NAME.....CLS.....C.NO.....ADM.....

Our Lady of Lourdes
NYABURURU

Date done.....

Name of INVIGILATOR.....

Date returned.....

Date Revision is completed.....

CHEMISTRY
END YEAR 2016
FORM TWO
TIME: 2 HOURS

INSTRUCTIONS.

- Write your name, class, class number and admission number in the spaces provided above.
- Answer **ALL** questions in the spaces provided.

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FOR EXAMINER'S USE ONLY

Questions	Maximum score	Candidate's score
1 - 20	80	

This paper consist of 8 printed pages

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1. An atom of hydrogen can form two ions. Write two equations to show how a neutral atom of hydrogen can form the two ions. In each case, show the sign on the ion formed. (3 Mks)

2. Substances undergo physical or chemical changes.
(a) Explain whether changing liquid water to steam is a physical or a chemical change. (2 Mks)

(b) State the method that can be used to separate components of food colour. (1 Mk)

3. The element X can be represented as $^{35}_{17}X$

(a) How many neutrons are contained in X. (1 Mk)

(b) Use the data in the table below to calculate the relative atomic mass of X from the masses and percentage abundance.

Mass	Percentage abundance
35	90
36	4
37	6

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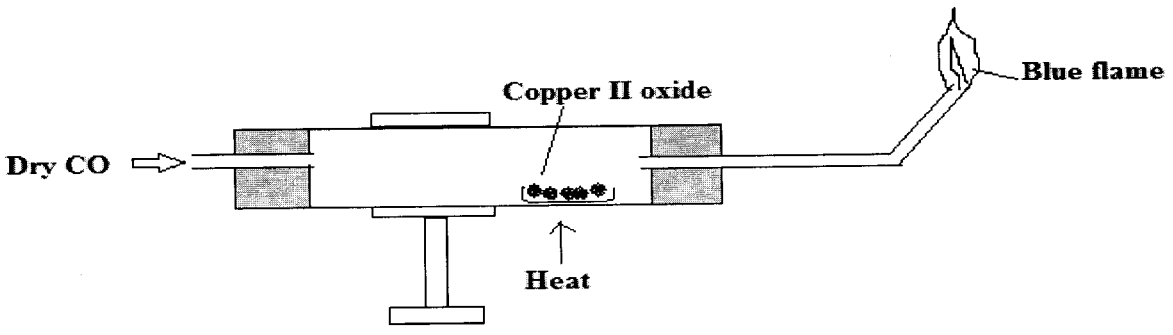
4. Excess carbon (II) Oxide was passed over heated Copper (II) Oxide as shown



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(a) (i) What observation is made in the combustion tube. (1 Mk)

(ii) Write an equation for the reaction. (1 Mk)

(b) Explain why Carbon (II) Oxide is poisonous. (3 Mks)

5. (a) Complete the table below to show the sub-atomic particles in an atom. (2 Mks)

Particles	**Charge**	**Mass (a.m.u)**
Protons	+	
Electrons		$\frac{1}{1840}$
Neutrons		

(b) Distinguish between electron affinity and ionization energy. (2 Mks)

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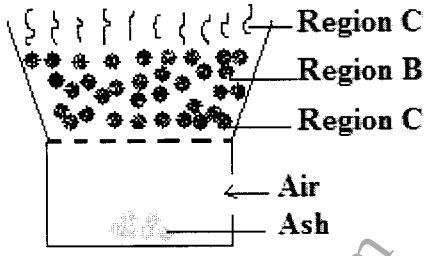
6. Using dots (.) and crosses (x), draw the electronic structures of the following showing only the outer energy levels.

(a) Carbon (II) Oxide. (1 Mk)

(b) Ammonium ion (1 Mk)

(c) Nitrogen (1 Mk)

7. The diagram below shows a jiko when in use. Study it and answer the questions that follow.



(a) Identify the gas formed at region C. (1 Mk)

(b) State and explain the observations made at region C. (1 Mk)

(c) Write equations occurring at regions
(i) Region A (1 Mk)

(ii) Region B (1 Mk)

8. A bee keeper found that when stung by a bee, application of a little solution of Sodium hydrogen carbonate helped to relieve the irritation from the affected area. Explain. (2 Mks)

9. Consider the information below for Magnesium and Calcium.

Element	**First ionization Energy k j / mol**	**Energy kj / Second ionization**
Magnesium	736	1450
Calcium	590	1150

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(i) Explain the trend in ionization energy between magnesium and calcium. (2 Mks)

(ii) Explain why the two elements have higher second ionization energies than the first one. (2 Mks)

(iii) Explain the following trends in the periodic table;
(a) Sodium is more reactive than Magnesium. (1 ½ Mks)

