

Centre Numb				umber

Candidate Number

General Certificate of Secondary Education 2014

GCSE Chemistry

Unit 1

Foundation Tier

[GCH11]

GCH11

TUESDAY 10 JUNE, AFTERNOON

TIME

1 hour 15 minutes.

INSTRUCTIONS TO CANDIDATES

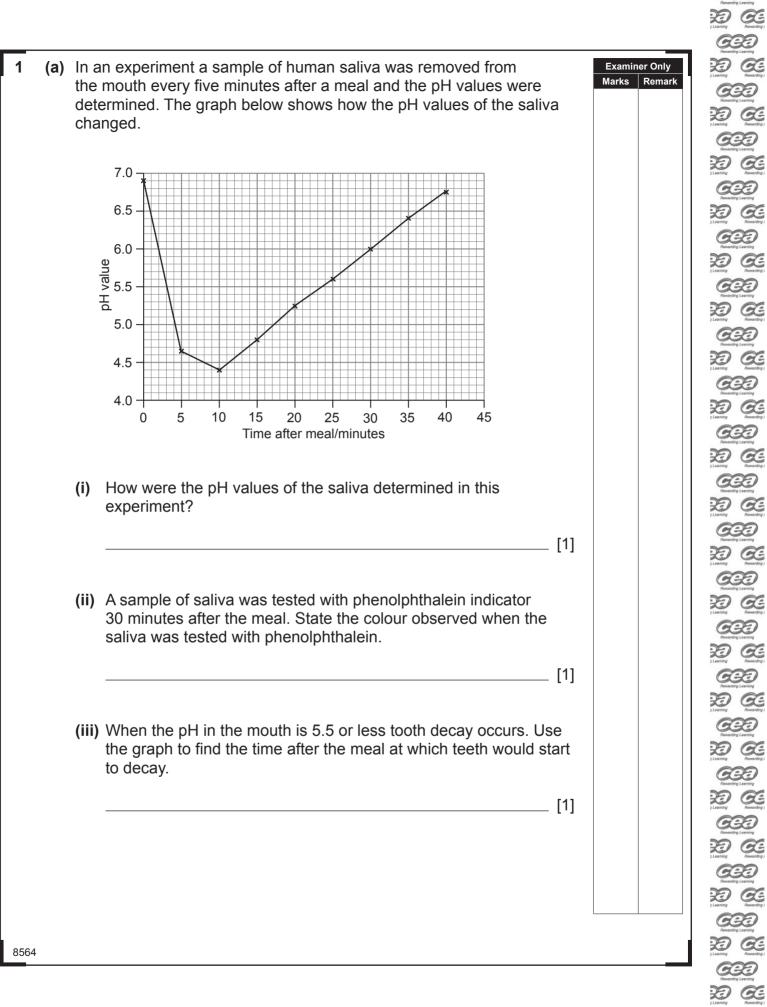
Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

You must answer the questions in the spaces provided. Do not write outside the box, around each page or on blank pages. Complete in blue or black ink only. Do not write with a gel pen. Answer all five questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 80. Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question. Quality of written communication will be assessed in Question **1(d)**. A Data Leaflet, which includes a Periodic Table of the Elements, is included in this question paper.





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	[3]	
(iii)	Write a balanced symbol equation for the reaction of hydrochloric acid with calcium carbonate.	
	[3]	
(11)	Calcium carbonate is often present in antacid tablets. It reacts with hydrochloric acid to produce carbon dioxide gas. Describe a chemical test for carbon dioxide. State what you would observe for a positive test.	
/;;;)	[1]	
(-)		
usin	I can cause a burning sensation called indigestion which is treated ag antacid tablets to neutralise some of the acid. Explain why hydrochloric acid is a strong acid.	

(c) The digested food from the stomach is passed into the small intestine. Sodium chloride is a salt which is absorbed in the small intestine. Some tests were carried out to prove that a salt is sodium chloride. Complete the table below.

