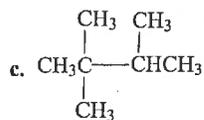
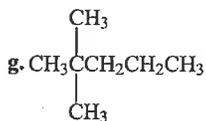
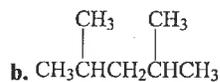
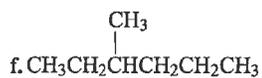




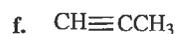
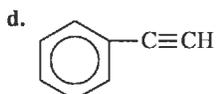
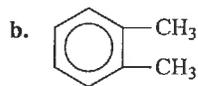
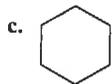
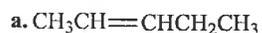
3. Listed below are the condensed structural formulas or names of the nine isomers of heptane,  $C_7H_{16}$ . Write the formula and name for each.



h. 2-methylhexane

i. 3-ethylpentane

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



5. Draw the structural formulas for the following:

a. 3-heptyne

b. cyclopentene

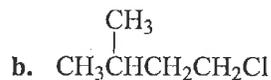
c. 3-phenyl-2,2-dimethylhexane

d. 1,3-butadiene

e. 1-ethyl-2-methylbenzene

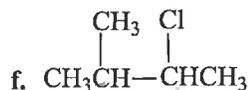
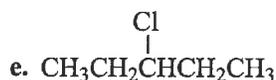
f. 2,4-dimethyl-2-pentene

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

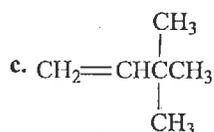
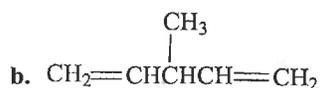
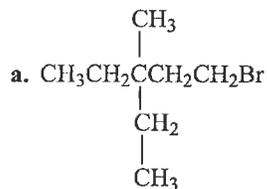
d. 2-chloro-2-methylbutane



g. 1-chloro-2-methylbutane

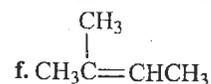
h. 1-chloro-2, 2-dimethylpropane

7. Name the following compounds.

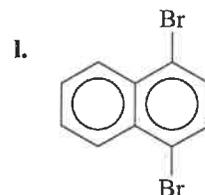
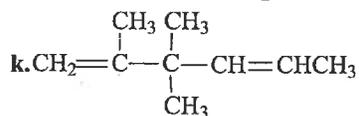
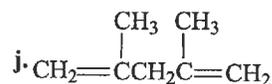
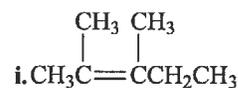
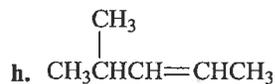


d.  $C_6H_5Cl$

e.  $CH_3CH=CHCH_2CH_3$



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)

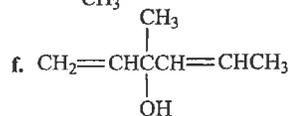
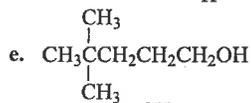
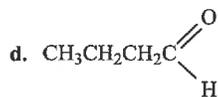
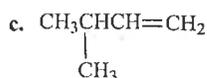
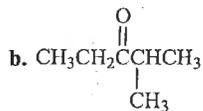
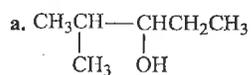
g. 1,4-dibromobenzene

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

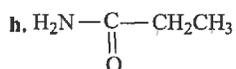
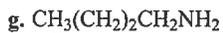
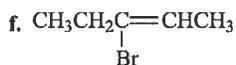
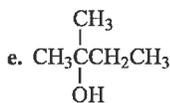
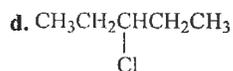
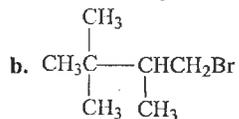
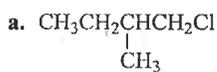
9. Write structural formulas for the following compounds.

- 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

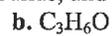
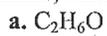
10. Name the following organic compounds.



11. Name the following organic compounds.



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.



13. Draw structural formulas for the following.

a. Ethanal

b. 2-butanone

c. 2-methyl-2-propanol

d. ethanoic acid

e. trimethanamine

f. propane

g. 2-pentyne

h. cyclobutane

i. cyclohexanamine

j. 2-aminopentane

k. 2,4-nitrophenol

l. 1,3-nitrobenzoic acid

m. ethanenitrile

n. propenoic acid

14. Draw and name the five structural isomers of hexane (C<sub>6</sub>H<sub>14</sub>)

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

a. 2-Methylpentane

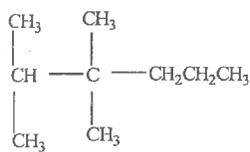
b. 2,2,4-Trimethylpentane, also called *isooctane*. This compound is the reference for octane ratings for gasoline.

c. 2-tert-Butylpentane

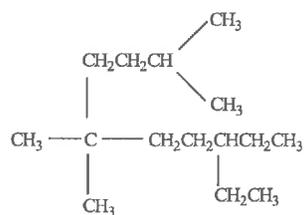
d. The name given in part c is incorrect. Give the correct name for this hydrocarbon.

16. Name each of the following:

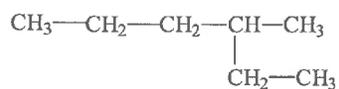
a.



b.

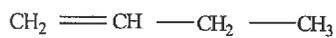


c.

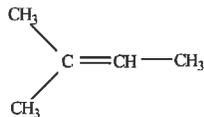


17. Name each of the following alkenes.

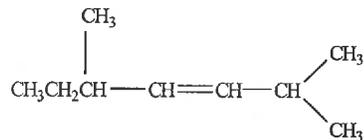
a.



b.



c.



18. Give the structure for each of the following:

- a. 3-hexene
- b. 2,4-Heptadiene
- c. 2-Methyl-3-octene

19. Give the structure for each of the following aromatic hydrocarbons.

- a. o-Ethyltoluene
- b. p-Di-*tert*-butylbenzene
- c. m-Diethylbenzene
- d. 1-Phenyl-2-butene

20. Name each of the following:

