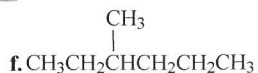


3. Listed below are the condensed structural formulas or names of the nine isomers of heptane, C_7H_{16} . Write the formula and name for each.

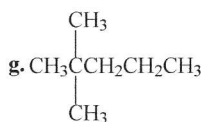
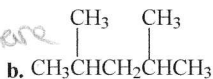
all C_7H_{16}

heptane



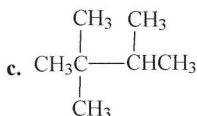
3-methylhexane

2,4-dimethylpentane



2,2-dimethylpentane

2,2,3-trimethylbutane



h. 2-methylhexane

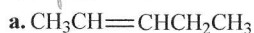


i. 3-ethylpentane

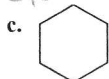


4. Name (use common and systematic for benzene if appropriate) the compounds represented by the following formulas.

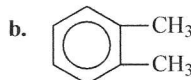
2-pentene



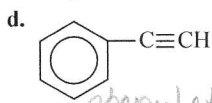
cyclohexane



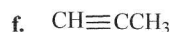
butane



1,2-dimethylbenzene



phenylethyne



propyne

5. Draw the structural formulas for the following:

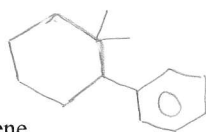
a. 3-heptyne



b. cyclopentene



c. 3-phenyl-2,2-dimethylhexane



d. 1,3-butadiene



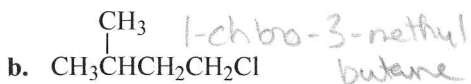
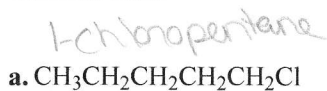
e. 1-ethyl-2-methylbenzene



f. 2,4-dimethyl-2-pentene



6. Listed below are the condensed structural formulas or the names for the eight isomers of $C_5H_{11}Cl$. Write either formula and the name for each.



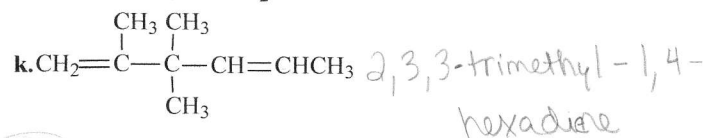
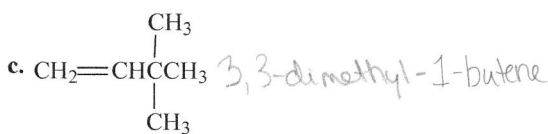
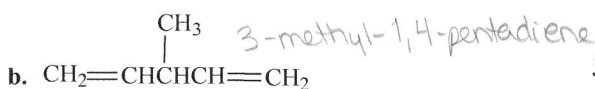
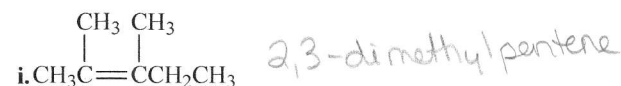
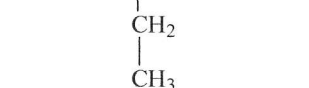
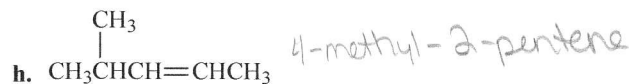
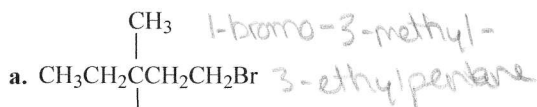
c. 2-chloropentane