	Test	Result for a positive test	
1.	Flame test		[1]
2.	Add 5 drops of silver nitrate solution to a solution of the salt.		[2]

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Examiner Only

Marks Remark

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		Total Question 1
	communication skills including the use of specialist scientific terms.	
	 the names of all products for each reaction the observations for each reaction. In this question you will be assessed on your written	
(u)	Hydrochloric acid reacts with calcium hydroxide solution and with solid calcium. Compare and contrast the reaction of hydrochloric acid and calcium hydroxide solution with the reaction of hydrochloric acid and solid calcium. In your answer you must include:	Examiner Only Marks Remark

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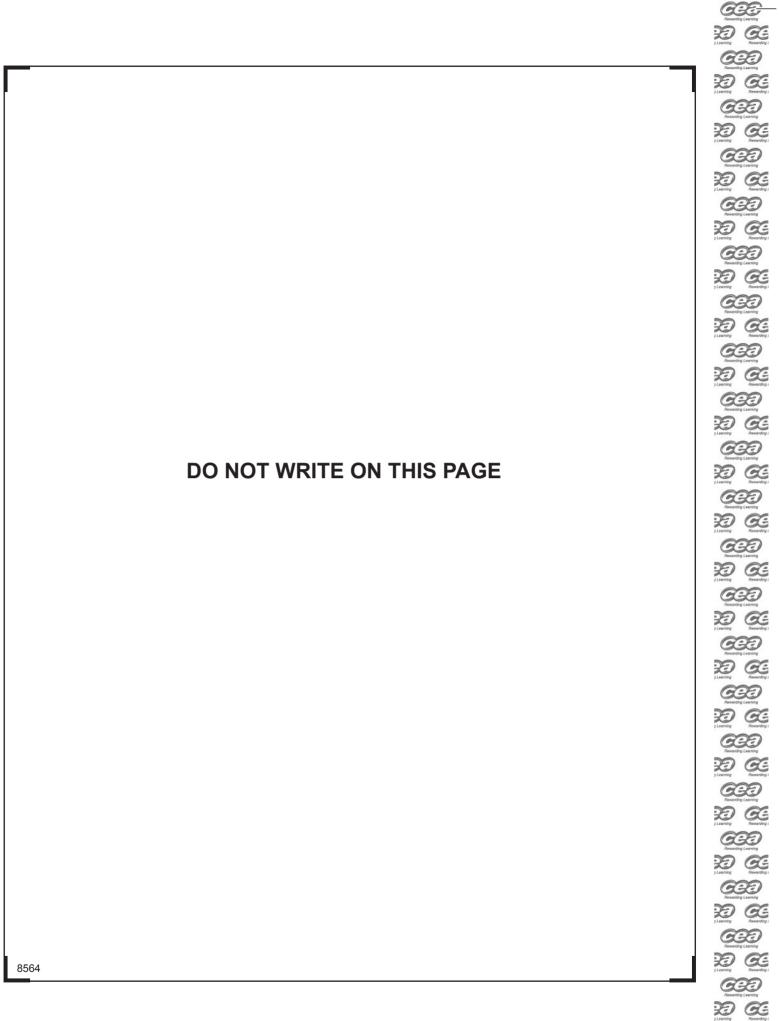
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Гhе	e mo	dern Periodic Table contains over 100 elements. Examin Marks	ner Only Remark
(a)		oom temperature and pressure most of these elements are solids, w are gases and two are liquids.	
	(i)	Write the symbol for the metallic element which is a liquid at room temperature and pressure.	
	(ii)	Name two elements which exist as gases at room temperature and pressure.	
		1	
		2[2]	
(b)	On	heating, the element iodine undergoes sublimation.	
	(i)	Explain what you understand by sublimation.	
		[1]	
	(ii)	What would be observed when a sample of iodine is heated?	
		[2]	
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metals.	s in Group 1 of the Period	dic Table are very reactive
(i) Complete	e the following table.	
Group number	Name of group	Number of electrons in the outer shell of an atom
1		
(ii) State the	e trend in reactivity in Gro	[2 pup 1.
		[1
(iii) What wo cold wate		piece of potassium is added to
		[3
	e the word equation belo m and water.	w for the reaction between
potassium + wate	$er \rightarrow$	+
		[2
	d compounds may be det analysis. Name two met	tected using modern hods of modern instrumental
analysis.		
analysis. 1		
1		[2
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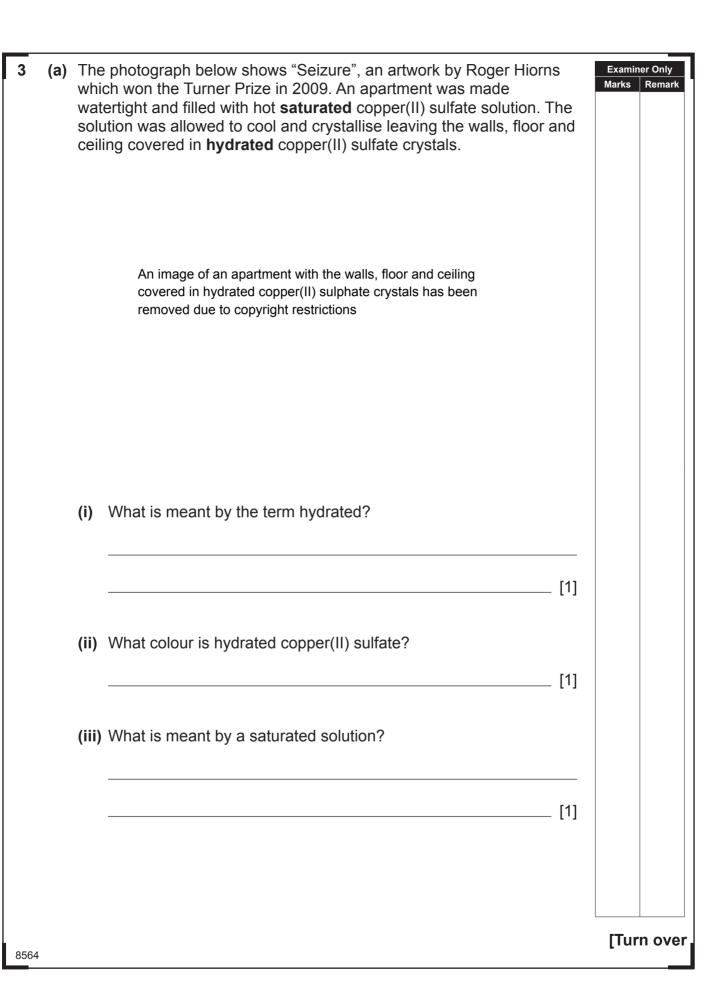


