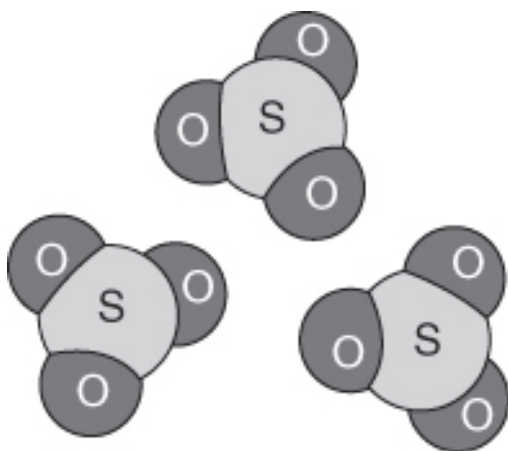


Name _____ Class _____ Date _____

- 1 In the space below, draw a diagram of a methane molecule, which has the formula of CH_4 .

(Total for Question 1 = 2 marks)

- 2 (a) Give the formula for the oxide of sulfur shown in the diagram.



(1)

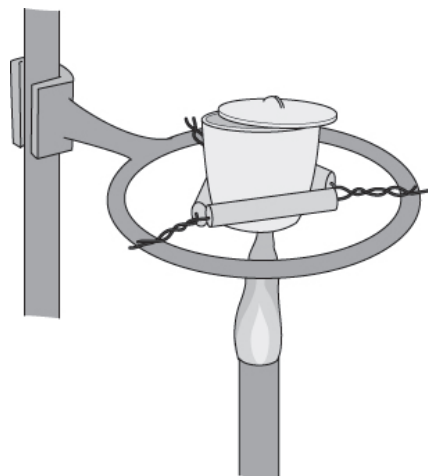
- (b) 4 g of sulfur reacts completely with 6 g of oxygen to form this oxide of sulfur.
Calculate the mass of sulfur needed to produce 30 g of the oxide.

(2)

(Total for Question 2 = 3 marks)

- 3 A class is asked to measure the increase in mass when a 1g piece of magnesium is burned using the apparatus in the diagram.

Class results	
Group	Increase in mass (g)
1	0.19
2	0.22
3	0.23
4	0.22
5	0.02
6	0.24



- (a) Name the compound formed when magnesium burns in air.

_____ (1)

- (b) Identify the anomalous result in the table and give **one** reason for your choice.

(2)

- (c) Calculate the mean increase in mass in grams for this set of results. Clearly explain what you will do with any anomalous results.

(2)

- (d) Use Dalton's atomic theory to explain the increase in mass.

(1)

(Total for Question 3 = 6 marks)

- 4 Dmitri Mendeleev published his ideas about classifying elements in 1869. His first periodic table is shown below.

			Ti = 50	Zr = 90	? = 180
			V = 51	Nb = 94	Ta = 182
			Cr = 52	Mo = 96	W = 186
			Mn = 55	Rh = 104,4	Pt = 197,4
			Fe = 56	Ru = 104,4	Ir = 198
		Ni =	Co = 59	Pd = 106,6	Os = 199
H = 1			Cu = 63,4	Ag = 108	Hg = 200
Be = 9,4	Mg = 24		Zn = 65,2	Cd = 112	
B = 11	Al = 27,4		? = 68	Ur = 116	Au = 197?
C = 12	Si = 28		? = 70	Sn = 118	
N = 14	P = 31	As = 75		Sb = 122	Bi = 210?
O = 16	S = 32	Se = 79,4		Te = 128?	
F = 19	Cl = 35	Br = 80		I = 127	
Li = 7 Na = 23	K = 39	Rb = 85,4		Cs = 133	Tl = 204
	Ca = 40	Sr = 87,6		Ba = 137	Pb = 207
	? = 45	Ce = 92			
	?Er = 56	La = 94			
	?Yt = 60	Di = 95			
	?In = 75,6	Th = 118?			

- (a) Give the symbols and names for **two** halogens in the table.

_____ (2)

- (b) Give **one** reason why Mendeleev arranged the elements in groups.

_____ (1)

(Total for Question 4 = 3 marks)

5 An outline of a modern periodic table is shown below.

[illegible]

(a) Which of the elements are non-metals? Tick **one** box.

- ☐ **A** (i) and (ii)
- ☐ **B** (iii), (iv) and (vi)
- ☐ **C** (iii), (iv) and (v)
- ☐ **D** (i), (ii) and (vi)

(1)

(b) Which elements are in group 0? Tick **one** box.

- ☐ **A** (i) and (ii)
- ☐ **B** (iii)
- ☐ **C** (iv) and (v)
- ☐ **D** (vi)

(1)

(c) State which of elements **(iv)** and **(v)** in the table is the more reactive. Give **one** reason for your answer.

(2)

(Total for Question 5 = 4 marks)

- 6 (a) Complete the word equation for the reaction between sodium and water.

sodium + water → _____ + _____
(2)

- (b) Describe what you would observe if you added a piece of sodium to water.

(1)

(Total for Question 6 = 3 marks)

- 7 Zinc oxide is a base.

- (a) Name the type of reaction that occurs between zinc oxide and hydrochloric acid.

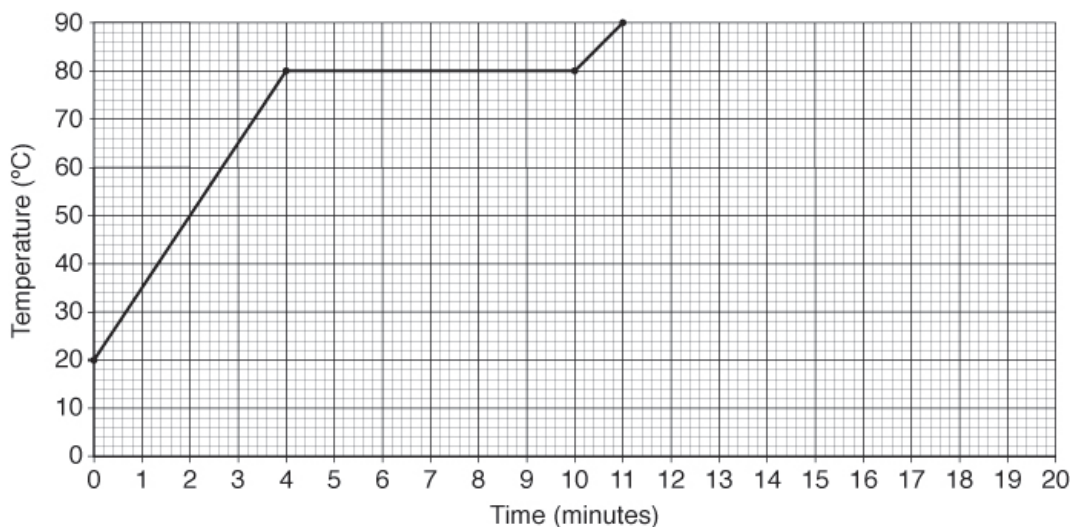
(1)

- (b) Name the salt produced in the reaction between zinc oxide and hydrochloric acid.

(1)

(Total for Question 7 = 2 marks)

- 8 The graph shows how the temperature of metal **X** changed over time as it was heated constantly.



Explain the shape of the graph.

(Total for Question 8 = 2 marks)