SCOBA
S.2 CHEMISTRY

INSTRUCTIONS

- Attempt all questions in section A and B

SECTION A (50½Marks)

1. a) A mixture of magnesium powder and lead(II) oxide was heated strongly until there Was no further change.

   i) State what was observed? (02marks)

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   ii) Write equation for the reaction that took place? (02marks)

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   b) The experiment in (a) was repeated using a mixture of copper turnings and magnesium in oxide. State what was observed? (01mark)

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   c) Explain your observations in (a) and (b) above. (02marks)

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2. a) What is an oxide? (01mark)

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   b) Name four types of oxides. (04marks)

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c) Zinc oxide dissolves in both dilute hydrochloric and dilute sodium hydroxide. Explain. (01mark)

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d) i) Name any other two oxides that behave like Zinc oxide. (02marks)

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ii) Write an equation for the reaction between Zinc oxide and dilute hydrochloric acid. (1½marks)

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3.

	I	II	III	IV	V	VI	VII	VIII
1	W							
2	X			Y		S	Z	U
3								
4		V						

Above is a periodic table but the letters used are not the true symbols for the elements.

a) Write the electronic configuration of

i) X……

ii) Z……

iii) S……

b) State the types of bond formed between V and Z. (01mark)

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c) i) Write the formula of the oxide of W. (01mark)

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ii) Write the formula of the compound formed between Y and Z. (01mark)

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d) Arrange the elements in period 2 in order of decreasing atomic radius. (02marks)

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4. When hydrogen peroxide was exposed to sunlight a gas was formed.

a) i) Name the gas (01mark)

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ii) State how the gas could be identified. (02marks)

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iii) Write an equation for the reaction leading to the formation of the gas. (1½marks)

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b) Name one reagent that can be used to speed up the rate of formation of the gas. (01mark)

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5. Part of the periodic Table is shown below letters used are not actual symbols of the elements

	I	II	III	IV	V	VI	VII	VIII
1	U							Q
2	X			V		T	P	
3		Y	Z		S		W	
4	R							

a) Write the electronic configuration of; (02marks)

i) R……..

ii) Z3+……..

iii) T2-……

i) V and W

…….

6. a) Sodium, Aluminium and sulphur can combine with oxygen to form oxides. Complete the following table below to show the formula of, class of, and bond in the oxide of each of these elements.

Element	Formula of oxide	Class of oxide	Type of bond in oxide
Sodium			
Aluminium			
Sulphur			

(4½marks)

b) The oxides of sodium and sulphur were separately treated with water. Write equation to show what took place in each case. (03marks)

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i) Temporary hardness of water (01mark)

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ii) Permanent hardness of water. (01mark)

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SECTION B (30MARKS)

7. An atom Y of mass number 31 and 15 protons.

a) i) Determine the number of neutrons in Y. (1½marks)

ii) Write the electronic configuration of Y. (02marks)

b) i) To which group of the periodic table does the element belong? Give a reason. (02marks)

ii) Write down the formula of the compound formed between Y and bromine. (1½marks)

ii) Is Y a metal or non-metal? Give a reason for your answer. (02marks)

c) Draw the structure of the compound formed between Y and hydrogen showing the arrangement of electrons in the compound. (06marks)

8. a) Describe an experiment to show that both oxygen and water are necessary for rusting to occure12marks

a) State three disadvantages of rusting.

END