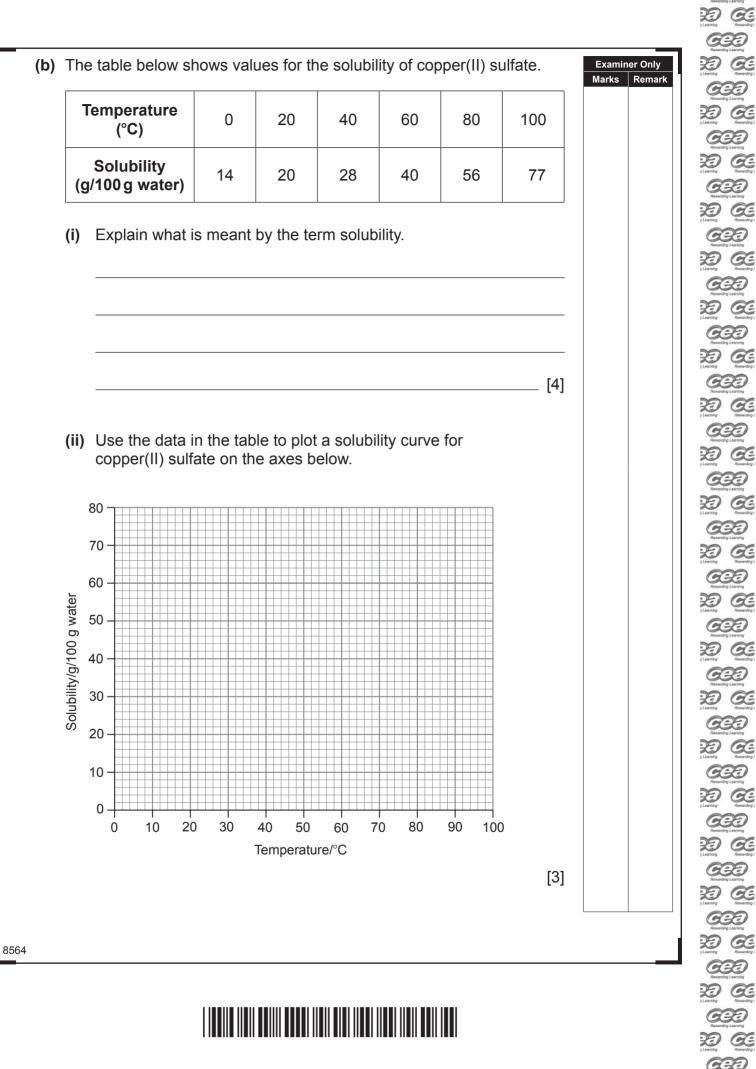
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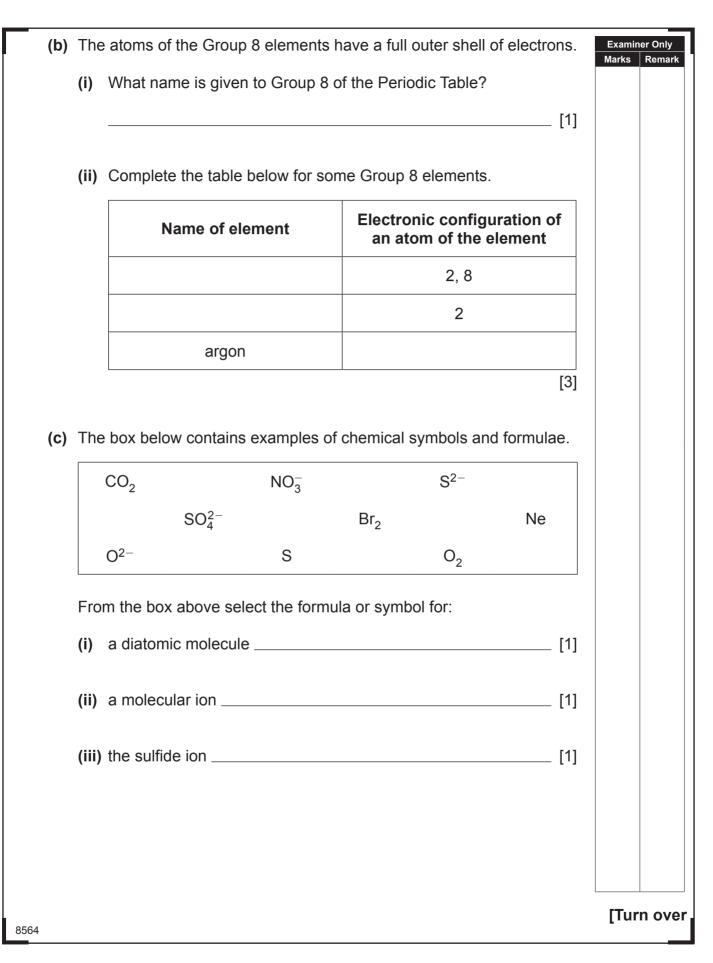
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(c) Use the graph in (b)(ii) to answer the following questions.	Examiner Only Marks Remark
(i) What is the solubility of copper(II) sulfate at 50°C?	
Solubility of copper(II) sulfate = g/100 g water [1]	
(ii) Calculate the mass of copper(II) sulfate which will saturate 10g of water at 30°C.	
Mass of copper(II) sulfate = g [2]	
(iii) At what temperature will 60g of copper(II) sulfate saturate 100g of water?	
Temperature °C [1]	
Temperature =°C [1]	
(iv) A sample of 10g of copper(II) sulfate is added to a saturated solution of copper(II) sulfate in 100g of water at 60°C. What mass from the 10g sample of copper(II) sulfate would dissolve?	
[1]	
	Total Question 3
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	agram below represents an atom of an element. The electrons are g from the diagram.
	15 protons and 16 neutrons
(a) (i)	State the atomic number of this element [1]
(ii)	State the mass number of this element [1]
(iii)	Name the part of the atom in which the protons and neutrons are found.
(iv)	Complete the diagram above to show the electronic configuration of the atom, using × to represent an electron. [1]

