





# THE PERIODIC TABLE

Period **1** **2** **3** **4** **5** **6** **7** **0**  
 Group

Period

1	H	1
	Hydrogen	

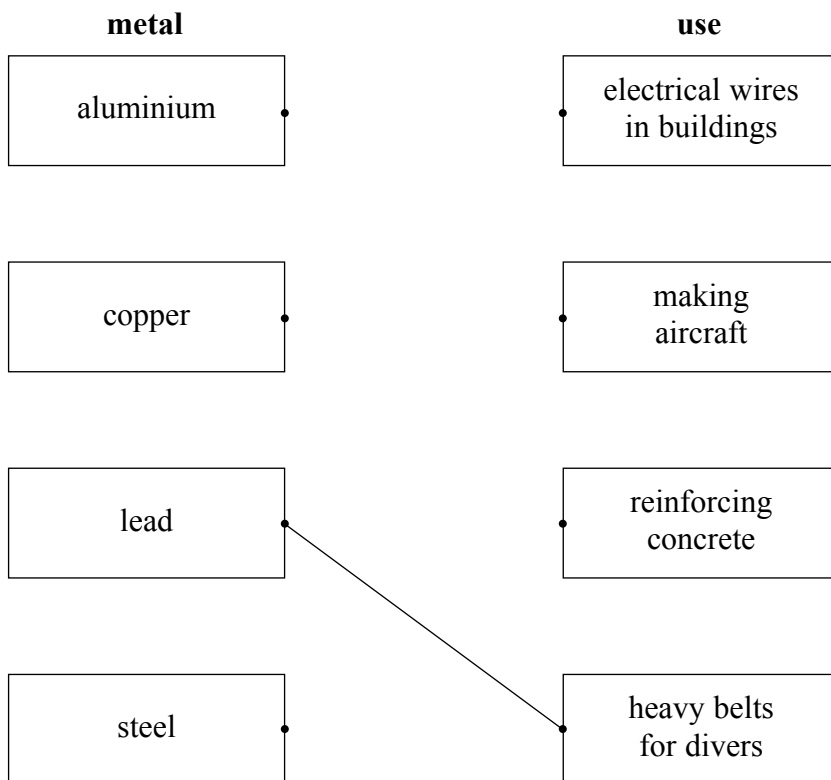
1	2	3	4	5	6	7	0
1	Li Lithium 3	Be Beryllium 4					He Helium 2
2	7	9					20
	Li	Be					He
	23	24					19
	Na	Mg					F
	11	12					9
	Sodium	Magnesium					Fluorine
3	11	12					35.5
	Na	Mg					Cl
	11	12					17
	Sodium	Magnesium					Chlorine
4	19	20	21	22	23	24	18
	K	Ca	Sc	Ti	V	Cr	Ar
	19	20	21	22	23	24	18
	Potassium	Calcium	Scandium	Titanium	Vanadium	Chromium	Argon
5	37	38	39	40	41	42	36
	Rb	Sr	Y	Zr	Nb	Mo	Kr
	37	38	39	40	41	42	36
	Rubidium	Strontium	Yttrium	Zirconium	Niobium	Molybdenum	Krypton
6	55	56	57	72	73	74	54
	Cs	Ba	La	Hf	Ta	W	Xe
	55	56	57	72	73	74	54
	Cesium	Barium	Lanthanum	Hafnium	Tantalum	Tungsten	Xenon
7	87	88	89	104	105	106	86
	Fr	Ra	Ac	Rf	Db	Sg	Rn
	87	88	89	104	105	106	86
	Francium	Radium	Actinium	Rutherfordium	Dubnium	Seaborgium	Radon

**Key**

Relative atomic mass
Symbol
Name
Atomic number

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

1. (a) Draw a straight line from each metal to its use.  
One has been done for you.



(3)

- (b) Underline the correct words to complete the following sentences.

(i) Most metals are extracted from rocks called **ores.**

**oils.**

**fossils.**

(1)

(ii) In a blast furnace, carbon monoxide is used to extract **iron.**

**aluminium.**

**sodium.**

(1)

(iii) Electricity must be used to extract **iron.**

**aluminium.**

**gold.**

This process is called **electrolysis.**

**cracking.**

**fermentation.**

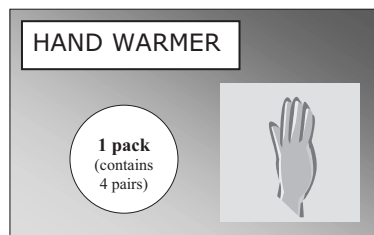
(2)

Q1

(Total 7 marks)



2. (a) Hand warmers can be used during some activities.



