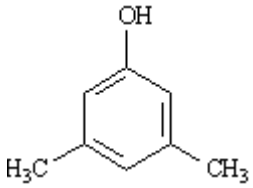
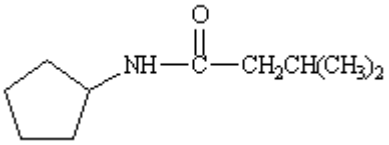
CH1010 Tutorial 3

Name:

1. Provide **IUPAC names** for the following compounds:

   $OHCCH_2CH_2CH_2CHO$



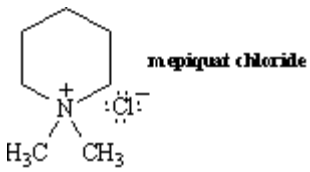


2. Draw **line-angle structures** corresponding to the following IUPAC names:

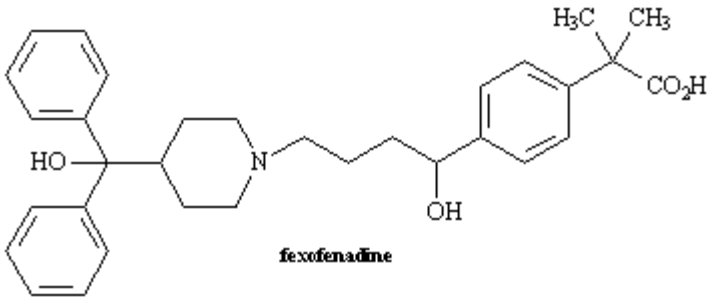
   • *N*-ethyl-*N*-methylcyclohexylamine

   • 2,2-dimethyl-propanoic acid

3. **Classify** each of the following **nitrogen atoms** in the following compounds as primary, secondary, tertiary, or quaternary.

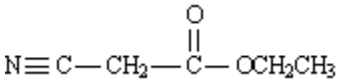


mepiquat chloride

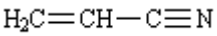


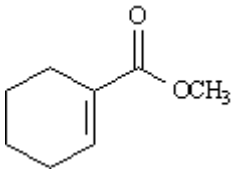
fexofenadine

4.At what approximate positions might this compound show **infrared** absorptions?



5. Circle any **conjugated portions** in the molecules below.





6. An impure organic liquid was obtained from the wood of the sandalwood tree *Santalum austrocaledonian* using standard laboratory techniques.

- How could **purification** of the liquid be carried out?

A minor component of the organic liquid was obtained in a pure form and gave the following microanalytical results:

C: 46.59 % H: 8.80 % N: 13.58 %

Infrared spectroscopy of a sample of the liquid gave several strong bands at 3390, 2900 and 1705 cm^{-1}. In a mass spectrum of the compound a molecular ion was obtained at m/z 103.

- Determine the **empirical** and **molecular formulae** for this compound.
- Draw a **line-angle structure** for a molecule that obeys the molecular formula you have determined showing how you came up with this structure.