

Chemistry unit 7/8 homework – Chemical analysis & Organic Chemistry

For each of the questions below: -

Highlight the command word if there is one & annotate what the command word means. - Answer the question!

Q1. Crude oil and natural gas are natural resources in many countries.

The table shows percentages of hydrocarbons in natural gas from three different countries.

Hydrocarbon	Percentage (%) of hydrocarbon in natural gas		
	Country X	Country Y	Country Z
Methane	78.03	88.10	94.36
Ethane	9.70	5.30	2.37
Propane	4.82	2.16	0.15
Butane	1.33	0.72	0.02
Pentane	0.30	0.18	0.00

(a) Suggest why natural gas from different countries has different percentages of hydrocarbons.

(1)

(c) Complete the sentence.

Choose the answer from the box.

an atom	an electron	an ion	a molecule
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The formula CH_4 represents _____ of methane.

(1)

(d) Complete the sentence.

The hydrocarbons in the table belong to the homologous series of

_____ .

(1)

(g) Crude oil is fractionally distilled.

Fractions with larger molecules are cracked.

Describe **two** differences between fractional distillation and cracking.

1. _____

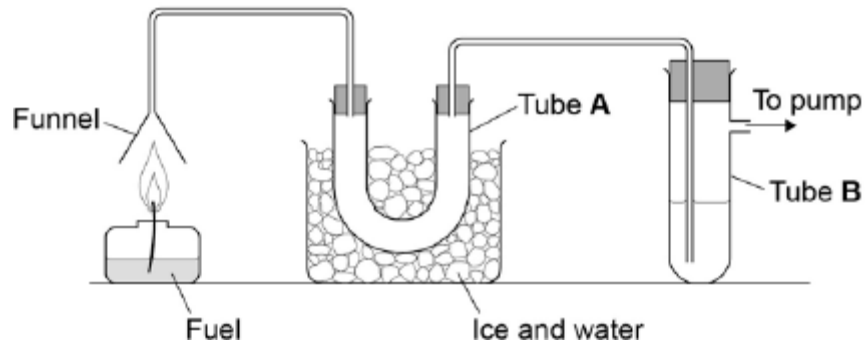
2. _____

(2)

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- (a) The complete combustion of a hydrocarbon produces carbon dioxide and one other substance.

Look at the figure above. What would the student see in tube **A**?

(1)

- (b) When the student burned the fuel she saw soot in the funnel.

Explain why soot forms.

(2)

- (c) The student burned another fuel which contained impurities.

The substance in tube **B** is water containing universal indicator.

The indicator turned red.

Which gas made the indicator turn red?

Tick **one** box.

Ammonia

Carbon monoxide

Nitrogen

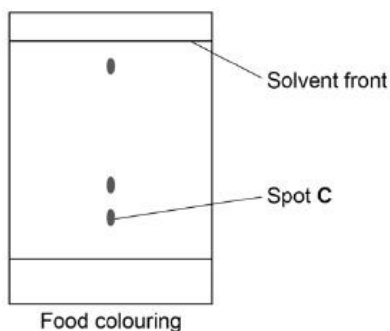
Sulfur dioxide

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Q4 The diagram shows a chromatogram for a food colouring.



(a) How does the chromatogram show that the food colouring is a mixture?

(1)

(b) A student makes measurements for spot C.

The table shows the results.

	Distance in mm
Distance moved by spot C	7
Distance moved by solvent	39

Calculate the R_f value for spot C.

Give your answer to 2 significant figures.

Use the results in the table.

R_f value = _____

(3)

(c) Plan a chromatography experiment to investigate the colours in an ink.

(6)