GCSE

COMBINED SCIENCE: TRILOGY

END OF TOPIC TEST



Time allowed: 1 hour

Materials

For this paper you must have:

- a ruler
- a calculator

Instructions

- Answer **all** questions in the spaces provided.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- There are 50 marks available on this paper.
- The marks for questions are shown beside each question.
- You are expected to use a calculator where appropriate.
- You are reminded of the need for good English and clear presentation in your answers.

Advice

• In all calculations, who clearly how you work out your answer.

		Please write clearly, in	olock capitals:	
	Surname:	,, 	·	
	Forename(s):			-
Class	s:	Teacher:	Date:	

It is a mixture of different compounds. Most of these are hydrocarbons. Which two elements are found in hydrocarbons? and Alkanes are a family of hydrocarbons. What type of bond is found in alkanes? Circle the correct answer. Single ionic bonds Double ionic bonds Double covalent bonds Ethane is an alkane. It has the formula C ₂ H ₆ In the space below draw the structure of ethane. Sort the following into pure substances and mixtures: Air Diamond Sea water Oxygen Carbon dioxide Pure substance Mixture	Crude oil is	a fossil fuel.			
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Air Diamond Sea water Oxygen Carbon dioxide					
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	Sort the foll	owing into pure	substances an	d mixtures:	
Pure substance Mixture	Air	Diamond	Sea water	Oxygen	Carbon dioxide
		Pure substance)		Mixture
	1				
	i				

	C _n H	1
Q1f	What names is given to the alkane with the molecular formula C_4H_{10} ?	
		1

Complete the molecular formula for alkanes below.

Q1e

The student collected the gases that were produced.
Describe how the student could distinguish between the different gases that were produced.
In your answer, you should describe how you can test for the following gases and what would be seen if the named gas was present.
Oxygen Chlorine Hydrogen Carbon dioxide
·

Q2

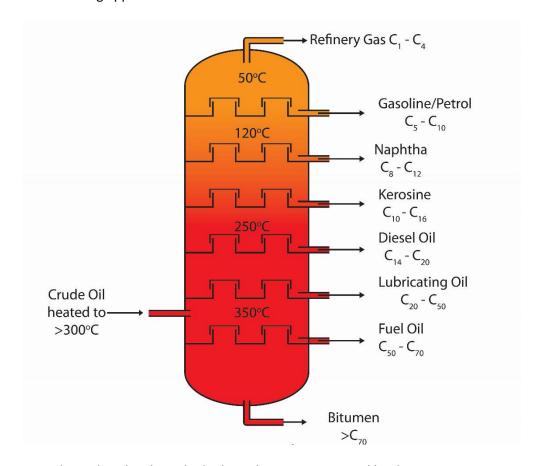
A student carried a number of chemical reactions.

In some of the reactions, a gas was produced.

Q3a	Complete the following sentences.	
	Cracking involves heating a long chain to make a	
	vapour. The vapour is either passed over a hot or	
	mixed with steam and heated to a very temperature so that thermal	
	decomposition reactions occur.	2
Q3b	Cracking produces unsaturated hydrocarbons.	
	What name is given to these unsaturated hydrocarbons?	
		1
Q3c	What is the difference between a saturated and unsaturated hydrocarbon?	
		2
Q3d	Describe and explain how a hydrocarbon can be tested to see if it is unsaturated or saturated.	
		
		
		2

Q4a For crude oil to be useful, the hydrocarbons need to be separated.

The following apparatus is used:



Describe and explain how the hydrocarbons are separated by this process.

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When a hydrocarb	on burns completely in oxygen, two produ	ucts are formed.
Name the two prod	ducts that are formed.	
Give a use for a hy	drocarbon	
Hydrocarbons have	different properties.	
Describe and expla	in some of the different properties.	

A student wanted to make a revision poster.
They were given three sets of colouring pens from different shops.
Shop A – Cost £3.99 for 10 pens Shop B – Cost £2.50 for 10 pens Shop C – Cost £0.99 for 10 pens
Describe how the student can perform paper chromatography to see if any of the three pens used the same dyes to make them.
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·

Chromatography can be used to separate and analyse mixtures.

Q5

5

A student carried out an investigation to see how much energy was released by burning different fuels.	
The student had four fuels – A, B, C and D.	
They wanted to see how the temperature of water changed when they burnt the different fuels.	
What is the student's independent variable?	
	1
What is the student's dependent variable?	
	. 1
Describe how the student could ensure that they have a fair test.	
Describe how the student could get accurate results.	. 2
	3