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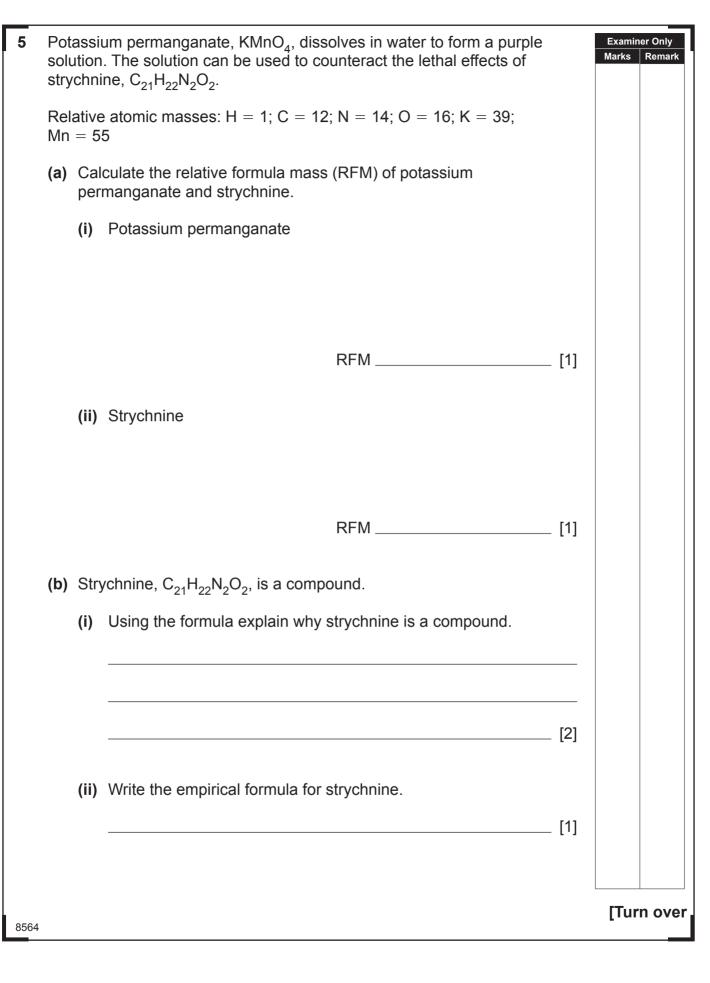
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	Sub	stances is shown in aluminium	carbon dioxide	diamond	Marks Rema
		graphite	iron	lithium oxide	
	F	ootassium sulfide	iodine	water	
		ng ONLY the subst estions.	ances in the table, and	swer the following	
	(i)	Name one substand	ce in which the bonding	is ionic.	
				[1]	
	(ii)	Name one substand covalent.	ce in which the structure	e is described as giant	
				[1]	
	(iii)	Which substance ha	as the lowest melting po	Dint? [1]	
	(iv)	Name one substand temperature.	ce which will conduct el	ectricity at room	
	Dia			[']	
(e)	Dia	mond is an allotrope	of which element?	[1]	
				[']	
					Total Question

