exist due to steric rep.

PI_5 (say) (T.B.P)

Do not exist

PI_5 (19) (7.8.9), $PBr_6^{\ominus}$ ClF_7 $BCl_4^{\ominus}$ ICl_7

SCl_6

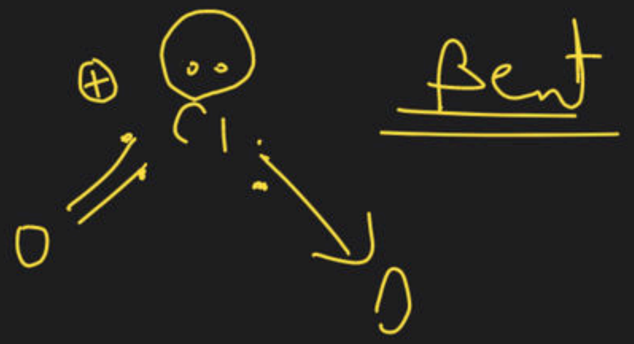
SBr_6

SI_6

Q.1 What is the shape of Cationic part of solid Cl_2O_6

(A) Angular (B) trigonal planar (C) tet. (D) linear

$$Cl_2O_6 \longrightarrow ClO_2^+ + ClO_4^-$$

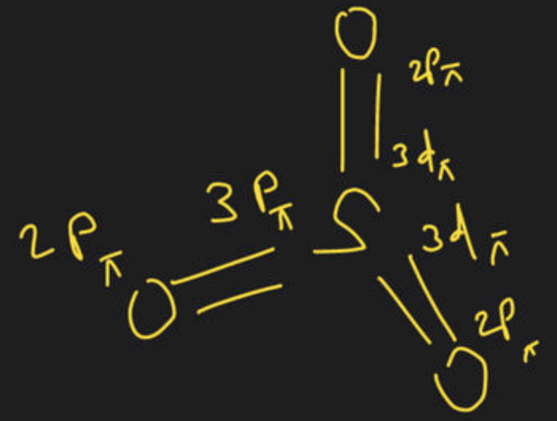


Bent

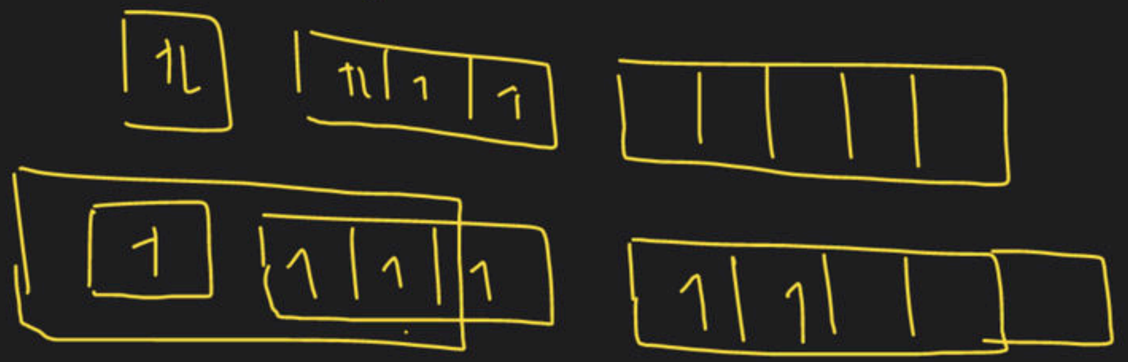
1, 3, 5 7

Identify $d_\pi - p_\pi$ bond

find the number of $d_\pi - p_\pi$ bond in SO_3



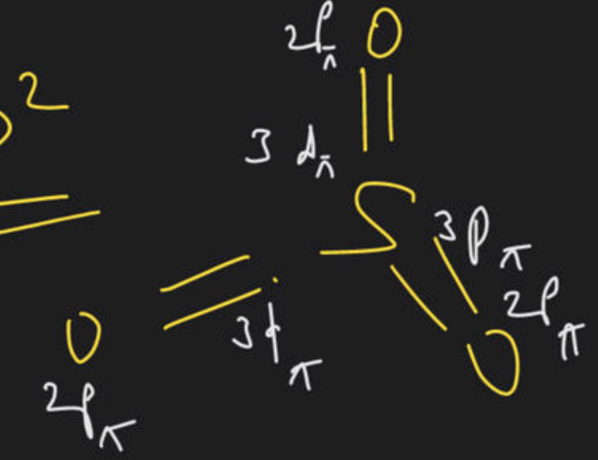
$S = 3s^2\ 3p^4\ 3d$



$p_\pi - p_\pi = 1$

$d_\pi - p_\pi = 2$

sp^2



S= $3s^2$ $3p^4$

3d

$d_\pi - p_{\bar{\pi}} = two$

$p_{\bar{\pi}} - p_\pi = 1$

$n = 0$

Ques What the hyb. of cationic part of solid PCl_5

(1) sp^3d (2) sp^3d^2 (3) sp^3 (4) none