

HW07 - Bonding

⚠ This is a preview of the published version of the quiz

Started: Sep 18 at 12:48pm

Quiz Instructions

Homework 07 - Bonding

Question 1

0.5 pts

If the following crystallize in the same type of structure, which has the lowest lattice energy?

CaO

BaO

SrO

SrS

BaS

Question 2

0.5 pts

Which pair of elements is most likely to form an ionic compound?

oxygen and chlorine

nitrogen and sulfur

sodium and aluminum

magnesium and fluorine

Question 3**0.5 pts**

Covalent compounds are generally made up of elements found in which part of the periodic table?

- upper right
- left and right
- lower left
- upper left

Question 4**0.5 pts**

Which is the correct order of increasing bond strength?

- double, single, triple
- triple, double, single
- single, double triple
- double, triple, single

Question 5**0.5 pts**

Which do you predict to have the strongest C–N bond?

- HCN
-

All are equal.

NHCH_2

NH_2CH_3

Question 6

0.5 pts

Which of the following contains only covalent bonding and no ionic bonding?

NaOH

Na_2SO_4

$\text{Ca}(\text{NO}_3)_2$

CCl_4

Question 7

0.5 pts

What total number of valence electrons should appear in the dot formula for the chlorate ion ClO_3^- ?

24

30

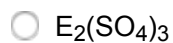
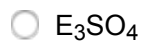
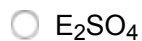
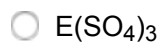
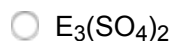
26

28

Question 8

0.5 pts

An element E has the electronic configuration $[\text{Ne}] 3s^2 3p^1$. Write the formula of its compound with sulfate.



Question 9

0.5 pts

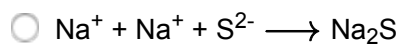
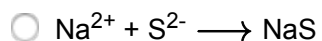
An element E has the electronic configuration $1s^2 2s^2 2p^4$. What is the formula of its compound with lithium?

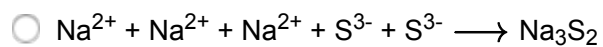


Question 10

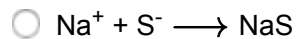
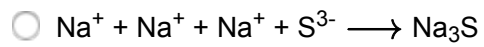
0.5 pts

Which of the following demonstrates the formation of an ionic compound involving the elements Na and S?





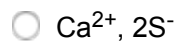
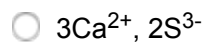
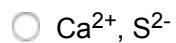
None of these.



Question 11

0.5 pts

Which of the following is the best representation of the compound calcium sulfide?



Question 12

0.5 pts

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

1

2

0

3

Question 13

1 pts

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

- three
- one
- two
- zero

Question 14

1 pts

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

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

Question 15

1 pts

What is the bond order of the C–C bond in acetylene (ethyne, C_2H_2)?

- 3
- 1
- 1.5

2

Question 16

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 17

1 pts

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

C₂H₄

SiH₄

PH₃

H₂S

Question 18

1 pts

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

4, 8

3, 10

3, 9

4, 7

Question 19

1 pts

The carbonate ion (CO_3^{2-}) has how many resonance configurations?

2

4

The carbonate ion does not exhibit resonance.

3

Question 20

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 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.

Question 21

1 pts

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

3

0

2

1

Question 22

1 pts

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

1

2

0

3

Question 23

1 pts

Calculate the formal charge on N in the molecule NH_3 .

0

2

3

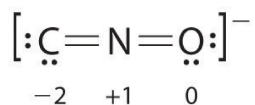
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Question 24

1 pts

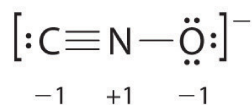
Which of the three Lewis structures is the most important for the fulminate ion (CNO^-)? Select all of the correct answers.

A



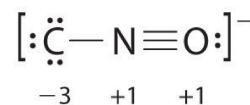
or

B



or

C

 C B A**Question 25**

1 pts

Name the compound CaBr_2 .

 calcium bromine calcium (II) bromide calcium bromide calcium dibromide**Question 26**

1 pts

Choose the formula for the compound magnesium sulfide.

Mg_2S_3

MgS_2

Mg_2S

MgS

Question 27

1 pts

Choose the pair of names and formulae that do not match.

N_2O_3 : dinitrogen trioxide

SnCl_4 : tin (V) chloride

SiCl_4 : silicon tetrachloride

KNO_3 : potassium nitrate

MgSO_4 : magnesium sulfate

Question 28

1 pts

What is the formula of dinitrogen pentoxide?

NO_3

N_2O

N_3O_2

NO

N_2O_5

Question 29

1 pts

Name the compound CaC_2O_4 .

- cadmium oxalate
- calcium carboxide
- calcium oxalate
- cadmium carboxide
- calcium carbonate

Question 30

1 pts

Give the formula for sodium nitrate.

- NaNO_3
- $\text{Na}(\text{NO})_3$
- Na_2NO_3
- $\text{Na}(\text{NO}_3)_2$

Question 31

1 pts

Which of the following bonds will be the most polar?

- Cl-O
- C-H

S-F

C-N

Question 32

1 pts

What is the difference in electronegativity between H and F?

3.80

0.63

1.78

0.95

Question 33

1 pts

Which bond is most polar?

I-Cl

Cl-Cl

P-Cl

P-I

Question 34

1 pts

Which substance has nonpolar covalent bonds?

CO

NaCl

O₂

NO₂

Question 35

1 pts

Which substance has polar covalent bonds?

O₂

NH₃

Ca₂C

Cl₂

Question 36

1 pts

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

nonpolar, with the chlorine end having a partial negative charge.

polar, with the phosphorous end having a partial negative charge.

polar, with the chlorine end having a partial negative charge.

nonpolar, with the phosphorous end having a partial negative charge.

nonpolar, with neither end having a partial charge.

polar, with neither end having a partial charge.

Not saved

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