

Chemistry 325  
Summer, 2008  
Examination #1  
Thursday, June 19, 2008

The time limit for this examination is 50 minutes. The maximum score possible for this examination is 100 points. You may use molecular models.

NAME: \_\_\_\_\_

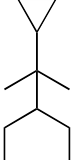
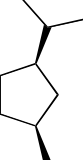
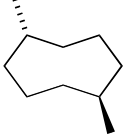
SECTION I. Nomenclature [30 points]

1. Draw the structures of each of the following compounds.

- (a) *cis*-3-methyl-1-propylcyclobutane  
 (b) *trans*-1,4-dicyclobutylcyclohexane  
 (c) 3-ethyl-4-propyloctane

(a)	(b)	(c)
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2. Write a correct name for each of the following compounds:

(a) 	(b) 	(c) 
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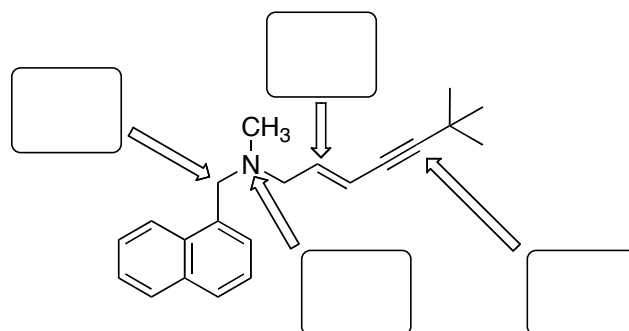
(a) \_\_\_\_\_

(b) \_\_\_\_\_

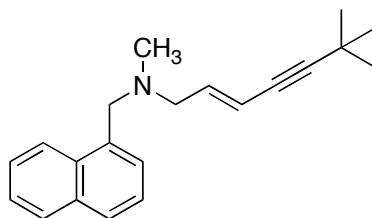
(c) \_\_\_\_\_

SECTION II. Structure and bonding [70 points]

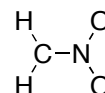
1. Indicate the hybridization of each atom indicated in the structure of lamisil, shown at right [8 pts]



2. Circle and name the functional groups of the lamisil molecule [8 pts]



3. Nitromethane reacts with hydroxide ion to give a singly-charged anion whose  $\sigma$  bonds are arranged as shown. Draw three contributing canonical forms to the resonance hybrid of this anion [6 pts each; 18 pts]



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4. The name 2,2,3,4,4-pentaethylpentane is incorrect, but one can draw the correct structure of this compound from the name.

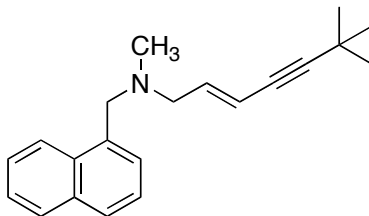
(a) Draw the structure of this compound [4 pts]

(b) Give the correct name of this compound [6 pts].

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5. There are five isomers of  $C_6H_{14}$ . Draw line formulas of all of them [4 pts each; 20 pts]

6. Identify the type of orbital that contains the highest-energy electrons in the lamisil molecule, and the type of the lowest-energy empty orbital of the molecule. You need only specify the type of orbital, not the specific orbital [5 pts]



Highest energy electrons in this type of orbital: \_\_\_\_\_

Lowest-energy empty orbital is this type: \_\_\_\_\_