CHM 2210 1-30-17

Nomenclature:

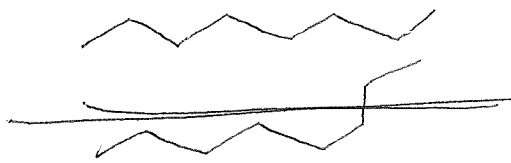
Constitutional isomers
Branched substituents
Cycloalkanes
Halides
Ethers
Alcohols
Amines

Octane

C_8H_{18}

18 isomers.

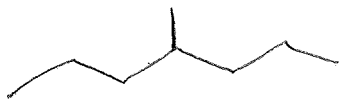
Strategy

(1)  octane

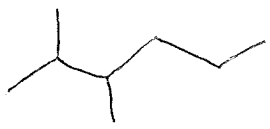
2-methylheptane
7

(3) 

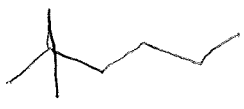
3-methylheptane



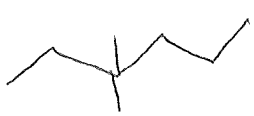
4-methylheptane

(7) 

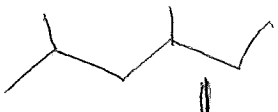
2,3-dimethylhexane



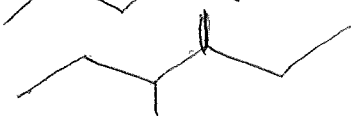
2,2-dimethylhexane



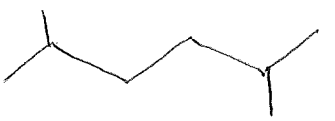
3,3 dimethyl hexane



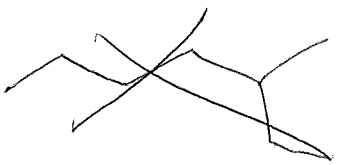
2,4 dimethyl hexane

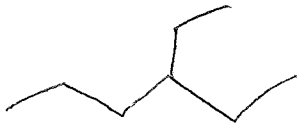


3,4 dimethyl hexane



2,5 dimethyl hexane





3-ethylhexane

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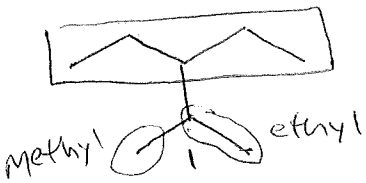
(6) Pentanes. Find 5 of them.

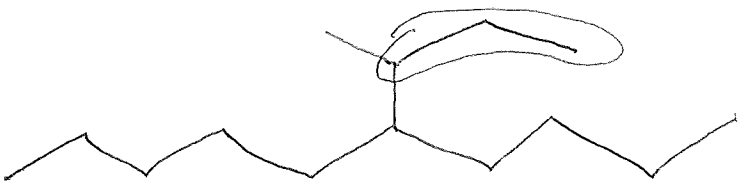


3-isopropylpentane

common

Branched substituent

3-(1-methylethyl) pentane



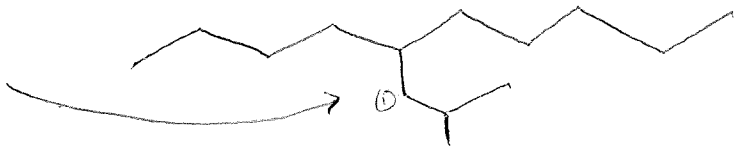
5-sec-butyl decane (common)

5-(1-methylpropyl) decane

5-isobutyl decane common

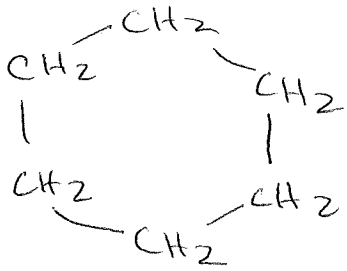
5-(2-methylpropyl) decane

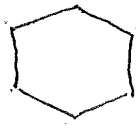
1 substituent attachment



Cycloalkanes C_NH_{2N} unsaturated

C_6H_{12}

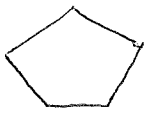




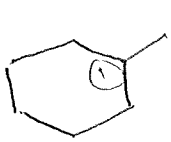
cyclohexane

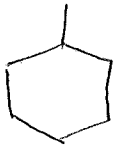
6

 cyclobutane

 cyclopentane

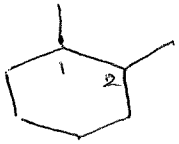
Substituents (1)



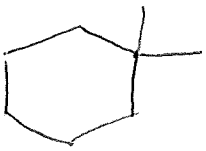


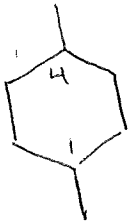
methylcyclohexane

Substituents (2)



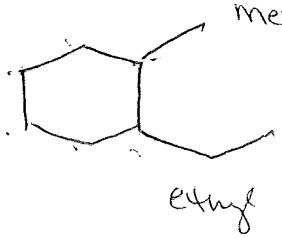
1,2-dimethylcyclohexane





1,4-dimethylcyclohexane

not the same



1-ethyl-2methyl cyclohexane

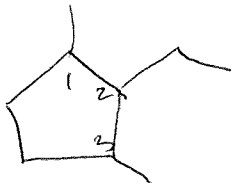
alphabetical

~~Eo~~ first gets #1

(2+) substituents

X 1 ethyl 2,5 dimethylcyclopentane

☆ The #1 goes to the place that gives everything else the lowest numbers.



2 ethyl-1,3-dimethylcyclopentane

Halides F, Cl, Br, I

CH_3CH_3 → H, Cl

ethyl

CH_3CH_2-Cl

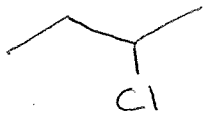
Common
no-numbers

ethylchloride

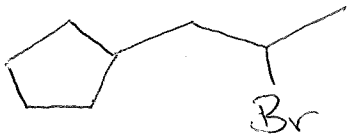
IUPAC system

CH_3CH_2Cl

1-chloroethane

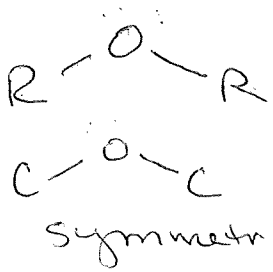


2-chlorobutane

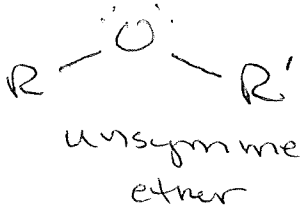


(2-bromopropyl)cyclopentane

Ethers



symmetric



unsymmetric ether

Common

$CH_3OCH_2CH_3$

ethyl methyl ether

$CH_3CH_2OCH_2CH_3$

diethyl ether

Systematic

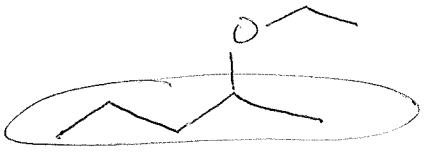
methyl-oxy

$-\ddot{O}CH_3$ methoxy

$-\ddot{O}CH_2CH_2CH_3$ propoxy

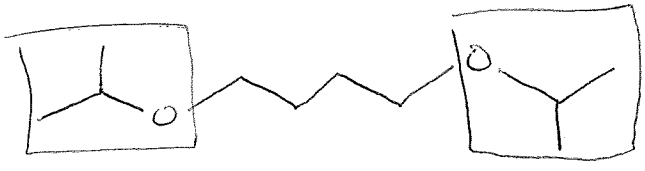
$CH_3\ddot{O}CH_2CH_3$

1-methoxy ethane



2-ethoxypentane

parent chain O-X as a substituent.

