

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					B Boron 5	He Helium 2										
2	Na Sodium 11	Mg Magnesium 12					C Carbon 6	N Nitrogen 7	O Oxygen 8	F Fluorine 9	Ne Neon 10							
3	K Potassium 19	Ca Calcium 20	Sc Scandium 21	Ti Titanium 22	V Vanadium 23	Cr Chromium 24	Mn Manganese 25	Fe Iron 26	Co Cobalt 27	Ni Nickel 28	Cu Copper 29	Zn Zinc 30	Ga Gallium 31	Ge Germanium 32	As Arsenic 33	Se Selenium 34	Br Bromine 35	Kr Krypton 36
4	Rb Rubidium 37	Sr Strontium 38	Y Yttrium 39	Zr Zirconium 40	Nb Niobium 41	Mo Molybdenum 42	Tc Technetium 43	Ru Ruthenium 44	Rh Rhodium 45	Pd Palladium 46	Ag Silver 47	Cd Cadmium 48	In Indium 49	Sn Tin 50	Sb Antimony 51	Te Tellurium 52	I Iodine 53	Xe Xenon 54
5	Cs Caesium 55	Ba Barium 56	La Lanthanum 57	Hf Hafnium 72	Ta Tantalum 73	W Tungsten 74	Re Rhenium 75	Os Osmium 76	Ir Iridium 77	Pt Platinum 78	Au Gold 79	Hg Mercury 80	Tl Thallium 81	Pb Lead 82	Bi Bismuth 83	Po Polonium 84	At Astatine 85	Rn Radon 86
6	Fr Francium 87	Ra Radium 88	Ac Actinium 89															

Key

Relative atomic mass
Symbol
Name
Atomic number



Leave
blank

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

1. Mark a cross (☒) next to the correct word to complete each sentence.

fossils ☒

(a) Most metals are extracted from **marble** ☒

ores ☒

(1)

(b) When metals are extracted from their compounds the process

neutralisation ☒

always involves **polymerisation** ☒

reduction ☒

(1)

alkali ☒

(c) Lithium, sodium and potassium are **hard** ☒ 0.5 cm metals.

transition ☒

(1)

catalysts ☒

(d) Many transition metals are used as **fertilisers** ☒

fuels ☒

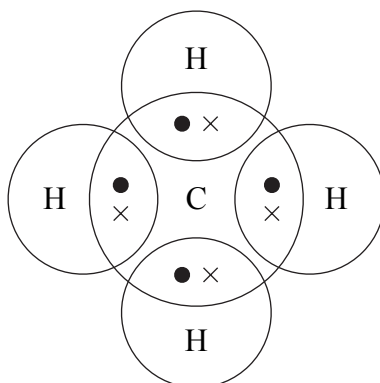
(1)

(Total 4 marks)

Q1



2. (a) The diagram shows the bonding in a methane molecule. The dots and crosses represent electrons.



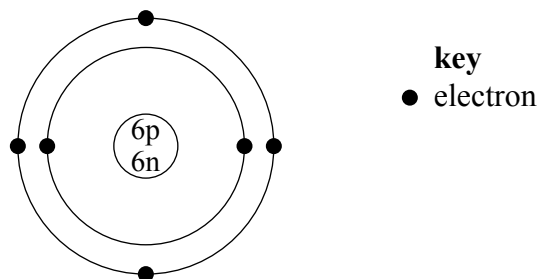
- (i) How many electrons does a hydrogen atom have before it combines to form methane?

..... (1)

- (ii) What holds the atoms in a molecule of methane together?

.....
 (2)

- (b) The diagram shows the structure of a carbon atom.



The mass number of this carbon atom is

The atomic number of carbon is

A carbon atom contains a total of electrons.

(3)

- (c) Calculate the relative formula mass of methane, CH_4
 (Relative atomic masses: $\text{H} = 1$; $\text{C} = 12$.)

..... (1)



(d) When methane burns, an exothermic reaction takes place.

What is meant by an exothermic reaction?

.....
.....

(2)

(Total 9 marks)

Leave
blank

Q2



N 2 5 9 8 7 A 0 5 0 8

3. (a) Use words from the box to complete the sentences.

carbon dioxide **nitrogen** **oxygen**

Today, about 78% of the Earth's atmosphere is

The Earth's original atmosphere probably contained higher percentages of water vapour and compared with today.

(2)

(b) Suggest why scientists cannot agree about the composition of the Earth's original atmosphere.

.....
.....

(1)

(c) Complete the following table by marking a cross (☒) to show whether each process increases or decreases the amount of oxygen in the atmosphere. One has been done for you.

	process	increases oxygen	decreases oxygen
	respiration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(i)	burning	<input type="checkbox"/>	<input type="checkbox"/>
(ii)	photosynthesis	<input type="checkbox"/>	<input type="checkbox"/>

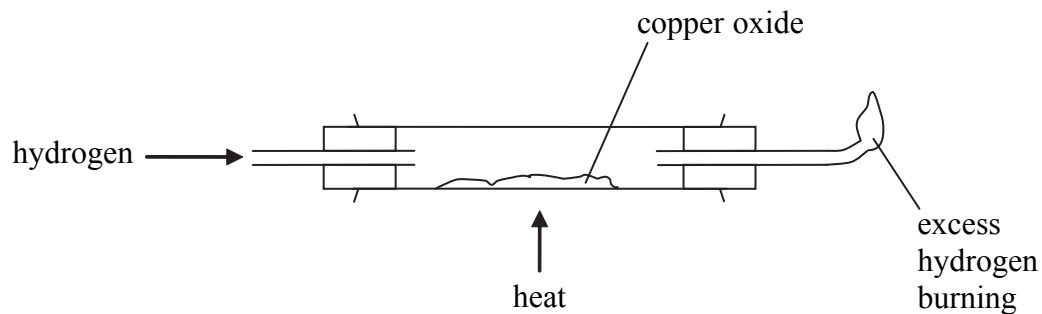
(2)

Q3

(Total 5 marks)



4. In this experiment, hydrogen is passed over heated copper oxide to produce copper.



(a) Describe what changes would be seen during this reaction.



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

(3)

(b) Write the balanced equation for the reaction between copper oxide and hydrogen.

.....

(2)

(c) Complete this sentence to show the type of reaction.

During this reaction, copper oxide is to copper.

(1)

(Total 6 marks)

Q4



5. The atomic number of chlorine is 17.

Chlorine and magnesium both form ions.

(a) Complete this table.

	element	
	magnesium	chlorine
symbol of atom	Mg	Cl
number of electrons in atom	12	
symbol of ion	Mg ²⁺	Cl ⁻
number of electrons in ion		

(3)

(b) Use information from the table to explain why the formula of magnesium chloride is MgCl₂.

.....

.....

.....

.....

(2)

(c) Explain why magnesium chloride has a high melting point.

.....

.....

.....

(1)

Q5

(Total 6 marks)

TOTAL FOR PAPER: 30 MARKS

END

