Centre No.				Paper	r Refei	rence (compl	ete be	low)		Surname	Initial(s)
Candidate No.							F	/	1	F	Signature	

Paper Reference(s)

5018F/1F 5038F/1F Edexcel GCSE

Additional Science (5018F)

Chemistry (5038F)

C2 – Topics 5 to 8

Foundation Tier

Wednesday 16 June 2010 - Morning

Time: 30 minutes

Materials required for examination

Calculator

Items included with question papers

Instructions to Candidates

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

Check that you have the correct question paper.

Answer ALL the questions. Write your answers in the spaces provided in this question paper.

Do not use pencil. Use blue or black ink.

Some questions must be answered with a cross in a box (\boxtimes). If you change your mind about an answer, put a line through the box (\boxtimes) and then mark your new answer with a cross (\boxtimes). 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 individual questions and the parts of questions are shown in round brackets: e.g.: (2). There are 5 questions in this question paper. The total mark for this paper is 30. There are 12 pages in this question paper. Any blank pages are indicated.

Advice to Candidates

You are reminded of the importance of clear English and careful presentation in your answers.

This publication may be reproduced only in accordance with Edexcel Limited copyright policy.

©2010 Edexcel Limited.

H36797A
W850/R1536/57570 5/4/5/2/



5

Examiner's use only

Team Leader's use only

Question

1

2

3

Turn over

Total



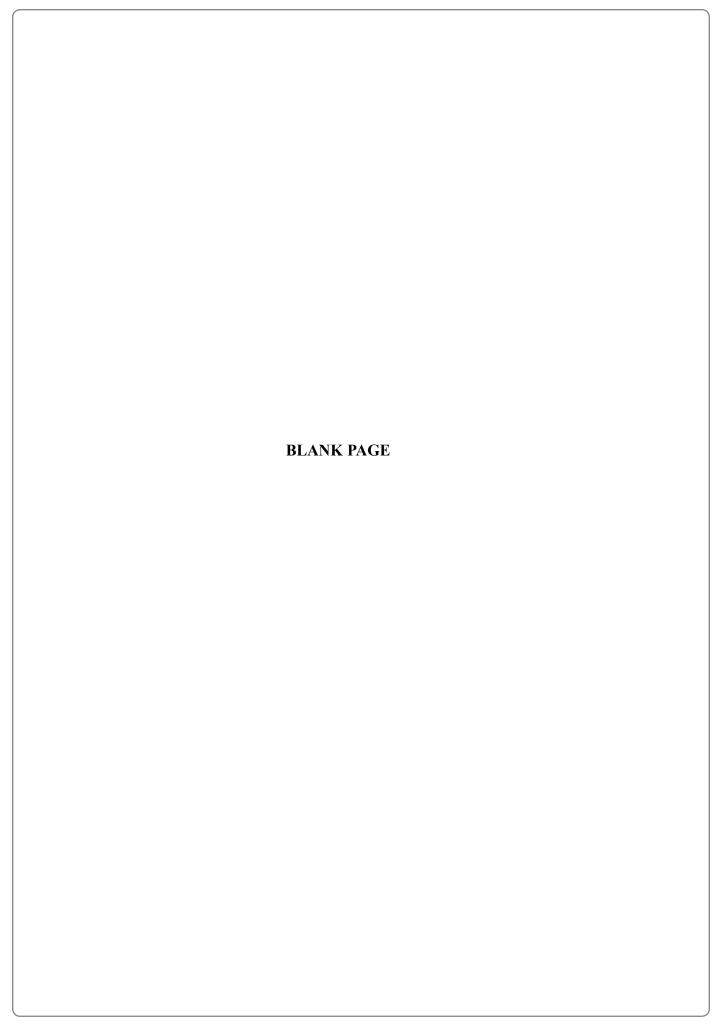
The Periodic Table of the Elements

Tully
ortea but not
/e been repu
's 112-116 nav authenticated
MIC numbers al
ents with ato
<u>=</u>
roentgenium
darmstadtium 110
meitnerium 109
hassium 108
bohrium 107
seaborgium 106
dubnium 105
rutherfordium 104
actinium 89
radium 88
francium 87

^{*} The lanthanoids (atomic numbers 58-71) and the actinoids (atomic numbers 90-103) have been omitted.

The relative atomic masses of copper and chlorine have not been rounded to the nearest whole number.







1.	Many	everyday	items	are	made	of	metals	;
----	------	----------	-------	-----	------	----	--------	---

(a) Most metals have a high density.

Tick (\checkmark) **two** boxes to show **two** other properties of most metals.

brittle	
good conductor of heat	
low melting point	
shiny	

(2)

(b)	The bodies	of aircraft	are made of	aluminium	allovs	rather than	pure aluminium
(υ)	The boules	or anciant	are made or	arummum	anoys	ratifici tilai	puic aiummum

(i)	What is an alloy?	
		1

(ii)	Suggest why the bodies of aircraft are made of aluminium alloys rather than puraluminium.	re
	(1)

(c) Copper is used to make electrical cables.
Give **two** reasons why copper is used to make electrical cables.

