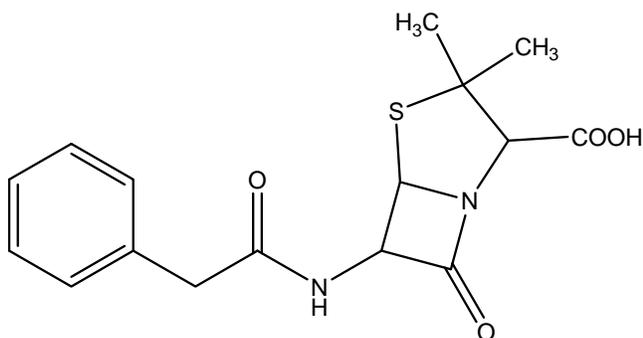
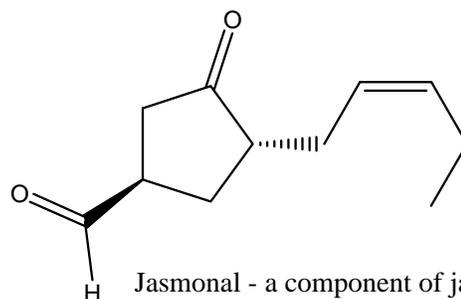


Spring 2009 CH302 Worksheet 10 – Organic Chemistry

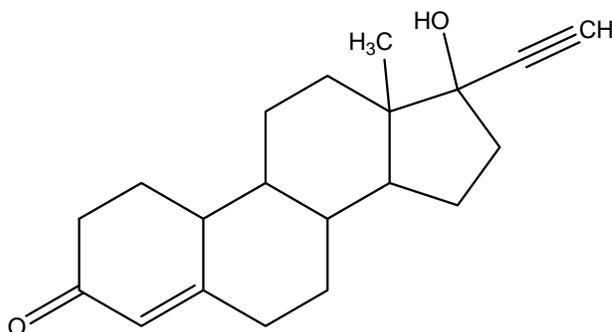
1. How many structural isomers does C_4H_{10} have? Draw them.
2. Name them.
3. How many structural isomers does C_7H_{16} have? Draw them.
4. Name them.
5. Circle and name the functional groups in these famous compounds.



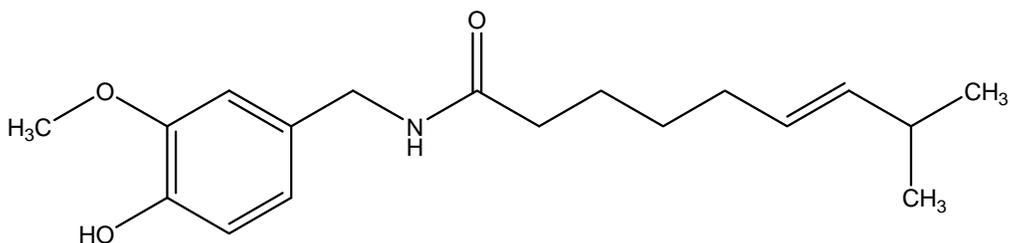
Penicillin G



Jasmonal - a component of jasmine oil

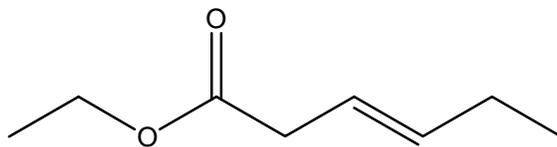


Norethindrone - active ingredient in Enovid (the first "pill")



Capsaicin - "heat" causing molecule in chili peppers

6. Provide the IUPAC name.



7. Draw the following:

- 3,3,5-Triethylheptane
- 2-Methylcyclohexanone

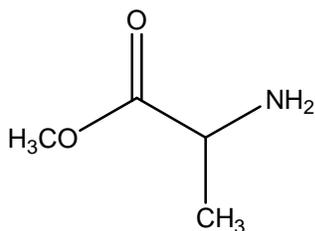
8. Draw the following:

- 5,5-Dimethyl-1-hexene
- 2,3,4-trimethyl-4,7-dipropylnonan-1-al
- 5-ethyl-1,3,6-heptatriene.

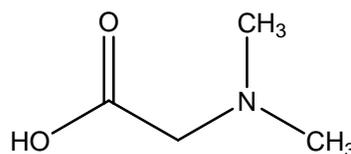
9. Name the following.

- $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$
- $\text{CH}_2(\text{CH}_2\text{CH}_3)_2$
- $\text{CH}_2(\text{OH})\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_2\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$

10. Proteins are biological polymers made of amino acids. What type of linkage forms these polymers? Draw the product that would result from these two amino acids reacting together to form a peptide. What type of reaction is this?



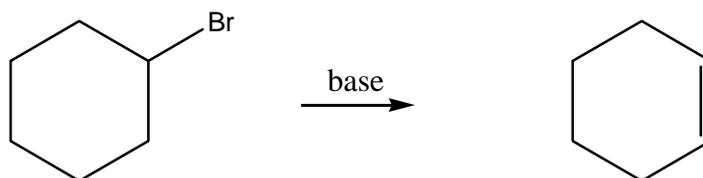
Alanine methyl ester



N,N-dimethylglycine

11. What levels of structure organization are possible for proteins and what do these each describe?

12. Draw and name the four DNA bases.
13. Which are the guanines and which are the pyrimidines?
14. What is responsible for the helical structure of DNA? Draw a circle around the H-bonds between base pairs.
15. What is the monomer and formula in the famous polymer that comprises irrigation pipes (PVC, polyvinyl chloride)?
16. What types of polymers are there (4 general classes)? Draw examples with A,B notations.
17. What is a nucleoside? What is a nucleotide?
18. What is a fatty acid? What is the difference between saturated and unsaturated?
19. What type of reaction is shown below?



20. What type of reaction generates this ether?

