

Chemistry 102**October 8, 2003**

Do all the work on the exam sheets. Exam is a total of 3 pages. No additional papers will be graded.

1. Short answers (30 points total)

a) List three different colligative properties. **8 pt**

b) If you increase the temperature, what would happen to the solubility of oxygen in water? **7 pt**

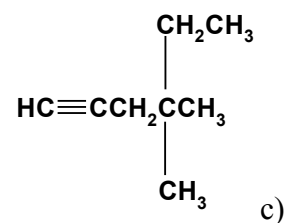
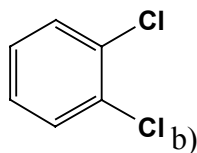
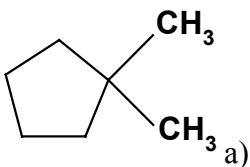
c) What is Markovnikov's rule? **8 pt**

d) What are structural isomers? **7 pt**

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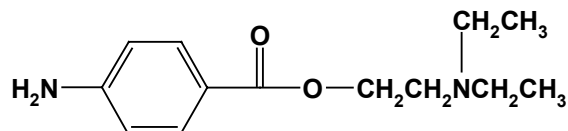
2. Concentration units (30 pts total) How would you prepare 100 mL of 0.5 M solution of NaCl in water? Molecular weight of NaCl is 58.5 g/mol.

3. Nomenclature of organic compounds (30 pts total, 10 points each) Give IUPAC names for each of the following compounds:

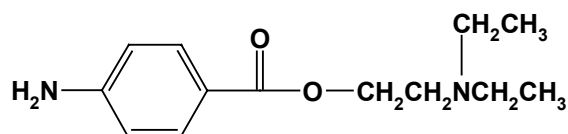


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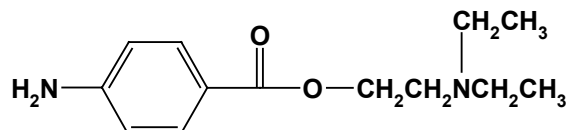
4. Functional groups (30 pts total, 15 points each) Novocaine, a local anesthetic, has the following structure:



a) Identify the functional groups in novocaine:



b) Give the hybridization of the twelve carbon atoms in novocaine:



5. Extra credit problem (10 pts total). Pick your favorite organic molecule. Draw its chemical structure, give the IUPAC name, and identify its applications in industry, or medicine, or living organisms etc.