g. 1-chloro-2-methylbutane

d. 2-chloro-2-methylbutane

h. 1-chloro-2, 2-dimethylpropane

7. Name the following compounds.

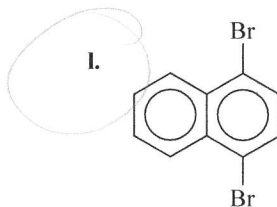


d. C_6H_5Cl chlorobenzene

e. $CH_3CH=CHCH_2CH_3$

f. $CH_3\overset{CH_3}{\underset{|}{C}}=CHCH_3$

g. $CH_3CH_2CH=CH_2$



8. Draw structural formulas for the following.

a. 3-heptene

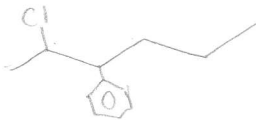


b. 2-methylnaphthalene

c. trichloromethane



d. 2-chloro-3-phenylhexane



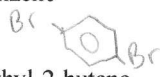
e. 1,3-cyclopentadiene



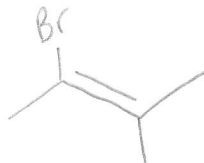
f. toluene (methylbenzene)



g. 1,4-dibromobenzene



h. 2-bromo-3-methyl-2-butene



9. Write structural formulas for the following compounds.

a. 2-chlorobutane



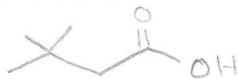
b. 2-butene



c. 2-ethyl-3-methyl-1-butanol



d. 3,3-dimethylbutanoic acid



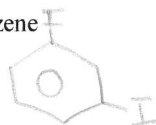
e. 2,5,5-trimethyl-4-heptone



f. 1,8-nonadiyne



g. 1,3-diiodobenzene



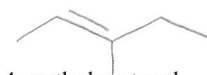
h. ethoxybenzene



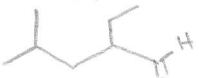
i. 1-butanol



j. 3-methyl-2-pentene



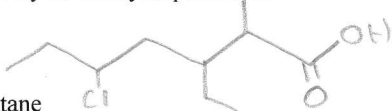
k. 2-ethyl-4-methylpentanal



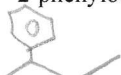
l. 3-ethyl-2,4-dimethyl-3-hexanol



m. 5-chloro-3-ethyl-2-methylheptanoic acid



n. 2-phenylbutane



o. 7-bromo-2-naphthol

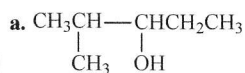


p. 4-bromobenzoic acid

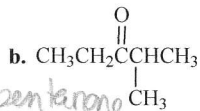


10. Name the following organic compounds.

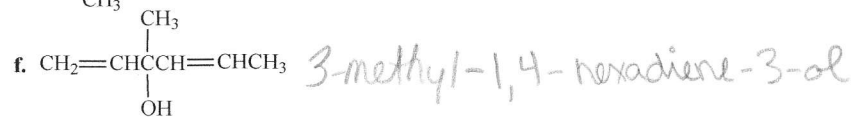
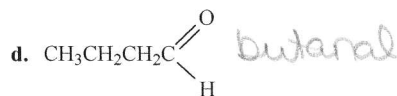
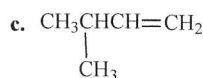
2-methyl-3-pentanol



3-methyl-4-pentanone

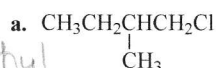


3-methyl-1-butene

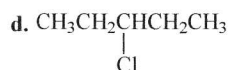
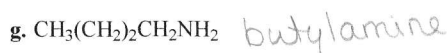
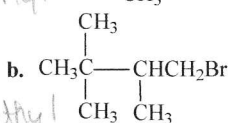


11. Name the following organic compounds.

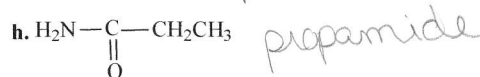
1-chloro-2-methylbutane



2-bromo-2,3,3-trimethylbutane

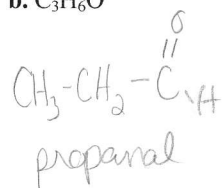
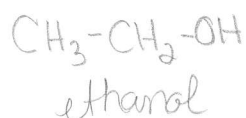


3-chloropentane

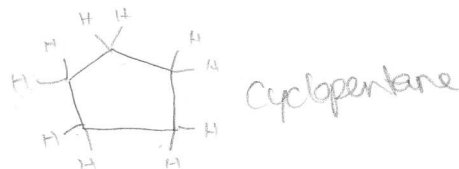
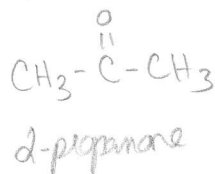
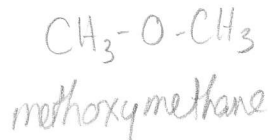
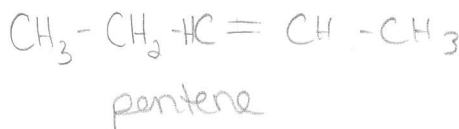


12. Each of the following formulas can be written as two compounds with different functional groups. Write the structural formulas, name the compounds, and identify the functional groups.

