

p-Block elements reasoning summary

SN	PROPERTY/QUESTION	REASON
1	Sulphur has greater catenation than oxygen	S-S bond is stronger bond than O-O
2	Supersonic jet planes are responsible for ozone depletion	Emission of NO. $\text{NO} + \text{O}_3 = \text{NO}_2 + \text{O}_2$
3	SF ₄ is easily hydrolysed than SF ₆	SF ₆ is exceptionally stable to octahedral symmetry.
4	H ₂ O is more polar than H ₂ S	Oxygen is more electronegative.
5	O ₂ is paramagnetic	Presence of two unpaired electron in antibonding MO
6	Oxygen do not show +4 or +6 O.S	Due to absence of d-orbital in oxygen
7	Ozone acts as oxidizing agent	Due to liberation of nascent oxygen.
8	Sulphur is solid , oxygen is a gas	$\text{P}\pi$ - $\text{P}\pi$ bonding in oxygen. Sulphur shows catenation
9	SO ₂ is an air pollutants	$\text{SO}_2 + \text{H}_2\text{O} = \text{H}_2\text{SO}_4$ Which is corrosive and poisonous.
10	In contact process for the preparation of H ₂ SO ₄ , SO ₃ is absorbed in H ₂ SO ₄ .	SO ₃ forms acid fog when absorbed in H ₂ O.
11	K _{a2} is less than K _{a1} for H ₂ SO ₄ in H ₂ O	HSO ₄ ⁻ has less tendency to donate proton as compared to H ₂ SO ₄
12	Oxygen forms hydrogen bond but chlorine does not	Size of oxygen is small in comparison to chlorine
13	HClO ₄ is stronger acid than HClO ₃	Higher oxidation state of non metal, highernon metallic character, more is acidic strength.
14	Halogens are strong oxidizing agent	Halogens readily accepts electron
15	ClF ₃ has T- shaped structure	Sp ³ d hybridization
16	Bond dissociation energy of F ₂ is less than Cl ₂	Due to small size of F, interelectronic repulsion is larger than Cl
17	Covalent fluoride is more inert than other covalent halide	Stronger bond with fluorine.
18	ClF ₃ exist but FCl ₃ does not	Size of fluorine is too small to hold three bulky chlorine
19	ICl is more reactive than I ₂	I-Cl bond is weaker bond than I ₂
20	Halogens are coloured	Absorption of light in visible range
21	Structure of xenon fluoride can not be explained by VBT	Xenon has fulfilled orbital.
21	Noble gases have comparatively large atomic size.	Vander wall radii is larger than metallic and covalent radii.
22	Noble gas form compounds with oxygen and fluorine	oxygen and fluorine are more electronegative
23	Helium is used in diving apparatus	He is less soluble in blood