

Write your name here

Surname

Other names

**Pearson**  
**Edexcel GCSE**

Centre Number

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Candidate Number

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# Chemistry/Science

## Unit C1: Chemistry in Our World

**Foundation Tier**

Thursday 19 May 2016 – Morning

**Time: 1 hour**

Paper Reference

**5CH1F/01**

**You must have:**

Calculator, ruler

Total Marks

### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*

### Information

- The total mark for this paper is 60.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed  
– *you should take particular care with your spelling, punctuation and grammar, as well as the clarity of expression, on these questions.*

### Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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**PEARSON**



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**Questions begin on next page.**



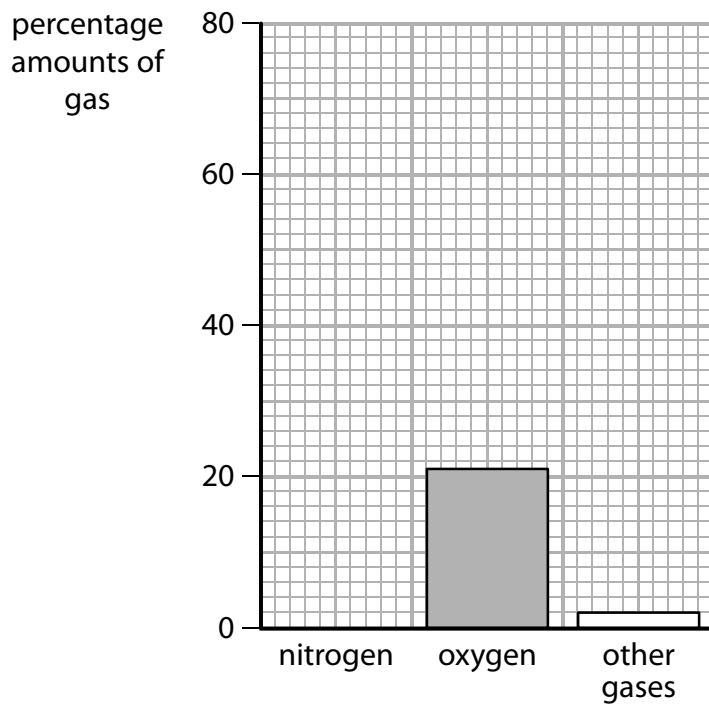
**Answer ALL questions**

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

**The atmosphere**

- 1 (a) The bar chart shows the percentages of some gases in a sample of dry air from today's atmosphere.

The bar for the percentage of nitrogen is missing.



- (i) The percentage of nitrogen is 78.

Add the bar to the chart to show this.

(1)

- (ii) Complete the sentence by putting a cross (☒) in the box next to your answer.

(1)

The bar chart shows the percentage of oxygen in this dry air is

- A** 1
- B** 11
- C** 21
- D** 31



(b) In the Earth's early atmosphere there was little or no oxygen.

Explain what caused the percentage of oxygen in the atmosphere to increase.

(2)

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(c) Carbon dioxide is one of the other gases in the atmosphere.

(i) The formula of carbon dioxide is  $\text{CO}_2$ .

Describe what atoms are present in carbon dioxide.

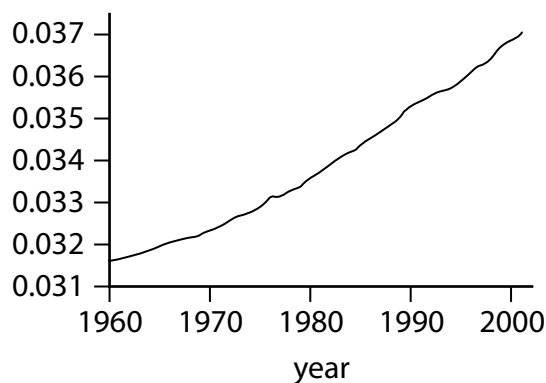
(2)

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(ii) The graph below shows the volume of carbon dioxide in the atmosphere between the years 1960 and 2000.

number of  $\text{cm}^3$   
of carbon dioxide  
in  $100 \text{ cm}^3$  of  
atmosphere



Explain one reason why the volume of carbon dioxide increased between the years 1960 and 2000.

(2)

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**(Total for Question 1 = 8 marks)**



## Acids and electrolysis

2 (a) Acids can be neutralised.

Which of the following compounds will neutralise sulfuric acid?

Put a cross (☒) in the box next to your answer.