(i)	
-----	--

(ii)		
	(2	2)

(Total 6 marks)

Q1



2. The diagram shows a molecule of ammonia.

H | H—N—H

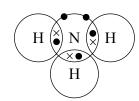
(a) (i) Atoms of two different elements are combined in the molecule of ammonia. Name one of these elements.

(1)

(ii) What is the molecular formula of ammonia?

(1)

(b) The atoms in the molecule are bonded together by shared pairs of electrons. The dots and crosses represent electrons.



What type of bond joins atoms in the molecule?

Put a cross (⋈) in the correct box to show your answer.

- covalent 🖂
- double 🖂
- ionic
- metallic 🗵

(1)

(c) Liquid ammonia has a low boiling point of −33 °C. Why does ammonia have a low boiling point?

Put a cross (\boxtimes) in the correct box to show your answer.

- The bonds between the atoms in ammonia are very strong
- The bonds between the atoms in ammonia are very weak
- The forces between ammonia molecules are strong $\hfill \square$
- The forces between ammonia molecules are weak

(1) Q2

(Total 4 marks)

3. Below is a picture of a tub of low-fat spread.



(a) The low-fat spread contains saturated, monounsaturated and polyunsaturated fats.

Complete the following statements by putting a cross (\boxtimes) in the correct box to show your answer.

(i) Fats are classified by the number of carbon-carbon double bonds, in one of their molecules.



The number of carbon-carbon double bonds in one molecule of a

more than one

monounsaturated fat is one

zero

(ii) Polyunsaturated fats are less viscous than saturated fats.

This means that, compared with saturated fats,

are more runny

polyunsaturated fats have higher melting points

are more difficult to spread \square

(iii) A polyunsaturated fat is changed into a saturated fat by reacting it with

hydrogen 🖂

nitrogen 🔲

oxygen 🔲

(3)



(b) The tub is made of two polymers.

The bottom part is made of poly(propene) and the lid is made of poly(chloroethene).

A polymer is a large molecule.

A polymer is made when many small molecules of a substance join together.

This substance is called the monomer.

The table below shows information about the two polymers and the small monomer molecules used to make them.

Complete the table.

name of polymer	structure of polymer	name of monomer	structure of monomer molecule
poly(chloroethene)	Cl H Cl H Cl H	chloroethene	
poly(propene)	CH ₃ H CH ₃ H CH ₃ H		CH_3 H $C=C$ H

(c) Describe why problems are caused by plastic tubs in landfill sites.

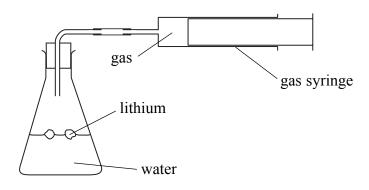
(1)

Q3

(2)

(Total 6 marks)

4. Sarah was investigating the rate of reaction between lithium and water. She measured out 50 cm³ of water and poured it into a conical flask. She dropped two pieces of lithium into the water and connected a gas syringe.



A gas was produced. Sarah measured the volume of gas collected at various times.

(a) Tick (✓) two other pieces of apparatus that Sarah must use in this experiment.

beaker	
measuring cylinder	
stopwatch	
test tube	

(2)



(b) Sarah plotted a graph of her results.

70 total volume of gas 60 collected in cm³ 50 40 30 20 10 20 40 60 80 100 120

- (i) In one of the circles O on the graph, mark 'X' where the reaction was fastest. (1)
- (ii) Sarah took readings for 100 seconds.

 Use the graph to find after how long the reaction stopped.

..... seconds (1)

time in seconds

(c) Sarah wants to make this reaction go faster. She knows there is no suitable catalyst for the reaction.

State one change that she could make so that the same mass of lithium and the same volume of water would react faster.

(1) Q4

(Total 5 marks)

5.	Lithi	um	and sodium are reactive metals in the same group of the periodic table.
	(a) T	Γhe	lithium atom contains electrons, neutrons and protons.
	(i)	Describe the position of these particles in the lithium atom.
			(2)
	((ii)	A lithium atom has an atomic number of 3 and a mass number of 7. State the number of each type of particle in this lithium atom.
			protons
			electrons
			neutrons (2)
		Wholac	en lithium is heated and put into a gas jar of oxygen, a vigorous reaction takes e.
	((i)	During the reaction, heat is given out. What type of reaction is this?
			(1)
	((ii)	The product is lithium oxide. The lithium oxide contains lithium ions, Li^+ , and oxide ions, O^{2-} . Write the formula of lithium oxide.
			(1)

So	e electronic configuration of lithium is 2.1. dium is below lithium in the periodic table and has the electronic configuration 3.1.
2.0). I .
(i)	Describe how the electronic configuration of an atom of an element shows the group and period in which the element appears in the periodic table.
	(2)
(ii)	Sodium is more reactive than lithium.
	Use the electronic configurations of their atoms to explain why.

TOTAL FOR PAPER: 30 MARKS

END



