Worksheet 2: Alkanes

1. Briefly describe Wöhler's experiment and state the significance of his findings.

2. Explain the uniqueness of carbon.

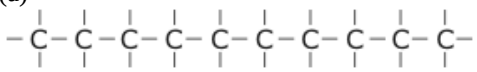
3. a) Compare organic and inorganic compounds in terms of composition and properties.

   (b) Provide five examples of naturally occurring organic substances and five examples of synthetic organic substances.

4. Describe the bonding properties of carbon that contribute to the large diversity of organic compounds.

5. Provide an IUPAC name for each structural formula.

(a)

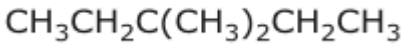


(b) CH_3- CH_2- CH_3

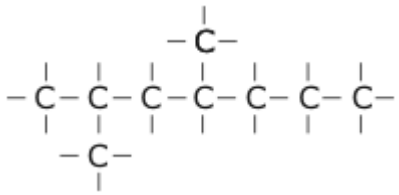
c) CH_3- $(CH_2)_5$- CH_3

d) CH_3- CH_2- CH_2- CH_3

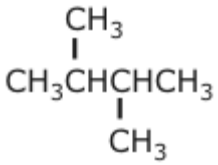
e)



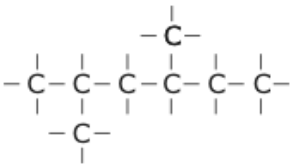
f)



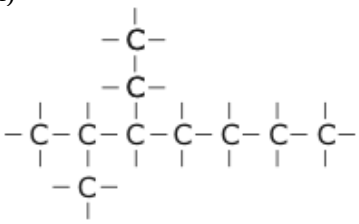
(g)



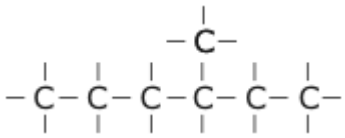
h)



(i)



j)



6. Write a IUPAC name for each hydrocarbon.
   (a) $CH_3CH_2C(CH_3)_2C(CH_3)_2CH_3$
   (b) $HC(CH_2CH_3)_2C(CH_3)_2CH_3$
   (c) $CH_3CH_2C(CH_2CH_3)_2CH_2C(CH_3)_2CH_2CH_3$

7. Draw the structural formula and condensed structural formulas for each alkane.

(a) 2,2,4-trimethylpentane	

(b) 3-methylheptane	
(c) 3-ethylhexane	
(d) 3-ethyl-2-methyl-4-propylnonane	
(e) 2,3-dimethylhexane	
(f) 4-methylheptane	

(g) Which alkane in items a-f is not an isomer of C_8H_{18}?

8. Draw and name the possible structural isomers of C_7H_{16}.