Hand warmers work because an exothermic chemical reaction takes place.

(i) What is meant by an exothermic reaction?

.....  
.....

**(1)**

(ii) How would a person using a hand warmer decide that a chemical reaction was taking place?

.....  
.....

**(1)**

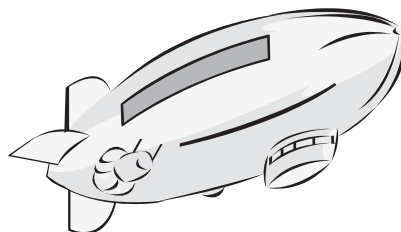
(b) Water is a compound that is formed when the gases hydrogen and oxygen react. Water has the formula  $H_2O$ . Calculate the relative formula mass of water. (Relative atomic masses:  $H = 1.0$ ,  $O = 16$ )

.....  
.....

**(2)**



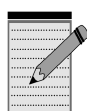
(c) Hydrogen was used to fill airships but the noble gas helium is now used instead.



(i) What is the chemical symbol for helium? ..... **(1)**

(ii) What property do both hydrogen gas and helium gas have that makes them suitable for filling airships?  
 ..... **(1)**

(iii) Why is helium more suitable than hydrogen for filling airships?  
 .....  
 .....  
 .....  
 ..... **(2)**



(d) The mass number of a helium atom is 4.  
 Complete the table for the particles in this atom.

particle	number in atom	relative mass of particle	relative charge on particle
proton	2	1	+1
neutron	2		0
electron	2	$\frac{1}{1850}$	

**(2)**

**(Total 10 marks)**

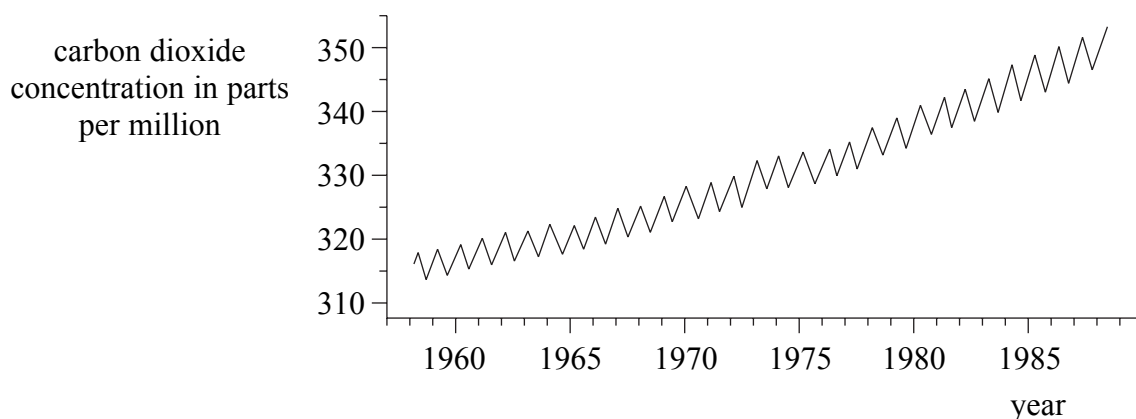
**Q2**

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3. 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.



- (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)**

**(Total 4 marks)**

**Q3**



4. 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
B	Na <sup>+</sup>		12	10
C	Cl	17	18	17
D		17	20	17
E	Cl <sup>-</sup>	17	20	

(a) Fill in the three spaces in the table. (3)

(b) Describe the structure of solid sodium chloride.

.....  
 .....  
 .....  
 .....  
(3)

(c) Sodium is a metal with atomic number 11.  
 Copper is a metal with atomic number 29.  
 Find these metals on the periodic table and use their positions to help you answer the following questions.

(i) State **two** differences in behaviour of these metals when they are added to separate samples of water.

.....  
 .....

(ii) Explain these differences.

.....  
 .....  
 .....

(3)

Q4

(Total 9 marks)

TOTAL FOR PAPER: 30 MARKS

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