

SCIENCE (Chemistry)
ORGANIC CHEMISTRY (Alkane)

Name: _____ () Class: _____ Date: _____

Exercise 3

- 1) What is the general formula of alkane? _____
- 2) Which group of letters is present in the chemical names of all alkanes? _____
- 3) Complete the following table of alkane.

No of carbon atoms in one molecule	Chemical name	Molecular formula	Structural formula of one molecules	Relative molecular mass	Boiling point(⁰ C)	State under room condition
1		CH ₄			-164	
2					-89	
3			<pre> H H H H-C-C-C-H H H H</pre>		-42	
4	Butane				-1	

- 4) In the alkane homologous series,
- i) _____
- ii) _____
- iii) _____
- 5) Write the molecular formula and structural formula of the alkanes with 7 and 8 carbon atoms in one molecule.
- 6) How does the boiling point of these alkanes compare with the boiling point of butane?
- _____

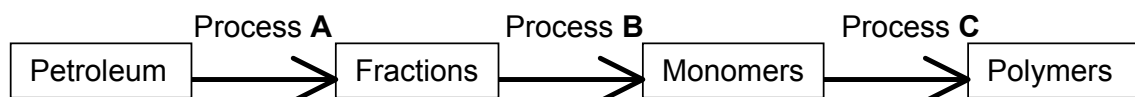
7) Would you expect these alkanes to be a solid, liquid or gas under room conditions?

Reaction of alkane: Combustion

8) Write a balanced chemical equation for the complete combustion of propane in air.

Optional Homework

1) Petroleum is used as a raw material to make polymers. This can be shown by the following flow chart.



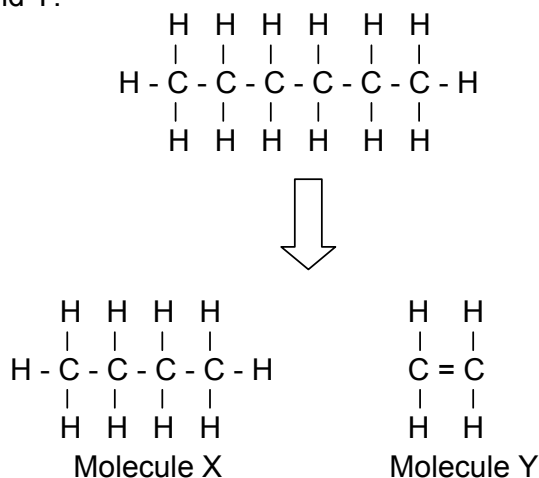
a) Name processes **A**, **B** and **C**.

A _____ **B** _____ **C** _____

b) Classify the following as either a fraction, monomer or polymer

i) ethene ii) naphtha iii) propene iv) paraffin

2) The equation shows how a hydrocarbon molecule undergoes cracking to form two molecules X and Y.



a) Name molecule X. _____

b) Name molecule Y. _____

c) Both molecules X and Y are gases at room temperature but which has the highest boiling point? _____

d) Which of these molecules X or Y is more reactive? _____

e) Which of these molecules X or Y could undergo polymerisation? _____