

Pre Assessment Organic Chemistry:

Fill in the table below:

[KU] [Comm]

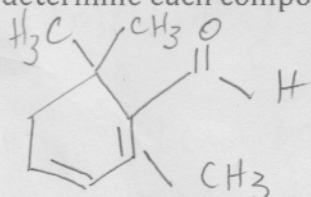
(p. 46 #1) answer

Name	Condensed structure	Line diagram or structural formula	Type of compound
heptanal	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CHO}$		aldehyde
heptan-4-one	$\text{CH}_3\text{CH}_2\text{CH}_2\text{COCH}_2\text{CH}_2\text{CH}_3$		ketone
Pentan-3-one	$\text{CH}_3\text{CH}_2\text{COCH}_2\text{CH}_3$		ketone
1-chlorobutan-2-one	$\text{CH}_3\text{C(=O)CH}_2\text{CH}_2\text{Cl}$		ketone
3-methylpentanal	$\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{CHO}$		aldehyde
2-methylbutanal	$\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CHO}$		aldehyde

Communication Question: Explain, using examples, how Markovnikov's rule applies to an alkene compound.

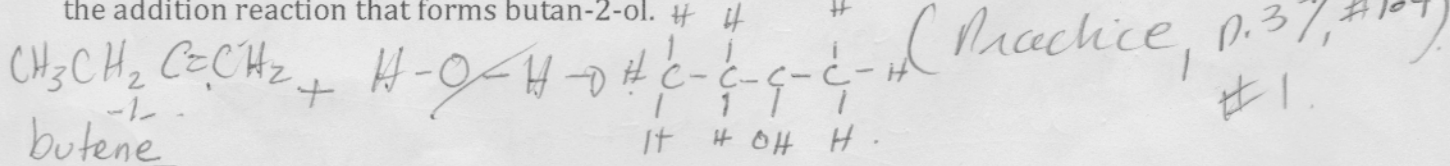
In a hydrogen atom generally bonds to the carbon with more hydrogens. (p. 25)
 For example, $\text{H}-\text{C}=\text{C}-\text{CH}_2-\text{CH}_3 + \text{HCl} \rightarrow \text{H}-\text{C}-\text{C}-\text{CH}_2-\text{CH}_3$
 (Structure shows H and Cl added to the double bond carbons, with H on the more substituted carbon.)

Application Questions: A number of spices have distinctive flavorings, which organic compounds are responsible for each one, you may use the Internet to determine each compound.

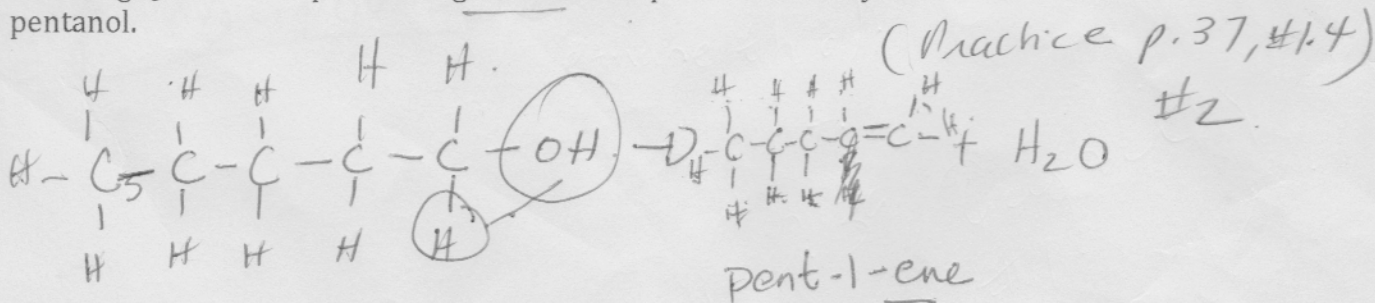


2,6,6-trimethyl-1,3-cyclohexadiene-1-carboxaldehyde. (p. 40)

Thinking Question: Draw a chemical equation, showing structural formulas, for the addition reaction that forms butan-2-ol.

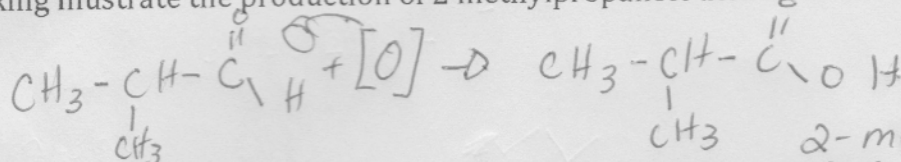


Thinking Question: Explain, using a chemical equation, the dehydration of pentanol.



