

JUNE 2000

SECTION A

1. The table gives some information about six elements, U, V, W, X, Y and Z. These letters are NOT the usual symbols of the elements. Using only the letters U-Z answer the questions that follow.

Element	Atomic Number	Electronic Configuration
U		2,8/18,7
V	11	1
W		2,8,14,2
X		2,8,4
Y	18	
Z	17	

(a) Give :

(i) The atomic number of U.....

(ii) The electronic configuration of Z (2marks)

(b) Which one of the elements in the table does not form compounds?

Give a reason for your answer.....

(c) Which two of the elements in the table belong to the same group of periodic table? Give the name of the group.

Elements .....group. .... (2marks)

d) (i) Write the formula of the compound formed between X and Z .....

(ii) Write the formula of the sulphate of W... (2marks)

(e) From the elements U-Z select the element which

Is a transition metal..... (2marks)

(f) What type of compound is formed between V and Hydrogen?..... (1 mark)

2. Sodium hydroxide is manufactured industrially by electrolysis.

**FOR MORE VISITE WWW.cgce-revision.com**

(a) Name the electrolyte used.....(1 mark)

(a) State the material of which each electrode is made

Up. Cathode.....anode ..... (2marks)

(b) Write an ionic equation for the reaction by which

Sodium hydroxide is produced ..... ..(2marks)

(e) Name two by-products of the process and give one large scale use of each by-product

(f) How would sodium hydroxide pellets be obtained

From tire solution..... (1 mark)

3. On heating 5g of granulated zinc with excess 2M HCl (aq) V cm<sup>3</sup> of hydrogen gas was produced in 5 minutes

(a) Why is the HCl (aq) used in excess? ..... (1 mark)

(b) The table below shows the other conditions under which the reactions take place. Complete the table by stating whether V increases, decreases or remain the same. In each case give the reason.

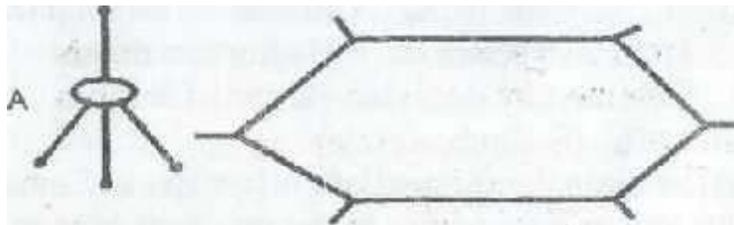
Experiment condition	Results	Reasons
i. 5g of powder zinc and excess 2M HCl (aq) heated for 5 minutes		
ii. 5g of granulated zinc and excess 2M HCl (aq) heated for 5 minutes		
iii. 5g of granulated zinc and excess 2M HCl (aq) at room temperature		

(c)(i) Write the equation for the reaction.....

(ii) if the reaction continued until all the zinc is used up, calculate the volume of hydrogen produced measured at room temperature and atmospheric pressure

..... (3marks)

4.



Structure A and B above represent two crystalline forms of carbon

(a) Name the crystalline form represented by

(i) A ..... (1 mark)

(ii) B:..... (1 mark)

(b) What term is used to describe this phenomenon Exhibited by carbon? .... (1 mark)

(c) Complete the table below to bring out the differences in

The physical properties given

Property	A	B	Reason for Difference.
Hardness			
Electrical conduction			

(d) How would you show by experiment that A and B are different forms of the same elements?

..... (2marks)

(e) Give one use of each of the two crystalline forms. A.....B..... (2marks)

5. Given below are the molecular formula of some <

Hydrocarbons A: C<sub>4</sub>H<sub>10</sub> B: C<sub>2</sub>H<sub>4</sub> C: C<sub>2</sub>H<sub>2</sub> D: CH<sub>4</sub> E: C<sub>6</sub>H<sub>6</sub>

a) Name the hydrocarbons A,B,C and E

AM: .B C..... E..... , (2marks)

b) From A-I| select the hydrocarbon that is

(i) Obtained by decarboxylation of sodium ethanoate (Sodium acetate)

(ii) The main component of kitchen gas in Cameroon

(iii) Used as a monomer in the production of an Important plastic..... L.....

