Centre No.				Paper	r Refei	rence (compl	ete bel	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

Tuesday 7 June 2011 – Afternoon

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 black ink.

Some questions must be answered with a cross in a box (X). 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.

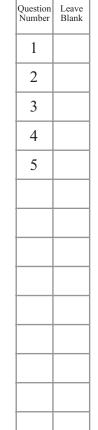
Advice to Candidates

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

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Examiner's use only

Team Leader's use only

Turn over

Total



The Periodic Table of the Elements

0 4 He helium 2	20 Ne neon 10	40 Ar argon 18	84 Kr krypton 36	131 Xe xenon 54	[222] Rn radon 86	fully
7	19 F fluorine 9	35.5 CI chlorine 17	80 Br bromine 35	127 	[210] At astatine 85	orted but not
9	16 O oxygen 8	32 S sulfur 16	79 Se selenium 34	128 Te tellurium 52	[209] Po polonium 84	/e been repc
ιΩ	14 N nitrogen 7	31 P phosphorus 15	75 As arsenic 33	Sb antimony 51	209 Bi bismuth 83	s 112-116 hav authenticated
4	12 C carbon 6	28 Si silicon 14	73 Ge germanium 32	119 Sn fin 50	207 Pb lead 82	Elements with atomic numbers 112-116 have been reported but not fully authenticated
ಣ	11 B boron 5	27 AI aluminium 13	70 Ga gallium 31	115 In indium 49	204 T thallium 81	ents with ato
'			65 Zn zinc 30	112 Cd cadmium 48	201 Hg mercury 80	Eleme
			63.5 Cu copper 29	108 Ag silver 47	197 Au gold 79	[272] Rg roentgenium
			59 nickel 28	106 Pd palladium 46	195 Pt platinum 78	Ds damstadtum 110
			59 Co cobalt 27	103 Rh rhodium 45	192 Ir iridium 77	[268] Mt meitnerium 109
hydrogen			56 Fe	101 Ru ruthenium 44	190 Os osmium 76	[277] Hs hassium 108
			55 Mn manganese 25	[98] Tc technetium 43	186 Re rhenium 75	[264] Bh bohrium 107
	nass ool umber		52 Cr chromium 24	96 Mo molybdenum 42	184 W tungsten 74	[266] Sg seaborgium 106
Key	relative atomic mass atomic symbol _{name} atomic (proton) number		51 V vanadium 23	93 Nb niobium 41	181 Ta tantalum 73	[262] Db dubnium 105
	relativ ato atomic		48 Ti ttanium 22	91 Zr zirconium 40	178 Hf hafnium 72	[261] Rf utherfordium 104
'			45 Sc scandium 21	89 × yttrium 39	139 La * lanthanum 57	[227] Ac* actinium 89
2	9 Be beryllum 4	24 Mg magnesium	40 Ca calcium 20	88 Sr strontium 38	137 Ba barium 56	[226] Ra radium 88
-	7 Li Ilthium 3	23 Na sodium 11	39 K potassium 19	85 Rb rubidium 37	133 Cs caesium 55	[223] Fr 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.



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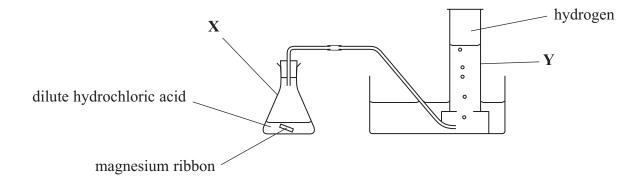
Give the							
Each elei		of the elementary be used o		an once, or not	at all.		
/		nt is a metal. in all steels.					
•••••	•••••						(1)
/		nt has the ato forms, diamo	•	C. and Buckmins	terfullerene.		
•••••	•••••						(1)
c) This	elemei	nt is combine	ed with hydro	gen in ammoni	ia, NH ₃ .		
	•••••	••••••	•••••••				(1)
It dis	ssolves	in water to folution is sha	orm an orang	•		changes from o	range



- 2. Magnesium reacts with dilute hydrochloric acid. Magnesium chloride and hydrogen are formed.
 - (a) Complete the word equation for this reaction.

