CH 221
Sample Quiz #5 Name: _____ Lab Section: _____

Be sure to show all work, use the correct number of significant figures, circle final answers and use correct units in all problems.

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1. Complete the following table: (12 points)

Molecule	Lewis Structure	Electron Pair Geometry & Molecular Geometry	Bond Angle(s)	Polar or Nonpolar?
ICl_2Br				
$SeBr_4$				
IF_5				

2. Complete the following table: (6 points)

Molecule	Lewis Structure	Bond Order	Which structure has stronger bonds?	Which structure has longer bonds?	Does it exhibit resonance?
PO_2^{-1}					
PO_2^{+1}					

3. Arrange the following bonds in order of increasing polarity: Na-Br, Br-Br, N-Br, As-Br. (2 pts)

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Answers

1. Complete the following table: (12 points)

Molecule	Lewis Structure	Electron Pair Geometry & Molecular Geometry	Bond Angle(s)	Polar or Nonpolar?
ICl_2Br	**I in middle, 2 lone pairs on I, Cl-I-Cl has 180 angle**	**EPG = trigonal bipyramid MG = T-shaped**	**90, 180**	**polar**
$SeBr_4$	**Se in middle, 1 lone pair on Se, lone pair in "plane" of molecule**	**EPG = trigonal bipyramid MG = see-saw**	**90, 120, 180**	**polar**
IF_5	**I in middle, 1 lone pair on I,**	**EPG = octahedral MG = square pyramid**	**90, 180**	**polar**

2. Complete the following table: (6 points)

Molecule	Lewis Structure	Bond Order	Which structure has stronger bonds?	Which structure has longer bonds?	Does it exhibit resonance?
PO_2^{-1}	**P in middle, 1 lone pair on P, one double bond to O, one single bond to O**	**1.5**		**longer**	**yes**
PO_2^{+1}	**P in middle, 0 lone pair on P, two double bonds to O,**	**2**	**stronger**		**no**

3. Arrange the following bonds in order of increasing polarity: Na-Br, Br-Br, N-Br, As-Br. (2 pts)

Br-Br, As-Br, N-Br, Na-Br