

1. (2 Pts) Which of the following ions has the largest diameter?

- a)
- Br^-
- b)
- Cl^-
- c)
- I^-
- d)
- F^-
- e)
- O^{2-}

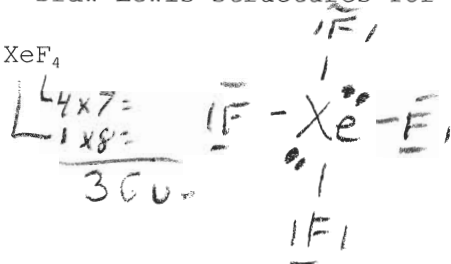
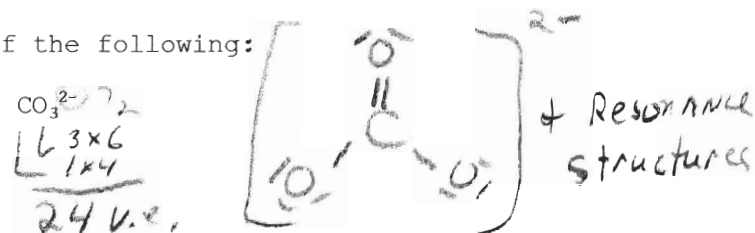
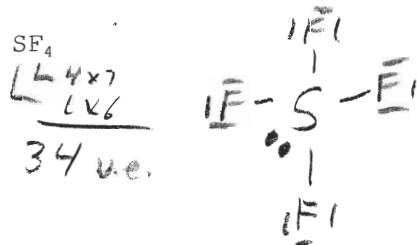
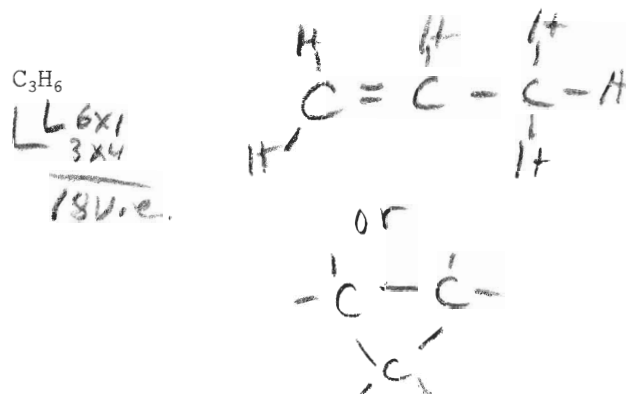
2. (2 Pts) Which ion in the isoelectronic series below has the smallest radius?

- a)
- Al^{3+}
- b)
- Na^+
- c)
- O^{2-}
- d)
- F^-
- e)
- N^{3-}

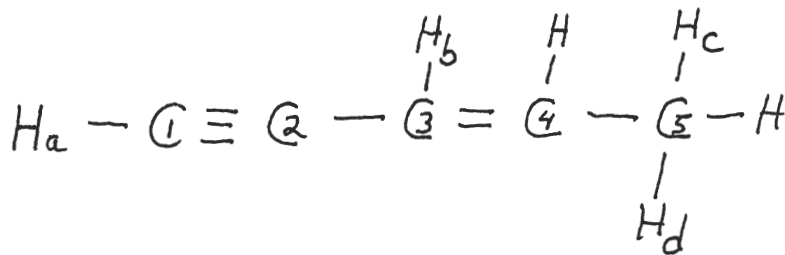
3. (6 Pts) How many valence electrons do each of the following have?

a. ICl_2^+ 20b. ICl_4^- 36c. $\text{CH}_3\text{CH}_2\text{COOH}$ 30

4. (8 Pts) Draw Lewis structures for each of the following:

a. XeF_4 b. CO_3^{2-} c. SF_4 d. C_3H_6 

5. (7 Pts) Answer each of the following questions pertaining to the following structure.



a. What is the hybridization of each of the carbon atoms?

C₁ sp C₂ sp C₃ sp² C₄ sp²

b. Supply numerical values in degrees for each of angles listed.

 $\text{H}_a\text{C}_1\text{C}_2$ 180° $\text{C}_2\text{C}_3\text{C}_4$ 120° $\text{H}_c\text{C}_5\text{H}_d$ 109.5°

1. (2 Pts) Which of the following ions has the smallest diameter?

- a)
- Br^-
- b)
- Cl^-
- c)
- I^-
- d)
- F^-
- e)
- O^{2-}

2. (2 Pts) Which ion in the isoelectronic series below has the largest radius?

- a)
- Al^{3+}
- b)
- Na^+
- c)
- O^{2-}
- d)
- F^-
- e)
- N^{3-}

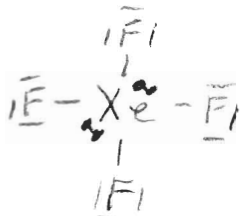
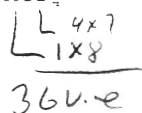
3. (6 Pts) How many valence electrons do each of the following have?

- a.
- ICl_4^-
- 36
- b.
- ICl_2^+
- 20

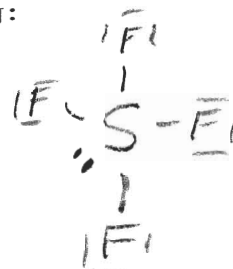
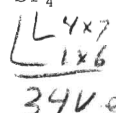
- c.
- CH_3COOH
- 24

4. (8 Pts) Draw Lewis structures for each of the following:

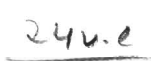
- a.
- XeF_4



- b.
- SF_4



- c.
- CO_3^{2-}

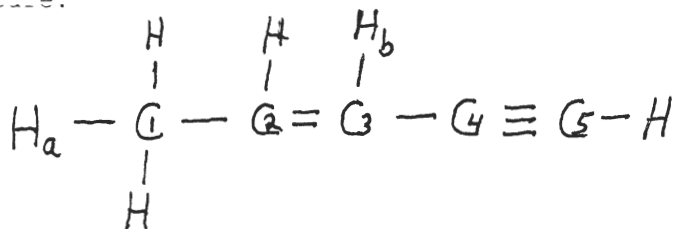


+ Resonance structures

- d.
- C_3H_6



5. (7 Pts) Answer each of the following questions pertaining to the following structure.



a. What is the hybridization of each of the carbon atoms?

- c
- ₁
- sp^3
- c
- ₂
- sp^2
- c
- ₃
- sp^2
- c
- ₄
- sp

b. Supply numerical values in degrees for each of angles listed.

- H
- _a
- C
- ₁
- C
- ₂
- 109.5°
- C
- ₁
- C
- ₂
- C
- ₃
- 120°
- H
- _b
- C
- ₃
- C
- ₄
- 120°