

1. $c < d < e < b < a$
2. $c < e < b < a < c$
3. $d < c < e < b < a$
4. $d < c < b < e < a$
5. $c < d < e < a < b$

005 10.0 points

Rank the following by the polarity of their **bonds**, from most polar to least: LiH, NH₃, BH₃, HF.

1. NH₃ > HF > BH₃ > LiH
2. HF > LiH > NH₃ > BH₃
3. NH₃ > BH₃ > HF > LiH
4. BH₃ > HF > LiH > NH₃
5. LiH > NH₃ > BH₃ > HF

006 10.0 points

In which of the following do the unbonded electron pairs **not** distort the bond angles?

1. H₂O
2. I₃⁻
3. SF₄
4. NH₃
5. O₃

007 10.0 points

Which of the following is most likely to form multiple (double or triple) bonds?

1. F
2. Cl
3. Li
4. N
5. H

008 10.0 points

Which would have the largest dipole moment?

1. CCl₄
2. CO₂
3. NH₄⁺
4. NF₃

009 10.0 points

The molecular geometry about the carbon atoms in C₂H₆ is

1. tetrahedral.
2. linear.
3. octahedral.
4. trigonal bipyramidal.
5. trigonal planar.

010 10.0 points

Which of the following ions has a tetrahedral molecular geometry?

1. CO₃²⁻
 2. H₂F⁺
 3. NH₄⁺
 4. H₃O⁺
 5. NO₃⁻
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011 10.0 points

Which substance has nonpolar covalent bonds?

1. NaCl
2. CO
3. O₂
4. NO₂

012 10.0 points

Which of these is NOT an ionic compound?

1. NH₄I
2. MgCl₂
3. K₂CO₃
4. NaSCN
5. HCl

013 10.0 points

CHF₃ is (less,more) polar than CHI₃ because

1. more; the C-F bonds are more polar than the C-I bonds.
2. less; the C-H bond in CHF₃ is a non-polar bond.
3. more; the C-H bond in CHF₃ is a non-polar bond.
4. less; the three polar C-F bonds are symmetrical and cancel the dipole moments.
5. less; the tetrahedral geometry decreases the polarity of C-F bonds.

014 10.0 points

Which of the following only has bond angles of 90° and 180°?

1. IF₅

2. BrF₃

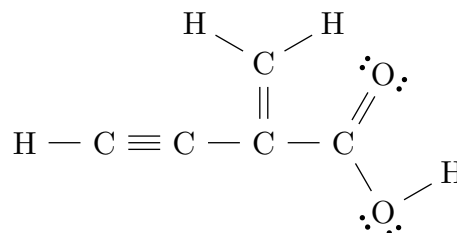
3. BCl₃

4. NO₃⁻

5. ICl₄⁺

015 10.0 points

How many σ (sigma) and how many π (pi) bonds are there in the Lewis structure of the following organic molecule?



1. 10; 6

2. 12; 0

3. 10; 4

4. 14; 0

5. 6; 4

016 10.0 points

Determine the electronegativity difference, the probable bond type, and the more electronegative atom with respect to bonds formed between between the pair of atoms H and F.

1. 3.1; polar covalent; H

2. 6.1; ionic; H

3. 3.1; ionic; H

4. 3.1; ionic; F

5. 6.1; ionic; F

6. 1.9; polar covalent; F

7. 1.9; ionic; F

8. 1.9; ionic; H

9. 1.9; polar covalent; H

10. 3.1; polar covalent; F