NAME:……..

SIGNATURE:……

DAYSTAR SECONDARY SCHOOL

UGANDA CERTIFICATE OF LOWER SECONDARY EDUCATION

CHEMISTRY

PAPER 1

2:30HRS

INSTRUCTIONS TO STUDENTS:

This paper consists of two sections A and B, attempt all questions in section A and any two in section B.

All answers in section A should be written in the provided spaces provided.

Include word equations were necessary to support your answers.

Neat handwriting while answering is required

For examiner's use only

Section A	Total marks scored	
Section B	Qtn attempted	
	R	
	A	
	C	
	E	
	Qtn attempted	
	R	
	A	
	C	
	E	
Total marks scored		

SECTION A

1. The atomic numbers of hydrogen, magnesium and oxygen are 1, 12, and 8 respectively. As a student who studied the periodic table, you are required to write the electronic configurations of the elements. (03 marks)

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   .....

2. John an S1 student was lighting a Bunsen burner and he saw the gas burning in the chimney and at the air hole.

   (i) What term can be used to describe John's observation? (01 mark)

   .....

   (ii) What mistake did John do when lighting the burner? (01 mark)

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   (iii) What accident may happen if he doesn't stop the gas immediately? (01 mark)

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   (iv) Write a simple message advising John on how he can light a burner and prevent such an observation from happening again.(02 marks)

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3. Carbon dioxide can be prepared in the laboratory using dilute hydrochloric acid and marble chips ($CaCO_3$).

   (a) Identify the substances that can be used as a drying agent and the method of collection of the gas during the preparation. (02 marks)

   (i) Drying agent;

   .....

   (ii) Method of collection;

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(b) Explain the reason for your choice of the; (02 marks)

(i) Drying agent

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(ii) Method of collection of the carbon dioxide gas

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(c) State two uses of carbon dioxide gas (01 mark)

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(d) In simple write up, briefly explain the effect of increased concentration of carbon dioxide on the environment. (02 marks)

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4. Air is a mixture consisting mainly of two gases X and Y in the ratio of 1:4 by volume respectively.

(a) Name the gas; (01 mark)

(i) X:……..

(ii) Y:……..

(b) (i) State a suitable method by which the mixture of X and Y can be separated industrially. (01 mark)

……

(ii) Give the reason for the choice of the method you have stated in (b)(i). (01 mark)

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(c) Name one process during which the concentration of X in the atmosphere can be increased. (01 mark)

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(d) State the industrial use of Y. (01 mark)

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5. Below is a list of some organic compounds. Use it to enable you to answer the questions that follow.
   Pentanoic acid, But-1-ene, hexanol, benzoic acid, ethanoic acid, methanol, Pent-2-ene, octane, hexane.
   (a) Which of the organic compounds are hydrocarbons? (2 marks)
   ……
   (b) Classify the organic compounds into their homologous series giving one reason why you classified each one into its group. (8 marks)
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   (c) State two uses of any of the identified organic compounds in(1) (01 mark)
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Section B

Attempt any four questions

6. Using your knowledge of the kinetic theory of matter you obtained in senior one, write key brief points of statements and description about the kinetic theory of matter relating to the following(you can use aid of diagrams to illustrate your descriptions)
   (a) Nature of arrangement of particles of matter and spaces between them in the three main states of solid, liquid and gas.
   (b) Particles in a given pure substance compared to the particles of another pure substance
   (c) Forces of attraction between the particles in the three main states of solid, liquid and gas
   (d) Movement between the particles in the three main states
   (e) Effect of change in temperature on movement of particles in the main states of solid, liquid and gas

7. Figure 1.00 below is an outline of the periodic table with some elements shown.

   Figure 1.00

I	II												III	IV	V	VII	0
								Fe			Cu						
																I	
Cs	Ba														Po	At	Rn

   From your knowledge of the periodic trends in the properties of elements, answer the following questions:
   (a) Which element would have an electronic structure in which the outermost shell:
      (i) Has two electrons?
      (ii) Is fully filled?
   (b) Cu is used for making coins while Cs or Ba cannot be used for this purpose. Why not?
   (c) Element X (not indicated on the table above) has the electronic structure 2:8:6.

(i) Locate the position of X on the periodic table (its group and period).
(ii) Is X a metal or non-metal?
(iii) Name one element (not shown on the table above) which you expect to have chemical properties similar to those of X.
(iv) Name any two other elements which are in the same period as X

8. Dilute sulphuric acid solution can be neutralized using an alkali such as sodium hydroxide or adding a solid oxide such as copper (ii) oxide.
   (a) Write a balanced equation for the reaction between:
      (i) Sodium hydroxide and sulphuric acid
      (ii) Copper (ii) oxide and sulphuric acid.
   (b) In the preparation of hydrated copper(ii) sulphate crystals, an excess of copper (ii) oxide was added to warm dilute sulphuric acid. The excess copper (ii) oxide was removed by filtration. Describe how you would obtain pure dry crystals of hydrated copper (ii) sulphate from the filtrate
   (c) Identify any other four soluble salts other that copper (ii) sulphate
   (d) State four uses of salts in our everyday life.

9. A student has a sample of an unknown metal solid, labelled 'metal *x*'. The sample is shiny in appearance and grey in colour.
   (a) Describe two different experiments that the student could carry out to place metal *x* in the reactivity series.
   (b) Describe the reactions that would take place and the expected results if metal *x* is more reactive than copper but less reactive than iron.
   (c) Suggest an identity for metal *x*.
10. Ethanol an important alcohol can be obtained locally at home from starchy foods.
   (a) Describe how one can obtain pure ethanol from millet.
   (b) Explain four uses of ethanol in the community.
11. Charcoal is a form of carbon commonly used as a fuel.
   (a) State what is meant by the term fuel.
   (b) Using carbon, differentiate between incomplete combustion and complete combustion.

(c) Why might burning of carbon based fuels lead to an increase in the earth's temperature?
(d) In what ways does the increase in the earth's temperature affect us
(e) How has the increase in the temperature been minimized in your country
(f) Explain why the amount of carbon dioxide in the atmosphere stays about the same