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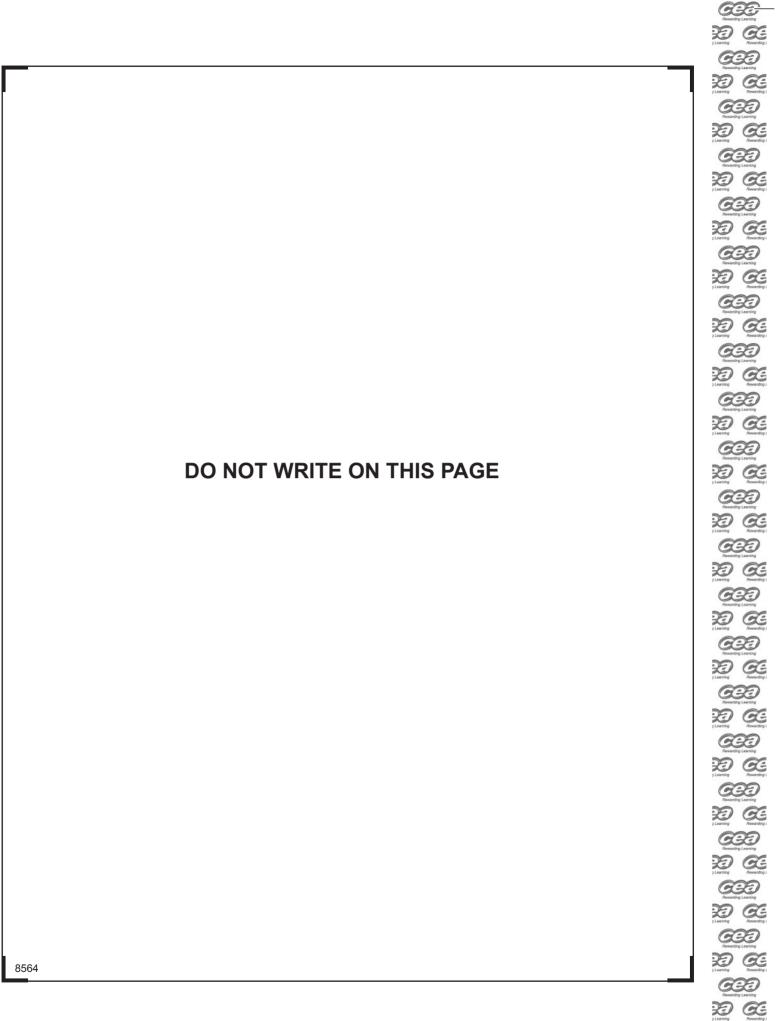
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(iii)	The masses of all atoms are compared relative to the mass of o	DINE Examiner Only
	isotope of a particular element. Name the element and state the mass of the isotope.	Aarks Remark
	Element:	
	Mass:	[2]
(iv)	A bottle of strychnine would show the following symbol.	
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	What do you understand by this symbol?	
		[1]
c) As cor	ample of potassium permanganate, KMnO ₄ , was heated to net stant mass in a crucible and the following reaction occurred:	
	$2KMnO_4(s) \rightarrow K_2MnO_4(s) + MnO_2(s) + O_2(g)$	
(i)	0.035 moles of potassium permanganate were used in this experiment. Calculate the mass of potassium permanganate used.	
	Mass of KMnO ₄ g	[1]