 $+ \text{ hydrochloric acid} \rightarrow \dots + \dots + \dots$ (2)

(b) In a practical investigation, the reaction is carried out in the apparatus shown.



Give the name of the pieces of apparatus X and Y.

X

(2)

(c) In a practical investigation, four experiments were carried out.

Experiment 1 is carried out by reacting some magnesium ribbon with excess dilute hydrochloric acid at room temperature.

Three more experiments were carried out.

In each experiment, the only change from experiment 1 is described.

Experiment 2 – powdered magnesium was used instead of magnesium ribbon

Experiment 3 – colder acid was used instead of acid at room temperature

Experiment 4 – the gas was collected in a gas syringe instead of over water in apparatus Y

For each experiment tick (\checkmark) one box to show whether the change makes the reaction faster, slower or has no effect.

experiment	change	faster	slower	no effect
2	use powdered magnesium			
3	use colder acid			
4	collect the gas in a gas syringe			

(3)

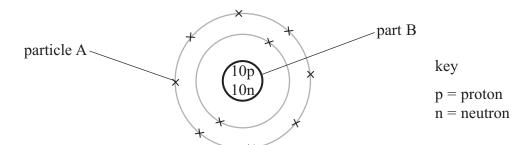
(d)	This reaction is exothermic.
	How could you show this?
	(1)

 $\mathbf{Q2}$

(Total 8 marks)

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3. The diagram shows an atom of an element.



(a) (i) Give the name of particle A.

(1)

(ii) Give the name of part B of the atom.

(1)

(b) (i) Use the diagram to give the electronic configuration of this atom.

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

- 2.8
- 8
- 8.2
- 10

(1)

(ii) Use the periodic table to give the **symbol** of this atom.

(1)

(iii) This element is found in group 0 of the periodic table.

It is very unreactive.

Explain why.

.....

(Total 5 marks)

(1) Q3

(1)

4. Parts of the structure of four substances are shown.

carbon nanotube	diamond	graphite	lithium

(a)	Carbon nanotubes are strong, hard and conduct electricity.
	Suggest a use for carbon nanotubes.

(b)	Give the names of the other two substances in the table that conduct electricity.	
	(1	1)

(c) Diamond has a high melting point.
Explain why.

(2)

d)	(i)	Some people use homeopathic medicines. Some homeopathic medicines are very dilute solutions of natural substances. In one dose of these medicines, there is an extremely small amount of the natural substances.
		Why might some people think that homeopathic medicines do not work?
		(1)
	(ii)	In the molecules of many natural substances, the atoms are bonded together by shared pairs of electrons.
		What type of bond is a shared pair of electrons?
		(1)
		(Total 6 marks)

- 5. One molecule of propane can be cracked to form one molecule of propene, C_3H_6 , and one molecule of another gas.
 - (a) Complete the balanced equation for this reaction.

..... $\rightarrow C_3H_6 + \dots$ (2)

(b) The structure of a molecule of propene is shown.

$$\begin{array}{cccc} & & & H & & H \\ H & & & C & & \\ C = C & & H & & \\ H & & & H & & \end{array}$$

(i) Calculate the relative formula mass of propene, C_3H_6 . (Relative atomic masses H = 1.0, C = 12)

answer =(1)

(1)

(ii) The propene molecule is unsaturated.

Explain why the molecule is said to be unsaturated.

(1)

(iii) Many propene molecules can react together to form a polymer. Give the name of the polymer formed.

(1)

(iv) When this polymer is manufactured, the reaction has a very high atom economy. Apart from profit, why is a high atom economy an advantage?

Leave blank

(v) Propene reacts with hydrogen chloride to make chloropropane.

The word equation for this reaction is

propene + hydrogen chloride → chloropropane

Ethene reacts with hydrogen chloride in a similar way.

Suggest the name of the product that will be formed by completing the word equation.

The word equation for this reaction is

ethene + hydrogen chloride →

(1) Q5

(Total 7 marks)

TOTAL FOR PAPER: 30 MARKS

END