Application Questions: Research using your resources the active ingredients in rotten eggs. Humans can detect simple thiols at low concentrations. The likely compound is SH-3 hydrogen sulfide.

Thinking Illustrate the production of 2 methylpropanoic acid from an aldehyde. (p. 53, #1) ^{1.6}



Communication Question: Why are $\text{C}_n\text{H}_{2n+2}$; C_nH_{2n} ; $\text{C}_n\text{H}_{2n-2}$ used, what purpose does this representation have?

$\text{C}_n\text{H}_{2n+2}$ alkane

$\text{C}_n\text{H}_{2n-2}$ - alkyne
2-methylpropanoic acid

If you know a formula you can determine the name of the compound.
Communication Question: What does IUPAC stand for? What does this organization do, in this case organic chemistry? Does it serve a useful purpose, explain with reasons.

IUPAC stands for International

Union of Pure and Applied Chemistry (IUPAC) ^{For Organic Chemistry} ~~was~~ established

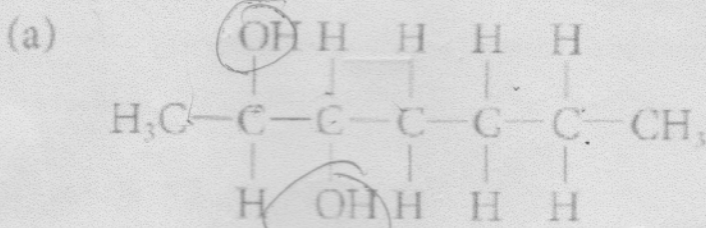
established a system for naming chemicals, that is

this system is very useful because there are millions of organic

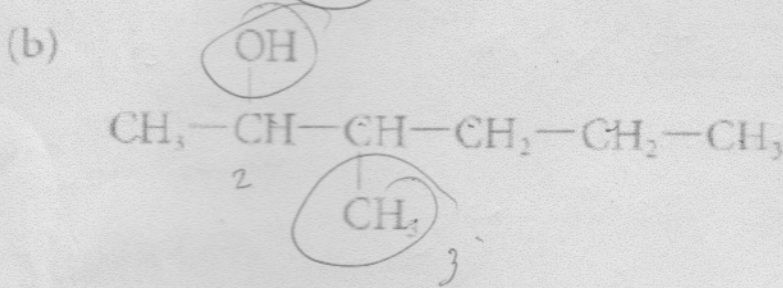
chemicals, it makes it the system makes it easier for

people to name and understand compounds.

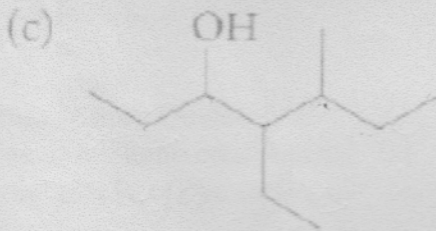
1. Write the name of each of the following compounds:



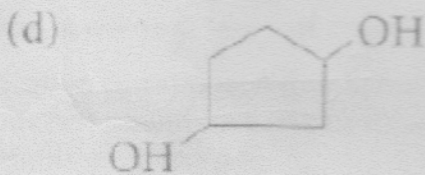
heptane-2,3-diol



3-methylhexan-2-ol

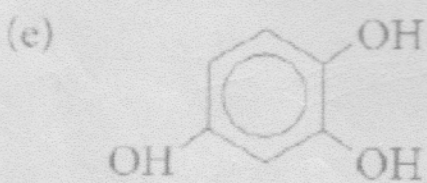


4-ethyl-5-methylheptan-3-ol

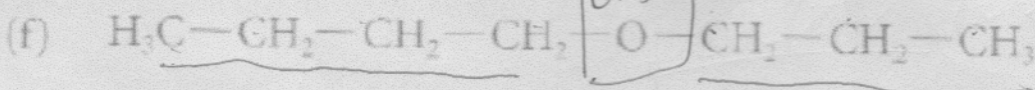


1,3-cyclopentanediol

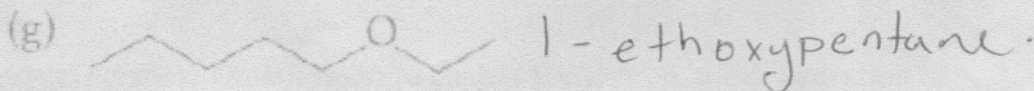
trihydroxy



1,2,4-trihydroxybenzene



1-propoxybutane



1-ethoxypentane



ethanethiol

1.4.
(P. 39, Question #1)