(1)

- A sodium chloride
- B sodium hydroxide
- C sodium nitrate
- D sodium sulfate

(b) Indigestion is caused by excess hydrochloric acid in the stomach.

Calcium carbonate neutralises the excess hydrochloric acid, producing calcium chloride, a gas and water.

Use words from the box to complete the word equation for this reaction.

(2)

calcium hydroxide	calcium oxide	carbon dioxide
chlorine	hydrochloric acid	hydrogen

calcium carbonate +  $\rightarrow$  calcium chloride + water

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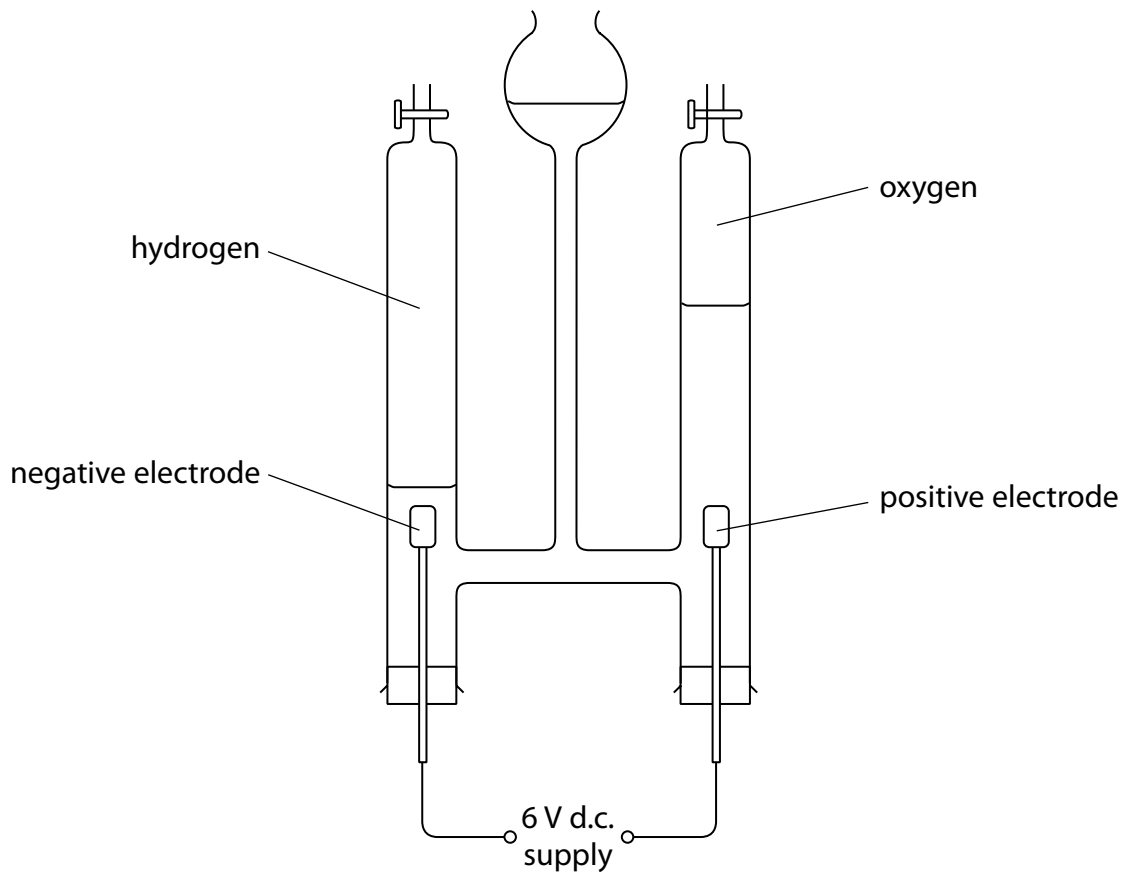


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(c) Water is electrolysed in the apparatus shown.  
The water decomposes to produce hydrogen and oxygen.



(i) Describe the test to show that one of the gases evolved is oxygen.

(2)

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- (ii) After the experiment has started, the volumes of hydrogen and oxygen collected are measured after 2, 4 and 6 minutes.

The results are shown in the table.

time / minutes	volume of hydrogen / cm <sup>3</sup>	volume of oxygen / cm <sup>3</sup>
0	0.0	0.0
2	8.0	4.0
4	16.0	8.0
6	24.0	12.0

Describe what the results show about the volumes of hydrogen and oxygen produced during the experiment.

