CHM 233 : Fall 2015
Quiz #2 - Answer Key

Question 1
MCstruc1
How many hydrogen atoms does the molecule carvone have (the line-angle structure is drawn below)? Two forms of stereoisomer of carvone occur naturally, both have distinctive and pleasant smells!

A 14 hydrogens
B 16 hydrogens
C 18 hydrogens
D 20 hydrogens
Question 2
MC10e

How many hydrogen atoms does tryptophan contain?

tryptophan in its ionic form

A = 13
B = 10
C = 11
D = 12
Question 3
MC10v

Which is a correct condensed formula for citronellal, which provides the characteristic smell of lemons!

![citronellal structure]

A \((\text{CH}_3)_2\text{CCHCH}_2\text{C(CH}_3)_2\text{CH}_2\text{CHO}\)

B \((\text{CH}_3)_2\text{CCHCH}_2\text{CH(CH}_3)\text{CH}_2\text{CH}_2\text{OH}\)

C \((\text{CH}_3)_2\text{CCHCH}_2\text{CH(CH}_3)\text{CH}_2\text{CHO}\)

D \((\text{CH}_3)_2\text{CHCH}_2\text{CH(CH}_3)\text{CH}_2\text{CHO}\)

**incorrect** A

\((\text{CH}_3)_2\text{CCHCH}_2\text{C(CH}_3)_2\text{CH}_2\text{CHO}\)

**incorrect** B

\((\text{CH}_3)_2\text{CCHCH}_2\text{CH(CH}_3)\text{CH}_2\text{CH}_2\text{OH}\)

**incorrect** C

\((\text{CH}_3)_2\text{CCHCH}_2\text{CH(CH}_3)\text{CH}_2\text{CHO}\)

**incorrect** D

\((\text{CH}_3)_2\text{CHCH}_2\text{CH(CH}_3)\text{CH}_2\text{CHO}\)
Question 4
MC10w

Which is a correct condensed formula for linalool, which contributes to the pleasant scent in many flowers.

\[
\text{linalool}
\]

A \((\text{CH}_3)\text{CH}_3\text{CCHCH}_2\text{CH}_2\text{C(OH)CHCH}_2\)

B \((\text{CH}_3)_2\text{CCHCH}_2\text{CH}_2\text{CCH}_3\text{(OH)CCH}_2\)

C \((\text{CH}_3)\text{CH}_3\text{CCHCH}_2\text{CH}_2\text{C(CH}_3\text{)(OH)CH}_2\text{CH}_2\)

D \((\text{CH}_3)_2\text{CCHCH}_2\text{CH}_2\text{C(CH}_3\text{)(OH)CHCH}_2\)
Question 5
MC10x
How many DIFFERENT molecules are represented by the following five structures?

A 1 molecule (they are all the same)
B 2 different molecules
C 3 different molecules
D 4 different molecules
Question 6

Below are several molecular structures, some are of different molecules and some are of the same molecule drawn different ways. How many of these are drawings of the SAME molecule? For example, if you think that A, B and D are the same molecule but C, E and F are not the same as A, B and D, then your answer would be "Three are the same", etc.

A. \((\text{CH}_3)_2\text{CHCH(CH}_3\text{)CH}_2\text{CH}_3\)

B. \((\text{CH}_3)_2\text{CHCH(CH}_3\text{)(CH}_2\text{)}_2\text{CH}_3\)

C. \(\text{CH}_3\text{CHCH(CH}_3\text{)CH}_2\text{CH}_3\)

D. \(\text{CH}_3\text{CHCH(CH}_3\text{)CH}_2\text{CH}_3\)

A. TWO are the same
B. THREE are the same
C. FOUR are the same
D. FIVE are the same
Question 7
MCstruc6

Many different isomers can be drawn for the molecular formula C\textsubscript{7}H\textsubscript{14}, shown below are some of them. Except that two of the structures below are actually the same, not isomers, which are the two that are the same?

A  III and VI are the same
B  IV and V are the same
C  II and IV are the same
D  V and II are the same
Question 8

MCstruc8

Identify the structure that does NOT have the molecular formula $C_6H_{10}$

A

$CH_3CHCHC(CH_3)CH_2$

B

C

D

\[
\begin{align*}
\text{C} & = \quad \text{HC--CH} \\
& \quad \text{CH}_3 \\
& \quad \text{CH}_3 \\
& = \quad C_6H_{12}
\end{align*}
\]