

Name _____

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(1-10) Are True or False.

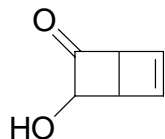
- 1) The Periodic Table has the elements arranged in the order they were discovered
- 2) A σ bond is a covalent bond
- 3) A π bond is an ionic bond
- 4) Carbon is more electronegative than fluorine
- 5) For substituted cyclohexanes, the bulkiest substituent prefers to go equatorial to minimize steric interactions
- 6) The electron configuration of Boron is $1s^2 2s^2 2p^1$
- 7) Carbon has 6 total electrons but only 4 valence electrons
- 8) sp^2 hybrid orbitals give rise to bond angles of 109.5°
- 9) An sp hybridized atom has two unhybridized p orbitals
- 10) Cyclobutane has zero ring strain

11-15) Draw Lewis structures (lines for bonds, dots for lone pairs of electrons) for:

- 11) $B(OH)_3$
- 12) $CH_2=CHCH_2CH_2OH$

13) NH_3

14)



15) $\text{CH}_3\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3)_2$

16) Which element has the electronic configuration $1s^2 2s^2 2p^6 3s^2$?

17) Even though F is more electronegative than Br, Bromide (Br^-) is more stable than Fluoride (F^-). Why?

18-19) For the below reaction of water with hydrogen bromide:

18) Label the acid and base.

19) Circle the nucleophile in this reaction.



20) State the definition of a Lewis Base.

BONUS QUESTION for 1 extra point

Which has more *angle strain*: a cyclohexane chair or a cyclohexane boat conformation?

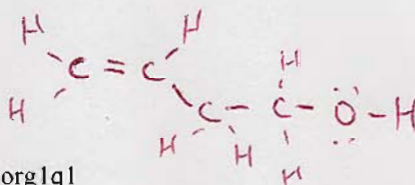
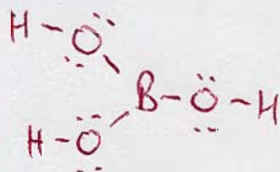
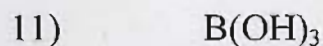
Name PETE ZAHLIT

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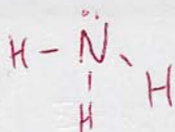
(1-10) Are True or False.

- 1) The Periodic Table has the elements arranged in the order they were discovered **F**
- 2) A σ bond is a covalent bond **T**
- 3) A π bond is an ionic bond **F**
- 4) Carbon is more electronegative than fluorine **F**
- 5) For substituted cyclohexanes, the bulkiest substituent prefers to go equatorial to minimize steric interactions **T**
- 6) The electron configuration of Boron is $1s^2 2s^2 2p^1$ **T**
- 7) Carbon has 6 total electrons but only 4 valence electrons **T**
- 8) sp^2 hybrid orbitals give rise to bond angles of 109.5° **F**
- 9) An sp hybridized atom has two unhybridized p orbitals **T**
- 10) Cyclobutane has zero ring strain **F**

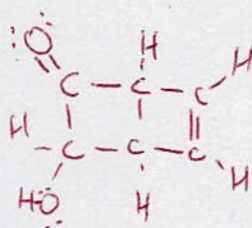
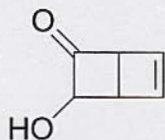
11-15) Draw Lewis structures (lines for bonds, dots for lone pairs of electrons) for:



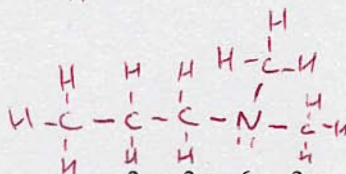
13) NH_3



14)



15) $\text{CH}_3\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3)_2$



16) Which element has the electronic configuration $1s^2 2s^2 2p^6 3s^2$?

Mg

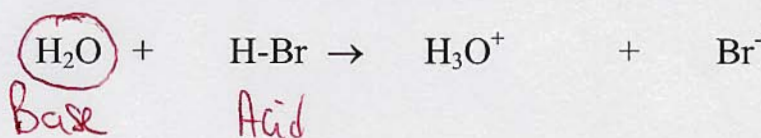
17) Even though F is more electronegative than Br, Bromide (Br^-) is more stable than Fluoride (F^-). Why?

Br^- is larger than F^- and therefore there is less electron-electron repulsions on the bigger Br^- than on the smaller F^- .

18-19) For the below reaction of water with hydrogen bromide:

18) Label the acid and base.

19) Circle the nucleophile in this reaction.



20) State the definition of a Lewis Base.

A two electron donor.

BONUS QUESTION for 1 extra point

Which has more *angle strain*: a cyclohexane chair or a cyclohexane boat conformation?

The same angle strain (which is zero for both)!