

HW06b - Periodic Trends and Bonding

 This is a preview of the published version of the quiz

Started: Oct 3 at 5:25pm

Quiz Instructions

Homework 06b - Periodic Trends and Bonding

(plus some nomenclature)

Question 1

1 pts

What is the bond order of the O–O bond in O_2 ?

0

3

2

1

Question 2

1 pts

How many lone pairs of electrons are on nitrogen in NF_3 ?

one

two

zero

three

Question 3

1 pts

How many unshared electrons and bonding electrons exist around the central atom in ozone (O_3)?

- six, two
- two, six
- four, four
- zero, eight

Question 4

1 pts

What is the bond order of the C–C bond in acetylene (ethyne, C₂H₂)?

- 1.5
- 1
- 3
- 2

Question 5

1 pts

How many total bonds and lone pairs exist in the Lewis structure for chlorine fluoride (ClF)?

- 1, 4
- 3, 2
- 2, 4
- 1, 6

Question 6

1 pts

Which of the following compounds contains exactly one unshared pair of valence electrons?

- C₂H₄
-

SiH₄

H₂S

PH₃

Question 7

1 pts

How many total bonds and lone pairs exist in the Lewis structure for boron trichloride (BCl₃)?

4, 7

3, 9

3, 10

4, 8

Question 8

1 pts

The carbonate ion (CO₃²⁻) has how many resonance configurations?

3

4

2

The carbonate ion does not exhibit resonance.

Question 9

1 pts

Resonance is a concept that describes the bonding in molecules...

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.

by asserting that double or triple bonds 'flip' or resonate between two locations in the molecule.

- by asserting that electrons in a double bond can delocalize (spill over) onto adjacent single bonds to make a bond and a half.

Question 10

1 pts

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

0

3

2

1

Question 11

1 pts

How many double bonds are present in the 'best' resonance structure of the phosphate ion?

3

1

2

0

Question 12

1 pts

Calculate the formal charge on N in the molecule NH_3 .

0

1

2

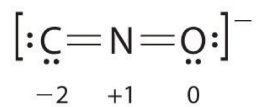
3

Question 13

1 pts

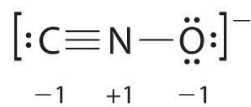
Which of the three Lewis structures is the most important for the fulminate ion (CNO⁻)? Select all of the correct answers.

A



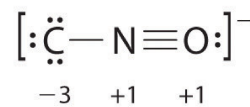
or

B



or

C

 A C B**Question 14**

1 pts

Which of the following bonds will be the most polar?

 C-N Cl-O C-H S-F**Question 15**

1 pts

What is the difference in electronegativity between H and F?

 0.63 0.95 1.78

Question 16

1 pts

Which bond is most polar?

 P-Cl I-Cl Cl-Cl P-I**Question 17**

1 pts

Which substance has nonpolar covalent bonds?

 CO NaCl NO₂ O₂**Question 18**

1 pts

Which substance has polar covalent bonds?

 O₂ Cl₂ Ca₂C NH₃

Question 19**1 pts**

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

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

Quiz saved at 5:25pm

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