

Name _____ Period _____

**AP Chemistry
Chapter Test Bonding**

Part I: Multiple Choice (2 points each)

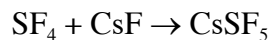
1. ____ 2. ____ 3. ____ 4. ____ 5. ____
6. ____ 7. ____ 8. ____ 9. ____ 10. ____

The following is a table of Pauling Electronegativity values.

2.1																
H																
1.0	1.5											2.0	2.5	3.0	3.5	4.0
Li	Be											B	C	N	O	F
0.9	1.2											1.5	1.8	2.1	2.5	3.0
Na	Mg											Al	Si	P	S	Cl
0.8	1.0	1.3	1.5	1.6	1.6	1.5	1.8	1.8	1.8	1.9	1.6	1.6	1.8	2.0	2.4	2.8
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br
0.8	1.0	1.2	1.4	1.6	1.8	1.9	2.2	2.2	2.2	1.9	1.7	1.7	1.8	1.9	2.1	2.5
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I
0.7	0.9		1.3	1.5	1.7	1.9	2.2	2.2	2.2	2.4	1.9	1.8	1.8	1.9	2.0	2.2
Cs	Ba		Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At
0.7	0.9															
Fr	Ra															

Part II: Free Response Questions

- 1 The compounds SF₄ and CsF react to form an ionic compound according to the following equation.



- (i) Draw a complete Lewis structure for the SF₅⁻ anion in CsSF₅.

- (ii) Identify the type of hybridization exhibited by sulfur in the SF₅⁻ anion.

- (iii) Identify the geometry of the SF₅⁻ anion that is consistent with the Lewis structure drawn in part (b)(i).

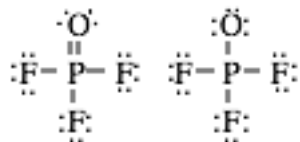
- (iv) Identify the oxidation number of sulfur in the compound CsSF₅.

2) Xenon can react with oxygen and fluorine to form compounds such as XeO_3 and XeF_4 . Draw the complete Lewis electron-dot diagram for each of the molecules.

3) Predict whether the XeO_3 molecule is polar or nonpolar. Justify your prediction.

4) In the SO_2 molecule, both of the bonds between sulfur and oxygen have the same length. Explain this observation, supporting your explanation by drawing a Lewis electron-dot diagram (or diagrams) for the SO_2 molecule.

5) Two Lewis structures can be drawn for the OPF_3 molecule, as shown below.



Structure 1 Structure 2

a) How many sigma bonds and how many pi bonds are in structure 1?

b) Which one of the two structures best represents a molecule of OPF_3 ? Justify your answer in terms of formal charge.