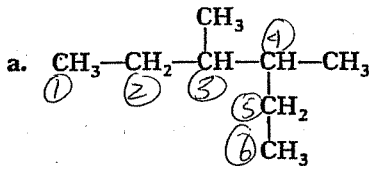
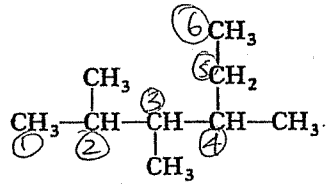
KEY

Organic Chemistry

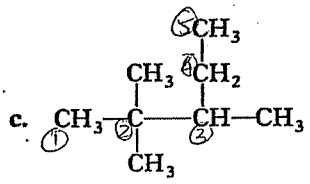
1. Find the longest carbon chain in each formula and number the carbons. Use your rules to name these hydrocarbons.

a. 

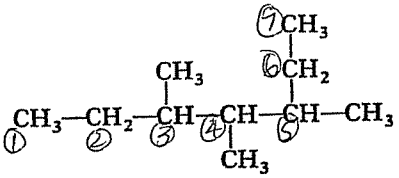
a) 3,4-DIMETHYLHEXANE

b. 

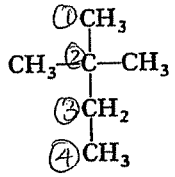
b) 2,3,4-TRIMETHYLHEXANE

c. 

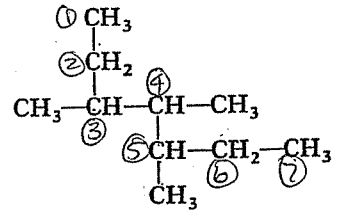
c) 2,2,3-TRIMETHYLPENTANE

d. 

d) 3,4,5-TRIMETHYLHEPTANE

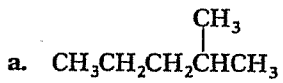
e. 

e) 2,2-DIMETHYLBUTANE

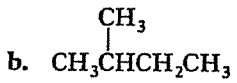
f. 

f) 3,4,5-TRIMETHYLHEPTANE

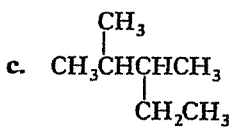
2. Name the following organic compounds:

a. 

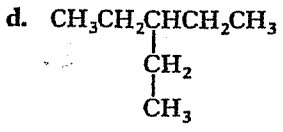
a) 2-METHYLPENTANE

b. 

b) 2-METHYLBUTANE

c. 

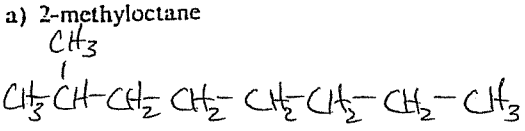
c) 3-METHYLPENTANE

d. 

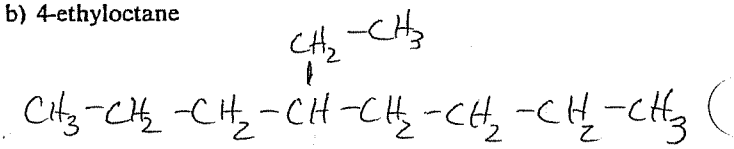
d) 3-ETHYLPENTANE

3. Sketch the following:

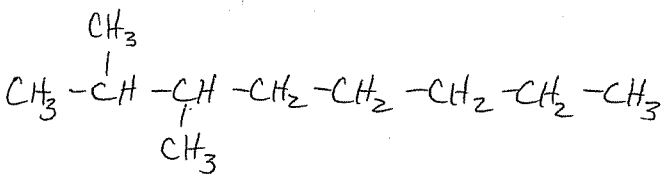
a) 2-methyloctane



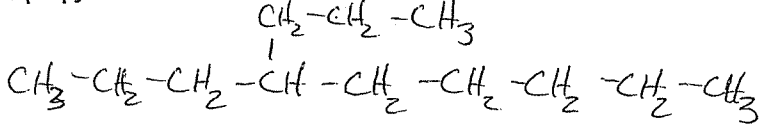
b) 4-ethyloctane



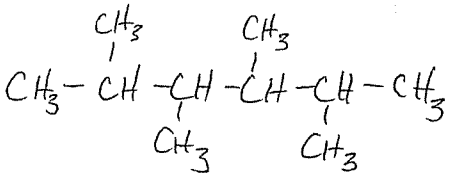
c) 2,3-dimethyloctane



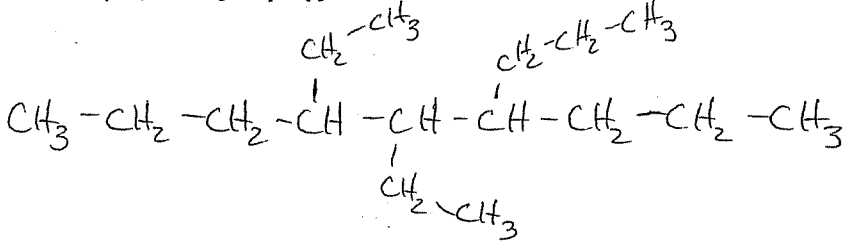
d) 4-propylnonane



e) 2,3,4,5-tetramethylhexane



f) 4,6-diethyl-5-propylnonane



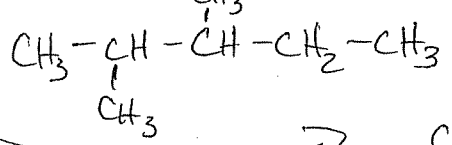
4. Listed below are the condensed structural formulas or names of the nine isomers of heptane, C_7H_{16}. Write either the formula or name for each.

a. $CH_3CH_2CH_2CH_2CH_2CH_2CH_3$ HEPTANE

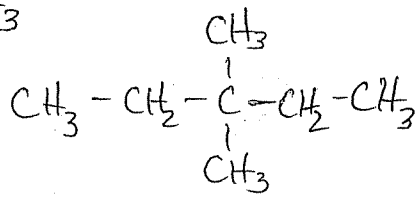
b. $CH_3CHCH_2CHCH_3$ (CH₃ on C2 and C4) 2,4-DIMETHYLPENTANE

c. $CH_3C(CH_3)_2CHCH_3$ (CH₃ on C2, C2, C3) 2,2,3-TRIMETHYLBUTANE

d. 2,3-dimethylpentane



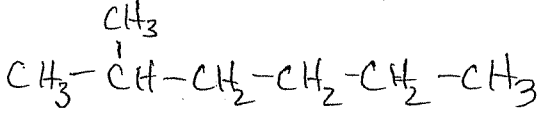
e. 3,3-dimethylpentane



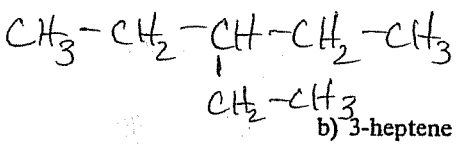
f. $CH_3CH_2CHCH_2CH_2CH_3$ (CH₃ on C3) 3-METHYLHEXANE

g. $CH_3CCH_2CH_2CH_3$ (CH₃ on C2, C2) 2,2-DIMETHYLPENTANE

h. 2-methylhexane

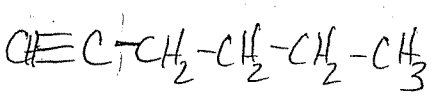


i. 3-ethylpentane



5. Sketch the following.

a) 1-hexyne



b) 3-heptene