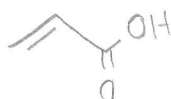
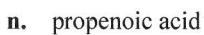
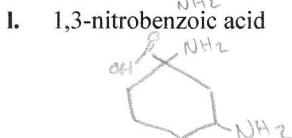
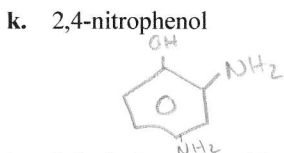
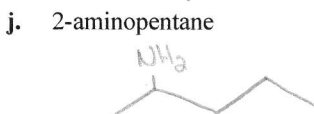
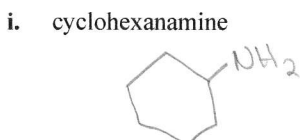
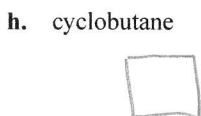
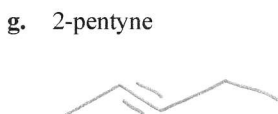
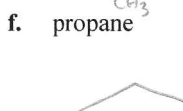
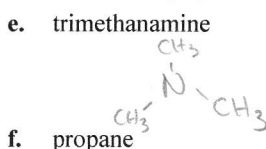
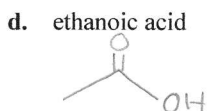
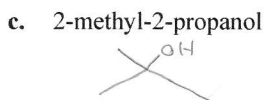
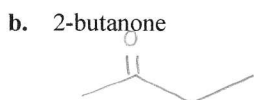
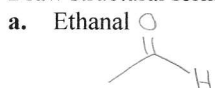
a. $\text{C}_2\text{H}_6\text{O}$



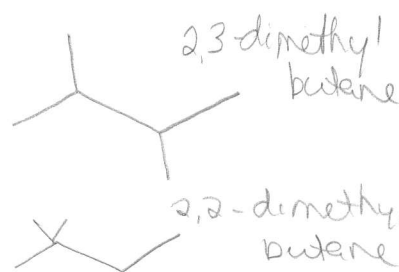
c. C_5H_{10}



13. Draw structural formulas for the following.



14. Draw and name the five structural isomers of hexane (C₆H₁₄)



15. Draw the structural formula for each of the following.

a. 2-Methylpentane



b. 2,2,4-Trimethylpentane, also called *isooctane*. This compound is the reference for octane ratings for gasoline.



c. 2-tert-Butylpentane

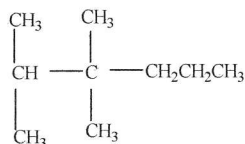


d. The name given in part c is incorrect. Give the correct name for this hydrocarbon.

2,2,3-trimethylhexane

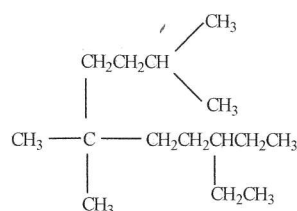
16. Name each of the following:

a.

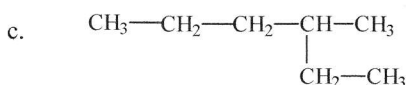


2,3,3-trimethylhexane

b.

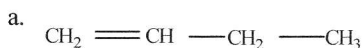


2,5,5-trimethyl-8-ethyldecane



3-methylhexane

17. Name each of the following alkenes.

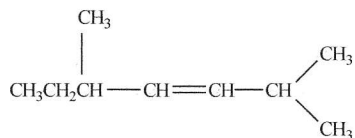


1-butene

b.



c.



2,5-dimethyl-3-heptene

