HW07 - Bonding

1 1p	oint
	ch is the correct order of increasing bond strength?
0	triple, double, single
0	single, double triple
Õ	double, triple, single
0	double, single, triple
2 1 p	oint
Whie	ch do you predict to have the strongest C - N bond?
0	All are equal.
0	NH ₂ CH ₃
0	NHCH ₂
\bigcirc	HCN
	oint
Wha ClO ₃	t total number of valence electrons should appear in the dot formula for the chlorate ion
\cap	30
\bigcirc	26
\bigcirc	
\bigcirc	24
0	28
4 1 p	oint
Wha	t is the bond order of the O-O bond in O_2 ?
0	3
0	2
0	1
0	0
	oint 7 many lone pairs of electrons are on nitrogen in NF ₃ ?
\bigcap^{1000}	three
\sim	one
\sim	
\sim	two
U	zero
6 1 p	oint
	many unshared electrons and bonding electrons exist around the central atom in ozone
(O_3)	
O	four, four
()	two, six

O zero, eight

O six, two

7 1 point What is the bond order of the C-C bond in acetylene (ethyne, C_2H_2)? 0 1 0 2 0 3 0 1.5
 8 1 point How many total bonds and lone pairs exist in the Lewis structure for chlorine fluoride (CIF)? 3, 2 1, 4 2, 4 1, 6
9 1 point Which of the following compounds contains exactly one unshared pair of valence electrons? H_2S H_2S H_4 H_3 C_2H_4
101 pointHow many total bonds and lone pairs exist in the Lewis structure for boron trichloride (BCl3)? \bigcirc 3, 10 \bigcirc 4, 7 \bigcirc 3, 9 \bigcirc 4, 8
11 1 point The carbonate ion $(CO_3^{2^-})$ has how many resonance configurations? O 3 O 4 O The carbonate ion does not exhibit resonance. O 2
 12 1 point 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 bonds to make a bond and a half. by asserting that double or triple bonds 'flip' or resonate between two locations in the molecule. 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.

13 1 point

How many resonance structures can be drawn for N_2O ? Disregard any structure with formal charges other than 0, +1, and -1.



O	0
0	2
0	1
0	3
14 1 p	oint
How	many double bonds are present in the 'best' resonance structure of the phosphate ion?
0	3
0	2
0	1
0	0
4.5	
15 1 po	oint

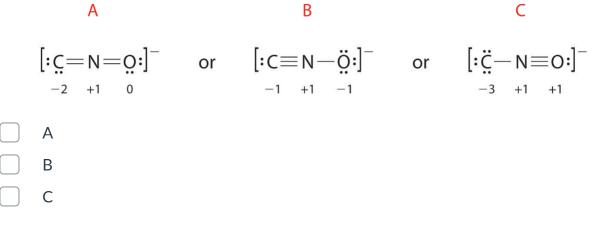
Calculate the formal charge on N in the molecule NH_3 .

Ο	0
Ο	2
Ο	1

О з

16 1 point

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



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

What is the difference in electronegativity between H and F?

- 3.80
- 0.95
- 0.63
- 0 1.78
- 19 1 point

Which bond is most polar?

- O P-Cl
- O CI-CI

О Р-І

20 1 point

Which substance has nonpolar covalent bonds?

- $O O_2$
- O NaCl
- Осо
- O NO₂

21 1 point

Which substance has polar covalent bonds?

- $O O_2$
- \bigcirc NH₃
- \bigcirc Cl₂
- O Ca₂C

22 1 point

A phosphorous-chlorine bond would be expected to be...

- O polar, with the phosphorous end having a partial negative charge.
- O nonpolar, with the chlorine end having a partial negative charge.
- O polar, with neither end having a partial charge.
- O nonpolar, with neither end having a partial charge.
- O nonpolar, with the phosphorous end having a partial negative charge.
- O polar, with the chlorine end having a partial negative charge.

23 1 point

The electron pairs that are shown in different locations within a set of resonance structures are said to be _____.

- O lateral
- O idolized
- O tangential
- O nomadic
- O delocalized

24 1 point

Electronegativity values have what type of units?

- O gauss
- O kJ/mol of interactions
- O Newtons per atom
- O none, they are unitless

25 1 point

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

-) false
-) true