

## Exam 1 Review Sheet for Monday, July 15 Exam Chem 1020, Summer 02, Robertson

Our exam will include material from chapters 12, 13 and part of 14. **Only material that I have covered in class, have assigned homework problems on, or mention on this review sheet will be tested.**

On Monday, you should be able to: (I do not claim that this is an exhaustive list.)

### Chapter 12

- Define and use the following terms: catenation, hybridization, homologous, saturated, unsaturated, condensed structural formula, general structural formula, radicals, isomers,.
- Explain why there are so many carbon compounds.
- List and explain the different types of hybridization that carbon undergoes and what geometries and bond angles result
- Name and draw structural formulas for alkanes, alkenes, alkynes, cycloalkanes, cycloalkenes, and aromatics. Be sure and know common names for structures covered in class. Describe the general properties of each type of compound with regard to stable phase under normal room conditions, water solubility, and chemical reactivity.
- Explain structural and cis/trans isomerism. Give examples, tell what types of compounds exhibit it, name compounds and give structural formulas.
- Summarize our history of energy use in the U.S. knowing approximate percentages for today. Explain the importance of petroleum in our energy history as well as in organic chemistry. Be able to match examples of the products derived from the fractional distillation of petroleum as a function of chain length. Explain what type of chemical alterations can be made to these products.
- Explain the concept of octane rating in gasoline and how octane rating can be increased. Define and explain oxygenated and reformulated gasoline. Why are these modifications necessary and how does this affect the consumer?

### Chapter 13

- Define energy and power and recognize energy and power units.
- Discuss the world energy problems using specific information from the lecture notes and text material.
- Define radioactivity, fission and fusion and be able to complete nuclear equations summarizing these processes. (Review Chapter 5 if hazy on nuclear equations) Explain how fission is used to produce electricity and the pros and cons associated with this process. Discuss the pros and cons associated with using fusion for the production of electricity.
- List and discuss the pros and cons of possible energy alternatives given in text and lecture.

### Chapter 14

- Name and draw structural formulas for alkyl halides, alcohols, ethers, aldehydes, ketones, acids, amines, and amides. Be able to recognize these functional groups. Be sure and know any common names given in class. Describe the general properties of each type of compound with regard to stable phase under normal room conditions, water solubility, and chemical reactivity.