Centre No.			Paper Reference (complete below)				Surname	Initial(s)		
Candidate No.					/	5	C	Signature		
	•	Reference(s)	5668	3/5C					Exami	ner's use only
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Science: Double Award B (1536)

Chemistry B (1539) (Modules 9 and 10)

Paper 5C

Higher Tier

Thursday 16 June 2005 – Morning

Time: 30 minutes

 $\frac{\text{Materials required for examination}}{\text{Nil}} \qquad \frac{\text{Items included with question papers}}{\text{Nil}}$

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature, and complete the paper reference.

Answer ALL questions in the spaces provided in this question paper.

Show all stages in any calculations and state the units. Calculators may be used.

Include diagrams in your answers where these are helpful.

Information for Candidates

The marks for the various parts of questions are shown in round brackets: e.g. (2).

There are 4 questions in this question paper. The total for this paper is 30.

There are 8 pages in this question paper. Any blank pages are indicated.

The question paper has a copy of the periodic table on page 2.

Advice to Candidates



This symbol shows where the quality of your written answer will also be assessed.

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Total Turn over

Question Number

2

3



0	4 He		Argon	1	36 131 Xenon 54	Radon 86				
1		19 Fluorine	ర్		35 127 I Iodine 53					
9		16 Oxygen			34 128 Te Tellurium 52	Polonium 84				
w		Nitrogen	31 Phosphorus	Arsenic	33 122 Sb Antimony 51	209 Bismuth 83				
4		12 Carbon	Silicon	73 Ge		207 Pb Lead 82				
m		Boron	All	TO TO Gallium	31 115 Infium 149	204 TI Thallium				
					30 112 Cd Cadmium 48	Hg Mercury				
BLE				63.5 Cu Copper	29 108 Ag Silver 47	Au Gold				
THE PERIODIC TABLE Group				S9 Nickel	28 106 Pd Palladium	Platinum				
RIOD				59 Cobalt	27 103 Rhodium	192 Iridium		S		7
THE PE Group	1 H Hydrogen			s6 Fe	1 3	OS Osmium 76		Key Relative atomic mass	Symbol Name	IIIC munoci
3	#			55 Mn Manganese	24 25 99 99 MO TC Molybdenum Technetium R	186 Re Rhenium		Relative		300
				52 Cr Chromium	24 96 Molybdenum 42	184 W Tungsten				
				51 V Vanadium		181 Ta Tantalum				
				48 Titanium	22 91 Zirconium 40	178 Hf Hafinium 72				
				45 Sc	21 89 Y Yttrium 39	La Lanthanum	AC Actinium 89			
7		9 Beryllium	Mg Magnesium	Calcium	Sr Strontium	Barium	226 Radium 88			
-		s	Na Sodium	39 K	Rb Rubidium S	L33 CS Caesium 55	223 Fr Francium 87			
	Period 1	7	ю	4	v	9	'			

N 2 1 4 1 5 B 0 2 0 8

Answer ALL the questions. Write your answers in the spaces provided.

1. For many years scientists have measured the amount of carbon dioxide in the atmosphere. They have shown that the amount of carbon dioxide is increasing.

carbon dioxide concentration in parts per million 340 - 330 - 320 - 310

(a) An increase in the Earth's temperature causes carbon dioxide to be given off from oceans.

Suggest why carbon dioxide is released from oceans when they become warmer.

(1)

(b) Suggest why some scientists do not accept that this explains the reason for the increase of carbon dioxide in the atmosphere.

(1)

(c) Carbon dioxide can be formed by burning carbon.

Write the balanced equation for this reaction.

(2)

(2)

(Total 4 marks)

Q1

2. The table gives information about five particles A, B, C, D and E.

particle	symbol	number of protons	number of neutrons	number of electrons
A	Na	11	12	11
В	Na ⁺		12	10
С	Cl	17	18	17
D		17	20	17
Е	Cl ⁻	17	20	

E	Cl ⁻	17	20	
) Fill	in the three s	paces in the table.		(3)
) Des	scribe the stru	cture of solid sodium c	chloride.	
•••••				(3)
	owing questic State two di	on the periodic table a ons. ifferences in behaviou ples of water.	•	- •
(ii)	Explain these	e differences.		
				(3)
				(Total 9 marks)

(a)	In the blast furnace carbon monoxide is produced to reduce oxides of iron. Write a balanced equation to show the production of carbon monoxide in the blast furnace.
	(3)
(b)	Carbon monoxide is a gas but oxides of iron are solids. Explain this in terms of their structures.
	(3)
(c)	Draw a dot and cross diagram, showing outer electrons only, to show the bonding in a molecule of carbon dioxide.
	(2)

(d)	2.32 g of an oxide of iron contain 1.68 g of iron. Calculate the empirical formula of this oxide. (Relative atomic masses: O = 16; Fe = 56)	
	(4)	Q4
	(Total 12 marks)	
	TOTAL FOR PAPER: 30 MARKS	
	END	

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