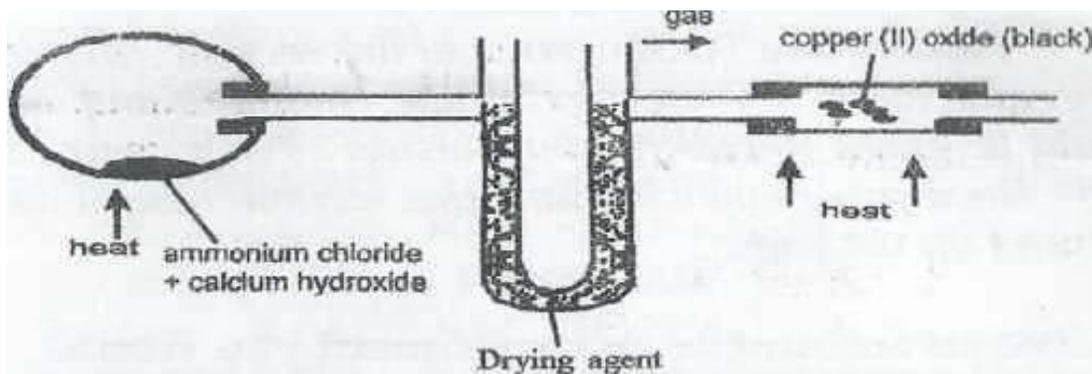
(iv) An aromatic hydrocarbon .... " (2marks)

(c) State two conditions required for the formation Of a hydrocarbon plastic ..... (2marks)

(b) What is the structural difference between A and B? ..... (2marks)

(c) How would B be obtained from a named alcohol?

6.



A mixture of ammonia chloride and calcium hydroxide was heated in a round bottom flask as shown on the diagram above. The gas produced was dried and passed over heated copper (ii) oxide in a tube.

a) Write the equation for the reaction in the round bottom flasks ..... (2marks)

b) Identify

(i) The gas .....

(ii) The drying agent..... (2marks)

c) State any color change that would be observed

**FOR MORE VISITE [WWW.cgce-revision.com](http://WWW.cgce-revision.com)**

In the heated tube. .... (1 mark)

d) Give the products formed when the gas is passed over heated copper (II) oxide.....  
(3marks)

e) Give two large scale uses of the gas produced (2marks)

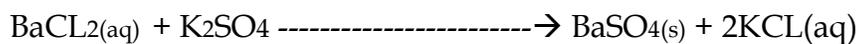
## SECTION B

*Answer any two question in this section. All questions carry equal marks. Where appropriate, equations and diagrams should be given to clarify your answer. Write your answers on the lined papers which follow this section. Useful data will be found on the back.*

6. Give an account of an experiment you would carry out to determine the heat of combustion of methanol (your description should end with the collection of data) Carrying out such an experiment it was found that temperature of the 200cm<sup>3</sup> of water was raised from 20°C to 75°C when 2.10g of methanol was completely burnt. Use the data above to determine the heat of combustion of methanol ..... (25marks)
7. Briefly describe how aluminum and iron can be extracted from their ores. For each metal give two large scale uses (25marks)
8. Describe the type of bonding that exists in each of the following substances: Magnesium chloride, Carbon dioxide and Calcium. Give two physical properties of each substance and relate each property to the type of bonding found in the substance

**FOR MORE VISITE [WWW.cgce-revision.com](http://WWW.cgce-revision.com)**

10.



The three equations given above represent three different Methods of preparing salts in the laboratory. In each case describe how a pure solid sample of the salt in bold print indicated in the Equation can be obtained from the given starting substances (25marks)