HW07 - Bonding

1 1 point	9 1 point
Which is the correct order of increasing bond strength?	Which of the following compounds contains exactly one unshared pair of valence electrons?
O triple, double, single	O H ₂ S
O single, double triple	O SiH ₄
O double, triple, single	
	O PH ₃
O double, single, triple	$O C_2H_4$
	• 2 4
2 1 point	10 1 point
Which do you predict to have the strongest C -N bond?	How many total bonds and lone pairs exist in the Lewis structure for boron trichloride (BCl ₃)?
O All are equal.	
O NH ₂ CH ₃	O 3, 10
	O 4,7
O NHCH ₂	Q 3, 9
O HCN	
	O 4, 8
3 1 point	
What total number of valence electrons should appear in the dot formula for the chlorate ion	11 1 point
ClO ₃ ?	The carbonate ion (CO ₃ ²⁻) has how many resonance configurations?
	O 3
O 30	
O 26	O 4
Q 24	O The carbonate ion does not exhibit resonance.
	O 2
O 28	0
4 1 point	12 1 point
What is the bond order of the O-O bond in O_2 ?	Resonance is a concept that describes the bonding in molecules
-	by asserting that electrons in a double bond can delocalize (spill over) onto adjacent single
O 3	bonds to make a bond and a half.
Q 2	
Q 1	 by asserting that double or triple bonds 'flip' or resonate between two locations in the molecule.
O 0	O where there is more than one choice of location for a double or triple bond as deduced from Lewis dot structures. The true bonding is the average over all possible multiple bond
	locations.
5 1 point	
How many lone pairs of electrons are on nitrogen in NF ₃ ?	13 1 point
O three	How many resonance structures can be drawn for N ₂ O? Disregard any structure with formal
O one	charges other than 0, +1, and -1.
	O 0
O two	
🔘 zero	O 2
	O 1
	O 3
6 1 point	0
How many unshared electrons and bonding electrons exist around the central atom in ozone	
(O ₃)?	14 1 point
O four, four	How many double bonds are present in the 'best' resonance structure of the phosphate ion?
O two, six	
O zero, eight	O 2
O six, two	O 1
	O 0
7 1 point	
What is the bond order of the C-C bond in acetylene (ethyne, C_2H_2)?	15 1 point
O 1	Calculate the formal charge on N in the molecule NH ₃ .
O 2	O 0
O 3	O 2
O 1.5	O 1
U 1.3	

О з

8 1 point

How many total bonds and lone pairs exist in the Lewis structure for chlorine fluoride (CIF)?
	<i>'</i>

- O 3, 2O 1, 4
- **•** -, .
- O 2, 4
- O 1, 6

16 1 point

Which of the three Lewis structures is the most important for the fulminate ion (CNO⁻)? Select all of the correct answers. В С А

$$\begin{bmatrix} : \underline{C} = N = \underline{O} : \end{bmatrix}^{-} \text{ or } \begin{bmatrix} : C \equiv N - \underline{O} : \end{bmatrix}^{-} \text{ or } \begin{bmatrix} : \underline{C} = N \equiv 0 : \end{bmatrix}^{-}$$

A

AB

____ c

17 1 point

Which of the following bonds will	be the most polar?
О с-н	

- O C-N
- O ci-o
- O S-F

18 1 point

Wha	t is the difference in electronegativity between H and F?
Ο	3.80
Ο	0.95
0	0.63
0	1.78

19 1 point

Which bond is most polar?

- O P-CI
- O ci-ci
- O I-CI
- O P-I

20 1 point

Which substance has nonpolar covalent bonds?

- $O O_2$
- O NaCl
- О со
- O NO2

21 1 point

Whie	ch substance has polar covalent bonds?
Ο	O ₂

- O NH₃
- O CI₂
- O Ca₂C

22 1 point

A ph	osphorous-chlorine bond would be expected to be
0	polar, with the phosphorous end having a partial negative charge.
0	nonpolar, with the chlorine end having a partial negative charge.
0	polar, with neither end having a partial charge.
0	nonpolar, with neither end having a partial charge.
0	nonpolar, with the phosphorous end having a partial negative charge.
0	polar, with the chlorine end having a partial negative charge.
23 1 p	oint
	electron pairs that are shown in different locations within a set of resonance structures ar to be
0	lateral
0	idolized
0	tangential
0	nomadic
\cap	delocalized
0	
	oint
	oint tronegativity values have what type of units? gauss
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25 1 point

Formal charges are real ionic charges that reside on each atom in a molecule.

- O false
- O true