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	heating.			
		[2]		
(iii)	Draw a labelled diagram of the assembled apparatus used to h the sample of solid potassium permanganate in a crucible.	neat		
		[3]		
		[0]		
Tŀ	IS IS THE END OF THE QUESTION PAPER			
			Total Qu	iestic



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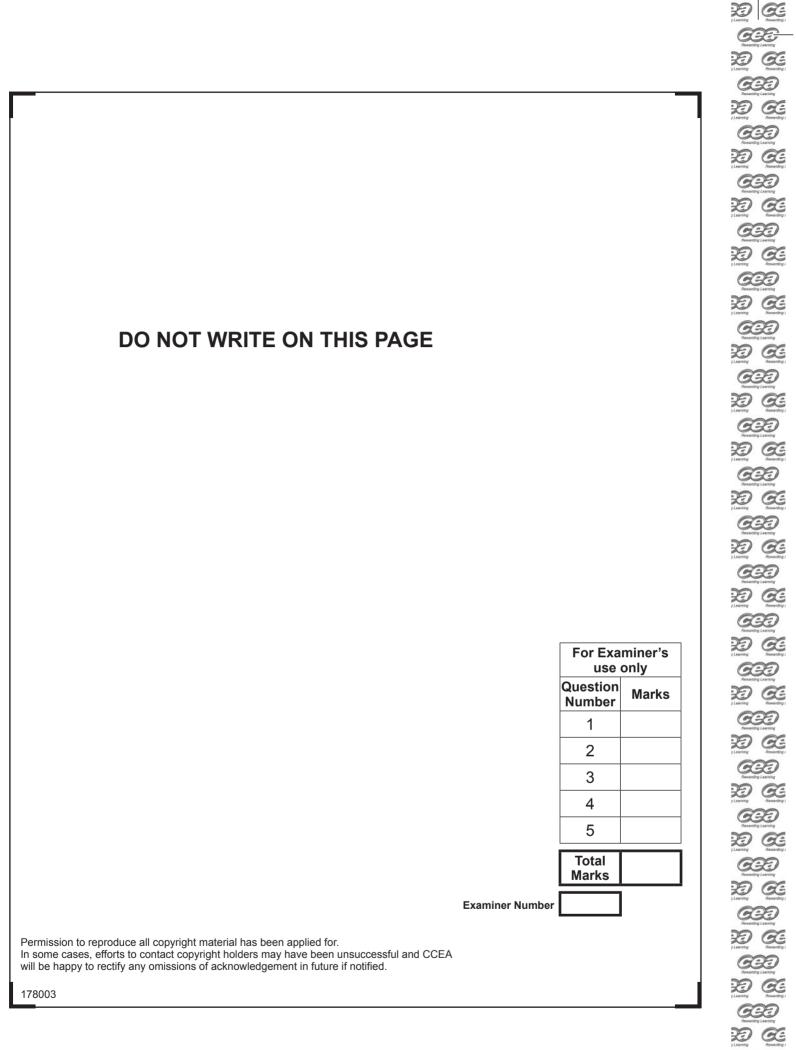
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