

CHEMISTRY

National 5

Organic chemistry - Alkanes - Answers

Q1. What is a homologous series? (1 mark)

Homologous series are molecules that have similar chemical properties but different structures.

Q2. What hydrocarbon has no double bond? (1 mark)

Alkanes

Q3. What is the general formula for alkanes? Explain the formula too. (2 marks)

C_nH_{2n+2}

C_n = number of carbons

H_{2n} = number of hydrogens

+2 = 2 more hydrogens

Q4. Name the 8 alkanes and the number of carbons each of these alkanes have. First one has been done for you. (8 marks)

Methane = 1

Ethane = 2

Propane = 3

Butane = 4

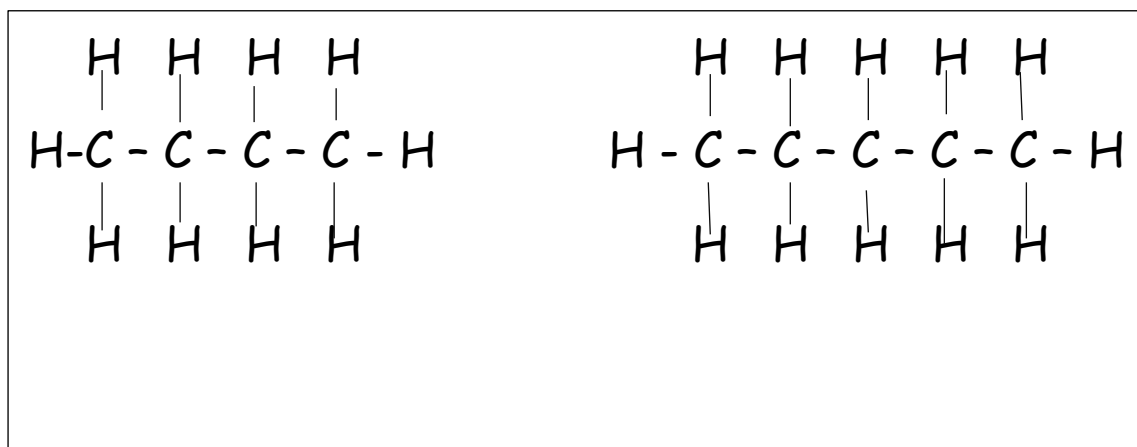
Pentane = 5

Hexane = 6

Heptane/Septane = 7

Octane = 8

Q5. Draw the structural formula of Butane and Pentane. Use the prefix and formula C_nH_{2n+2} to help you. For example - the prefix for 8 is Oct, which is given in the alkane octane. Octane therefore has 8 carbons. (2 marks)



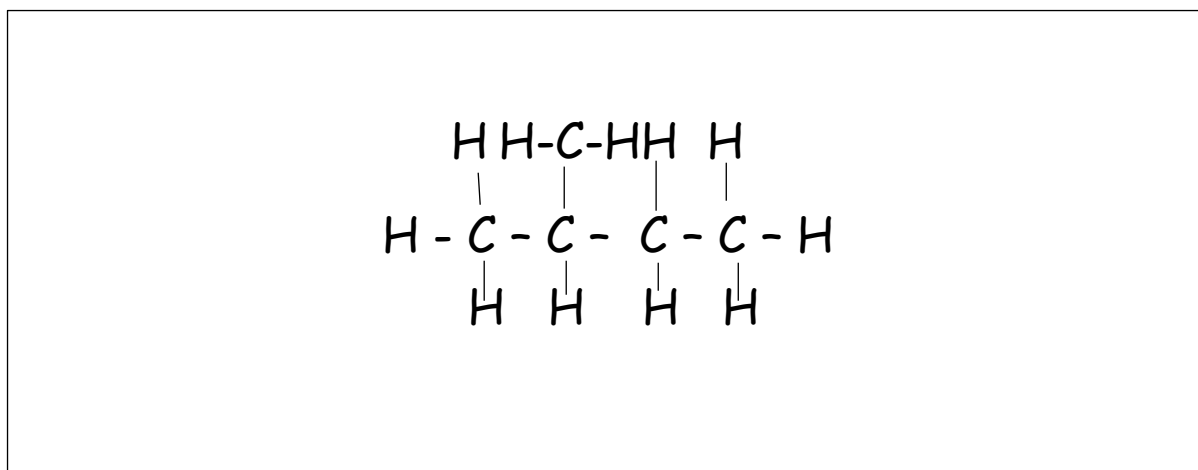
Q6. How do we test for saturation to identify an alkane? Does the bromine decolourise? Why? (2 marks)

Using Bromine and it does not decolourise. Alkanes are saturated molecules.

Q7. What is the molecular formula for Hexane? (1 mark)

C_6H_{14}

Q8. Draw the alkane 2 - methylbutane (1 mark)



Q9. Does an alkane have a functional group? (1 mark)

No

Q10. What is the rule for identifying branched chain alkanes? (1 mark)

Number the longest chain within the alkane.