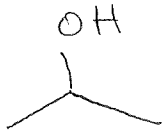


1, 4 diisopropoxybutane

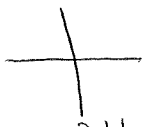
Alcohols - Functional group

R – ÖH

1°



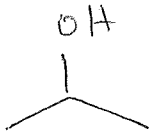
2°



3°

Common

ethyl alcohol
ethanol



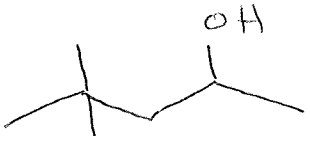
isopropanol isopropyl alcohol

2-propanol or propan-2-ol

Parent chain remove -e
adding -ol

where it is.

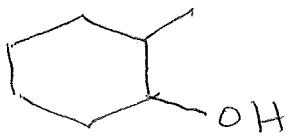
★ parent chain is the longest continuous chain contains the -OH
Numbered to give it the lowest number.



2,2 dimethyl-4-pentanol

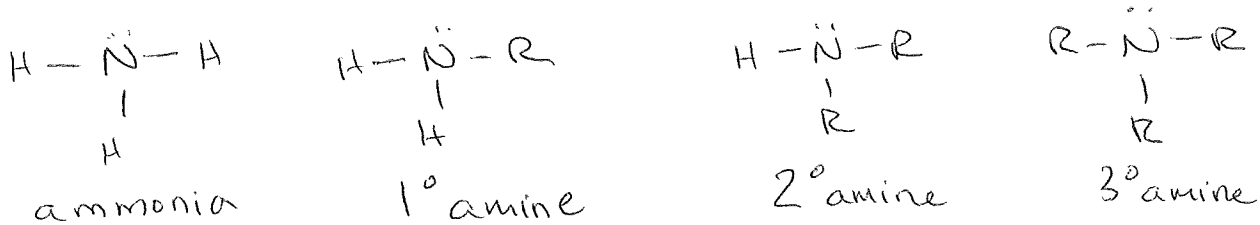
or

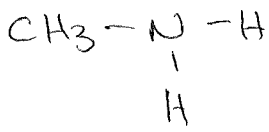
4,4 dimethyl-2-pentanol

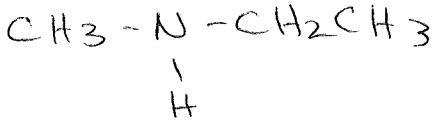


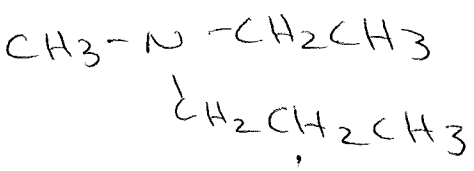
2-methyl cyclohexanol

amines - contain N



Common  methylamine

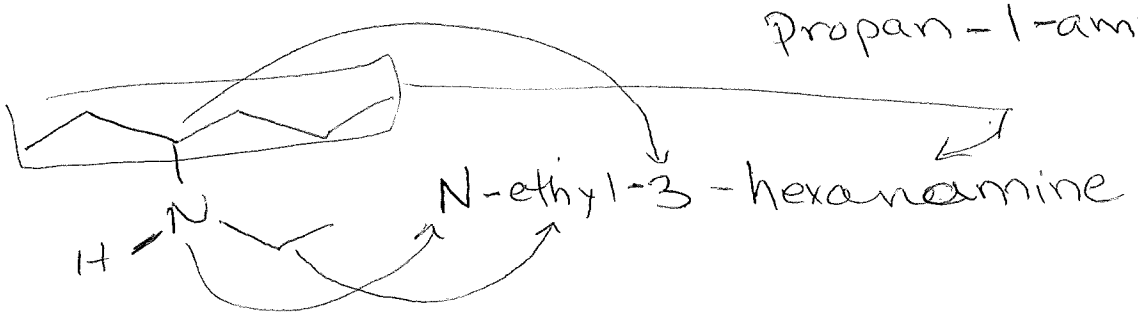
 ethylmethylamine

 ethylmethylpropylamine

Systematic  1-propanamine

or

Propan-1-amine



1 Parent chain

2 Number it

N, other substituents

 N-ethyl-N-methyl-propanamine