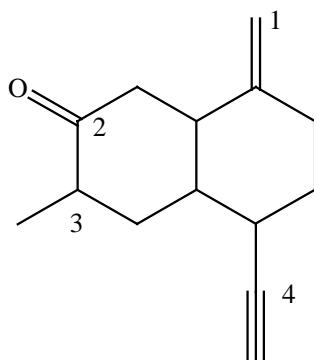


DEPARTMENT OF CHEMISTRY

C10J – ORGANIC CHEMISTRY
TUTORIAL #1

For discussion during the week of September 28, 2003

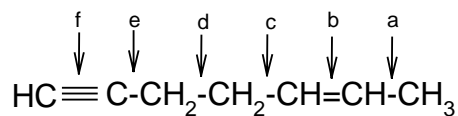
1. Identify the hybridization state, geometry and bond angles of the numbered carbon in the molecule show (12 points).



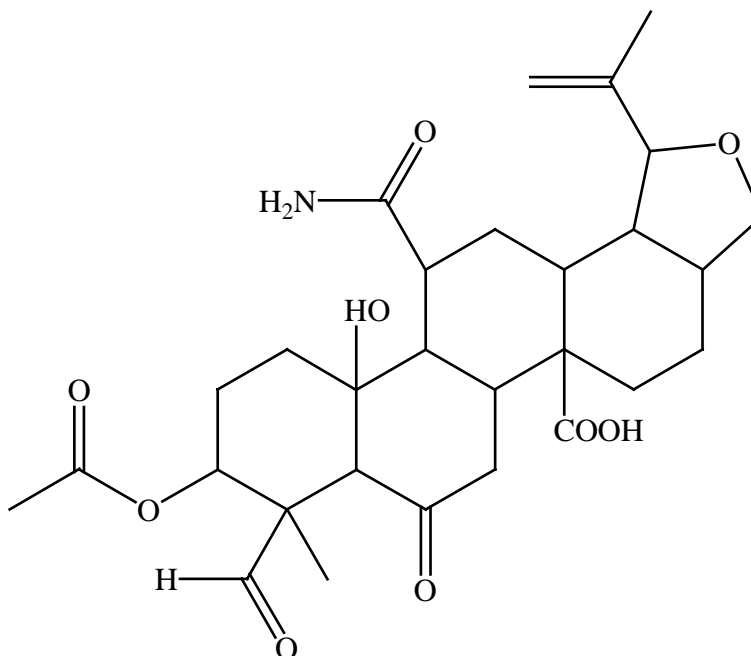
2. This questions refers to the above molecule (2 points each)

How many primary (1°), secondary (2°) and tertiary (3°) carbons are present.

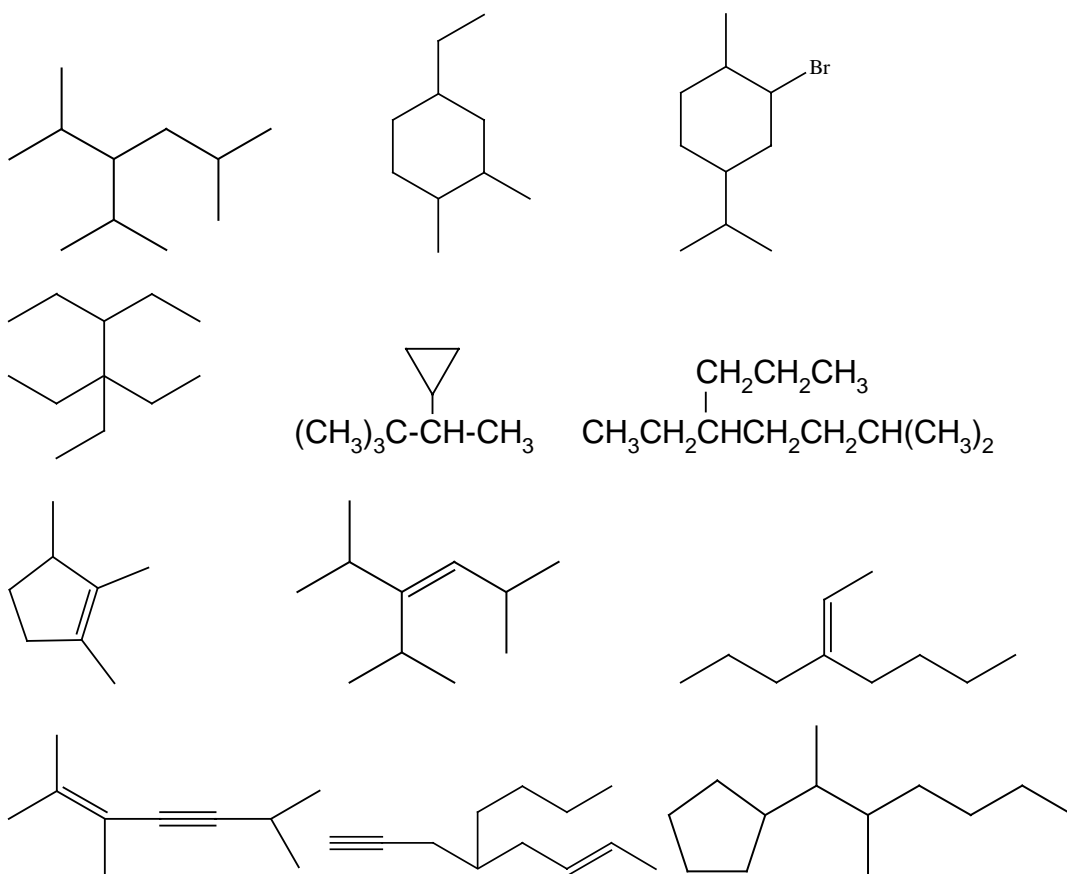
3. For the following structure, list the carbon-carbon bonds indicated in order of increasing bond length (shortest bond first). Provide explanations and approximate bond lengths (1 points each).



4. Circle and name ALL the functional groups in the molecule shown below (8 points).



5. Give IUPAC names for the following hydrocarbons (2 points each).



6. Draw the structures and give complete IUPAC names for all the dimethylcyclopropanes (6 points).

4. Write the structural formula of:

- 2,3-dimethylbutane;
- 2,2-dimethylpropane (neopentane);
- 4-ethyl-2,4-dimethylheptane.
- 6-ethyl-3,4-dimethylcyclohexene
- (4E)-2,4-dimethyl-1,4-hexadiene
- 3-chloro-4,4-dimethyl-1-nonen-6-yne
- Cis-1-bromo-2-ethylcyclopentane

Practice problems from the text, Organic Chemistry (Solomons & Fryhle) 8th edition.

Chapter 1: 1.20, 1.21, 1.22, 1.23, 1.25, 1.26, 1.33, 1.34.

Chapter 2: 2.20, 2.21, 2.22, 2.27.