(2)

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- (d) When hydrochloric acid is electrolysed a gas is produced which bleaches damp blue litmus paper.

Give the name of this gas.

(1)

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**(Total for Question 2 = 8 marks)**

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## Hydrocarbons

3 (a) Which of these is the formula of a hydrocarbon?

Put a cross (☒) in the box next to your answer.

(1)

- A**  $C_2H_5Cl$
- B**  $C_2H_6$
- C**  $C_2H_6O$
- D**  $NaHCO_3$

(b) Crude oil is a complex mixture of hydrocarbons.

(i) Give the name of the process used to separate crude oil into simpler mixtures.

(2)

(ii) Petrol and kerosene are obtained from crude oil.  
They are used as fuels.

Which line in the table shows the correct use of each fuel?

Put a cross (☒) in the box next to your answer.

(1)

	petrol used as fuel for	kerosene used as fuel for
<input type="checkbox"/> <b>A</b>	aircraft	cars
<input type="checkbox"/> <b>B</b>	cars	aircraft
<input type="checkbox"/> <b>C</b>	aircraft	ships
<input type="checkbox"/> <b>D</b>	cars	ships

(c) Propane reacts with oxygen to form carbon dioxide and water.

(i) Write the word equation for this reaction.

(2)

(ii) Propane is an alkane.

Give the formula of a molecule of propane.

(2)

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(d) Explain a problem caused by incomplete combustion of hydrocarbons.

(2)

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**(Total for Question 3 = 10 marks)**

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## Metals

- 4 (a) Metals are extracted from ores found in the Earth's crust.

Draw a straight line from each metal to the method used to extract the metal from its ore.

(3)

metal	method of extraction from ore
aluminium ●	● fractional distillation
gold ●	● separating the uncombined metal
iron ●	● heating with carbon
	● electrolysis

- (b) When a mixture of zinc oxide and carbon is heated, zinc metal is formed.

- (i) Complete the word equation for this reaction.

(2)

zinc oxide + ..... → zinc + .....

- (ii) In this reaction zinc oxide has lost oxygen to form zinc.

State the name of the change that occurs when a compound loses oxygen.

(1)

- (c) Copper is used in electric wires.

State **two** properties of copper that make it suitable for this use.

(2)

property 1 .....

property 2 .....

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(d) Gold jewellery is made of alloys containing gold and copper.  
These alloys are stronger than pure gold.

Gold atoms are bigger than copper atoms.

Use this information to explain why these gold alloys are stronger than pure gold.

(2)

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**(Total for Question 4 = 10 marks)**

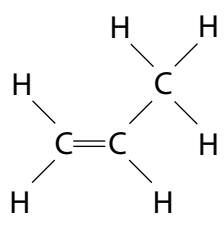
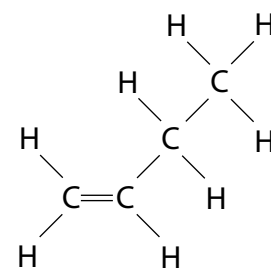


## Alkenes and polymers

- 5 (a) This table showing the names, molecular formulae and structures of the three alkenes is incomplete.

Complete the table.

(3)

name of alkene	molecular formula	structure
ethene	$C_2H_4$	
	$C_3H_6$	
butene		

- (b) Describe what is **seen** when bromine water is added to a sample of a liquid alkene and the mixture is shaken.

(2)

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(c) In industry alkenes are formed when large alkane molecules are broken down into smaller alkane molecules and alkenes.

What is the name of this process?

Put a cross (X) in the box next to your answer.

(1)

- A** combustion
- B** cracking
- C** neutralisation
- D** precipitation







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(Total for Question 5 = 12 marks)



P 4 5 9 2 7 A 0 1 7 2 4

## Limestone

- 6 (a) The photograph shows a sample of limestone.



State what evidence in the photograph shows that the limestone is a sedimentary rock.

(1)

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- (b) Complete the sentence by putting a cross (☒) in the box next to your answer.

(1)

Limestone is an important raw material.

In industry limestone is **not** used as a raw material to make

- A cement
- B concrete
- C glass
- D marble



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(c) (i) When limestone is heated it breaks down to form calcium oxide and carbon dioxide.  
Give the name of the process in which a substance is broken down by heating. (2)

(ii) Calcium hydroxide is formed when water is added to calcium oxide.  
Write the word equation for this reaction. (2)





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**(Total for Question 6 = 12 marks)**

**TOTAL FOR PAPER = 60 MARKS**



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