(b) Atomic radius of elements decrease across a period. (1 ½ Mks)

(iv) Explain why the reactivity of;
(a) Period 3 metals decrease across the period. (2 Mks)

(b) Group VII elements increase up the group. (2 Mks)

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10. Define the following terms. (4 Mks)
(a) Atom

(b) Element

(c) Compound

(d) Chemical symbol

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11. Differentiate between prescription drugs and over the counter drugs. (2 Mks)

12. Salt was accidentally mixed with a mixture containing iodine and sand. Describe the states that one would follow to obtain dry salt. (3 Mks)

13. List down two commercial uses of oxygen gas. (2 Mks)

14. Explain the following in terms of structure and bonding.
(a) Graphite is a good conductor of heat and electricity. (2 Mks)

(b) Diamond is a poor conductor of heat and electricity. (2 Mks)

15. Starting with solid lead (II) carbonate, briefly describe how a sample of lead (II) Chloride can be prepared. (3 Mks)

16. Study part of the periodic table below and use it to answer the questions that follow.

A											B
C	D			E	F	G	H	I	J		
K	L			M	N	Q					

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(a) Name the family to which the following elements belong.

(i) D L (1 Mk)

(ii) B J (1 Mk)

(b) N has a melting point of 1440°C while Q has a melting point of 44°C. In terms of structure and bonding, explain the difference. (2 Mks)

(c) Give one use for each of the following elements that are represented by A and J. (2 Mks)

(d) State three observations made when a piece of metal K is dropped into a trough of cold water. (3 Mks)

(e) Select two elements which form acidic oxides. (2 Mks)

(f) Write balanced chemical equations for the burning of elements K and Q in excess. (2 Mks)

17. Four metals are labelled P, Q, R and S (not actual symbols) metal P displaces metal S from its Oxide but cannot displace R from its Oxide Q when mixed with the oxide of R and heated, a reaction occurs. Arrange the metals in order of reactivity, starting with the most reactive. (2 Mks)

18. Name the particles that are responsible for electrical conductivity in; (3 Mks)

(a) Solids

(b) Molten substances

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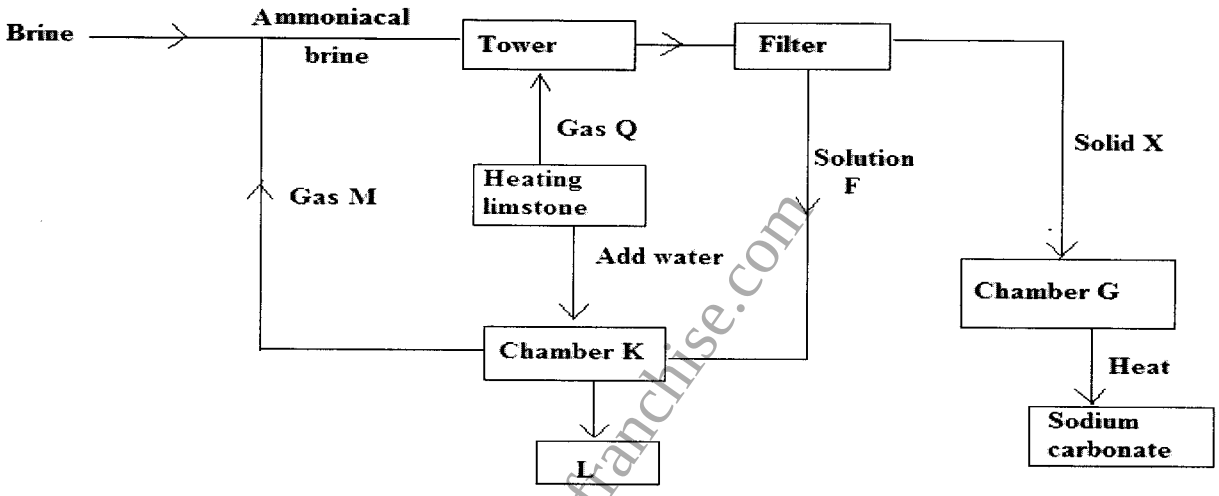
(c) Aqueous solutions

19. Write the chemical formulae of trona. (1 Mk)

20. The flow chart below is for the manufacture of Sodium Carbonate by the solvay process. Use it to answer the questions that follow.



(i) Name gas M and Q. (1 Mk)

(ii) Name solution f and solid X. (1 Mk)

(iii) Name the product L formed and give one of its use. (2 Mks)

(iv) Write equations of the reactions in;
Tower P (2 Mks)

Chamber K

(v) Name the two raw materials required in the manufacture of Sodium carbonate. (1 Mk)

(vi) Name two substances which are recycled. (1 Mk)

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