





# THE PERIODIC TABLE

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

Period

**1**

1	H	1
	Hydrogen	

7	Li	9	Be
	Lithium		Beryllium
23	Na	24	Mg
	Sodium		Magnesium
39	K	40	Ca
	Potassium		Calcium
85	Rb	88	Sr
	Rubidium		Strontium
133	Cs	137	Ba
	Caesium		Barium
223	Fr	226	Ra
	Francium		Radium

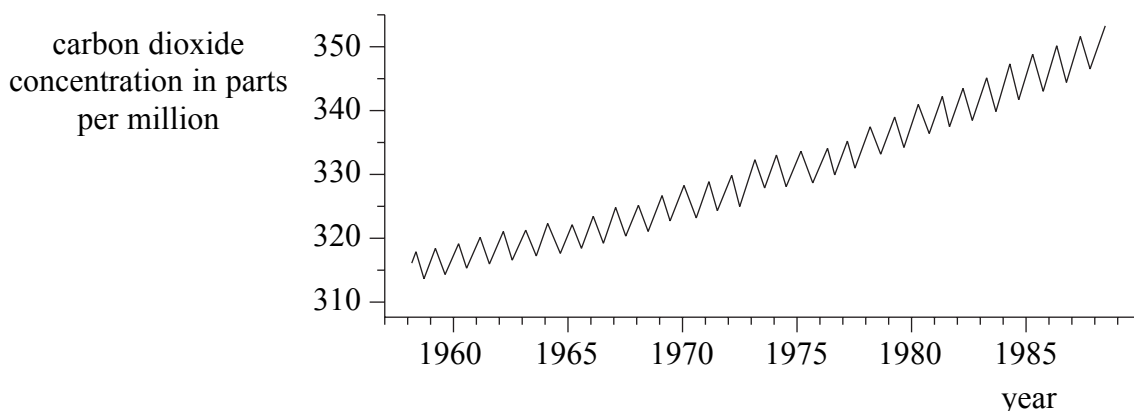
45	Sc	48	Ti	51	V	52	Cr	55	Mn	56	Fe	59	Ni	63.5	Cu	65	Zn	70	Ga	73	Ge	75	As	77	Se	79	Br	80	Kr
	Scandium		Titanium		Vanadium		Chromium		Manganese		Iron		Nickel		Copper		Zinc		Gallium		Germanium		Arsenic		Selenium		Bromine		Krypton
89	Y	91	Zr	93	Nb	96	Mo	99	Tc	101	Ru	103	Rh	106	Pd	108	Ag	110	Cd	112	In	115	Sn	117	Sb	119	Te	122	Xe
	Yttrium		Zirconium		Niobium		Molybdenum		Technetium		Ruthenium		Rhodium		Palladium		Silver		Cadmium		Indium		Tin		Antimony		Tellurium		Xenon
139	La	178	Hf	181	Ta	184	W	186	Re	190	Os	192	Ir	195	Pt	197	Au	200	Hg	201	Tl	204	Pb	207	Bi	209	Po	210	Rn
	Lanthanum		Hafnium		Tantalum		Tungsten		Rhenium		Osmium		Iridium		Platinum		Gold		Mercury		Thallium		Lead		Bismuth		Polonium		Radon
227	Ac	227	Fr	227	Ra	227	Ac	227	Ac	227	Ac	227	Ac	227	Ac	227	Ac	227	Ac	227	Ac	227	Ac	227	Ac	227	Ac	227	Ac
	Actinium		Francium		Radium		Actinium		Actinium		Actinium		Actinium		Actinium		Actinium		Actinium		Actinium		Actinium		Actinium		Actinium		Actinium

**Key**

Relative atomic mass
Symbol
Name
Atomic number

**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.



- (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)**

**Q1**

**(Total 4 marks)**



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
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.

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

(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.

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 .....

(ii) Explain these differences.

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

(3)

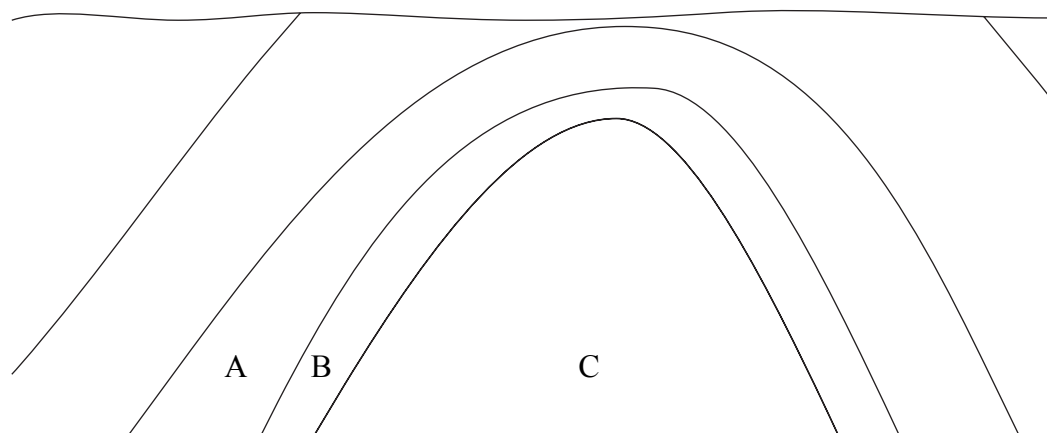
(Total 9 marks)

Q2



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3. Tony was studying rocks in a quarry. He made this sketch of the side of the quarry.

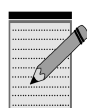


(a) The rock at C is a very hard rock containing large crystals.  
Describe how this rock was formed.

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.....

(2)

(b) Rock A and rock B have the same chemical composition but are different types of rock.  
Describe how rock B was formed.



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(3)

(Total 5 marks)

Q3



4. (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.

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(3)

- (b) Carbon monoxide is a gas but oxides of iron are solids. Explain this in terms of their structures.

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(3)

- (c) Draw a dot and cross diagram, showing outer electrons only, to show the bonding in a molecule of carbon dioxide.

(2)



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(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)

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(4)

Q4

(Total 12 marks)

**TOTAL FOR PAPER: 30 MARKS**

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