

Names of all students (please print) _____

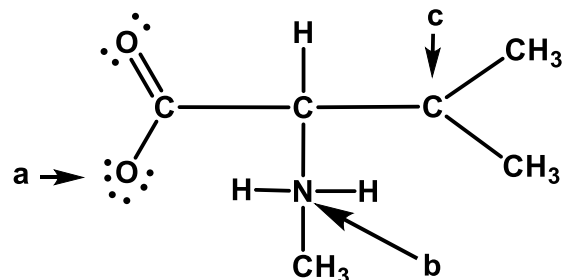
CHEM 243 Organic Chemistry I

Points _____ (10 max)

Worksheet #1: September 3, 2021. Complete the following worksheet by collaborating with a group of 3-4 students. You can use a text book or your lecture video notes. You must work together, with the names of all students included on **ONE** sheet and turned in for a group grade.

(1) Formal Charge. In the structure drawn to the right, what is the Formal Charge for atoms:

(a) _____ (b) _____ (c) _____



(2) Covalent Bonds, Hybridization, and Molecular Geometry. For the structure drawn below:

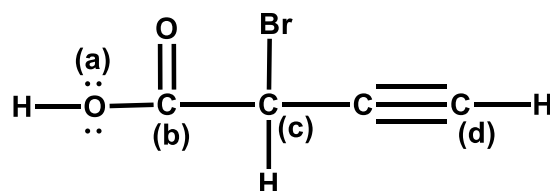
What is the Hybridization and Geometry for atoms labeled (a) – (d):

(a) _____ and _____

(b) _____ and _____

(c) _____ and _____

(d) _____ and _____



What is the total number of sigma (σ) covalent bonds in this structure _____

What is the total number of pi (π) covalent bonds in this structure _____

(3) For the structure drawn at the right:

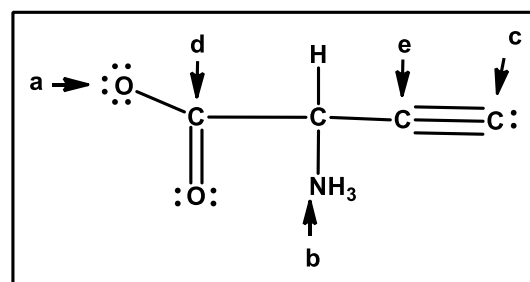
(a) What is the Formal Charge for: (a) _____ (b) _____ (c) _____

(b) What is the hybridization for: (b) _____ (d) _____ (e) _____

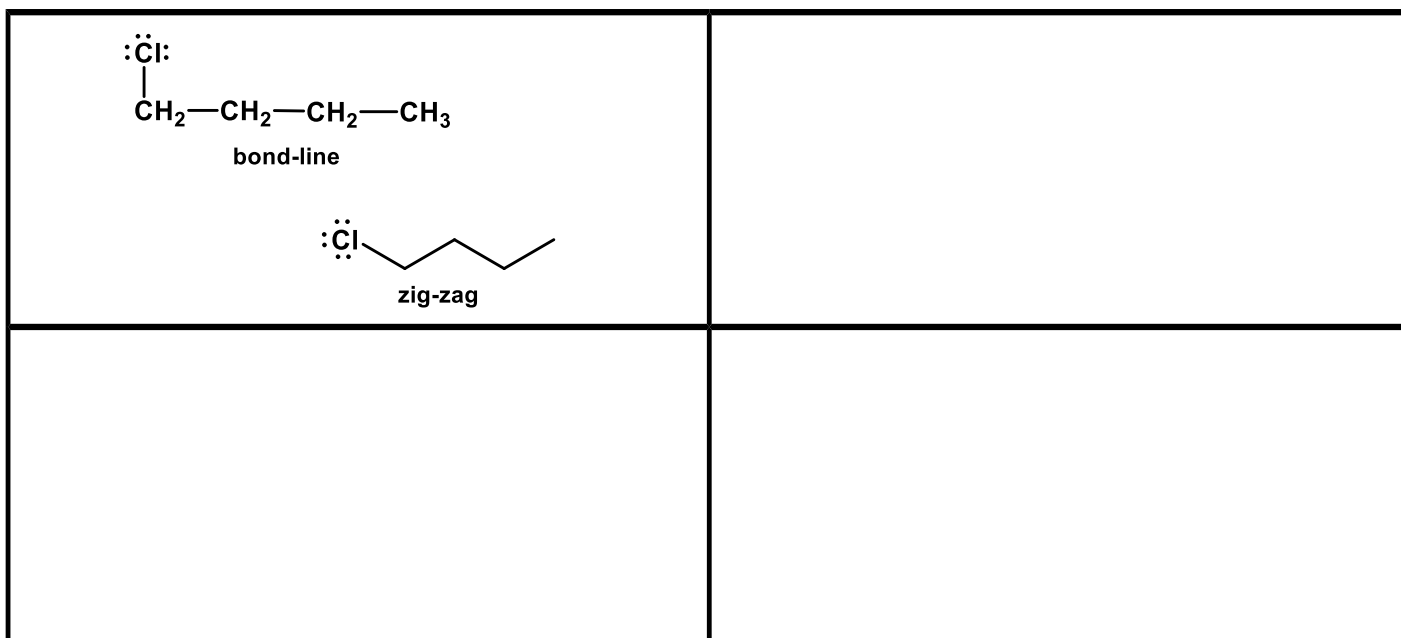
(c) What is the molecular geometry for:

(b) _____ (d) _____ (e) _____

(d) What is the total number of pi (π) covalent bonds in this structure _____

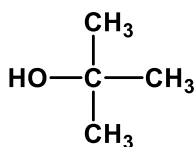


(4) **Constitutional Isomers.** Given the molecular formula C_4H_9Cl , in the boxes below draw reasonable structures for **four** Constitutional isomers. You can draw either bond-line or zig-zag structures. **One example is given for you.**

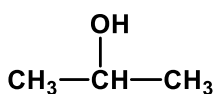


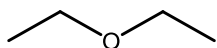
(5) **Comparing Organic Structures.** Are the following pairs of organic compounds:

Constitutional Isomers or Identical or Different

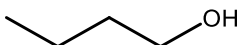


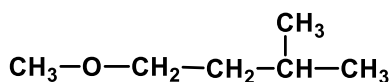
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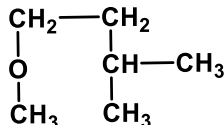


and





and



When your group has completed this Worksheet.....

- Copy your best answers to a fresh worksheet with the names of all students from your group
- Hand in to Dr. Brush
- If there is still time left in class:
 - You can leave, or...
 - Work on Worksheet Zero