

REGISTRATION CENTRE NUMBER		CENTRE NAME	
CANDIDATE'S FULL NAMES			
CANDIDATE IDENTIFICATION NUMBER	SUBJECT CODE	PAPER NUMBER	
	0515	2	
LICTA MOCK 2026			
FOR EXAMINER'S USE ONLY (Candidate Random CODE):			
LITTORAL CHEMISTRY TEACHER'S ASSOCIATION (LICTA) MOCK ORDINARY LEVEL EXAMINATION			
SUBJECT TITLE	SUBJECT CODE	PAPER NUMBER	
CHEMISTRY	0515	2	
EXAMINATION DATE: March, 2026			

TWO AND A HALF HOURS

Enter the information required in the boxes above.

This paper is arranged in three sections, A, B and C.

Section A: ANSWER ALL 5 questions. You will be graded for the best 4 answers

Section B: ANSWER ALL 2 questions in this section

Section C: ANSWER 2 QUESTIONS OUT OF 3. If you attempt more than 2 questions, only the first two will be considered.

In calculations, you are advised to show all the steps in your working, giving your answer at each stage.

Calculators are allowed.

You are reminded of the necessity for good English and orderly presentation in your answers.

Relative Atomic Masses : Carbon (C) = 12; Chlorine (Cl) = 35.5

Oxygen (O) = 16; Hydrogen (H) = 1

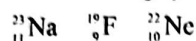
Nitrogen (N) = 14; Magnesium (Mg) = 24

Molar Gas Volume at r.t.p = 24000 cm³

FOR EXAMINER'S USE ONLY	
Marked by: Signature: Date:	<u>SCORE</u>
Checked by: Signature: Date:	

SECTION A: Answer ALL five (5) questions

1. The following symbols refer to atoms of sodium, fluorine and neon:



Answer the following questions based on the above information

- (a) Write the electronic configuration of :

(i) Sodium

(ii) Fluorine

(2 marks)

- (b) Sodium and fluorine combine to give an ionic compound, sodium fluoride. Draw dot and cross diagrams, to show the bonding in this compound.

(3 marks)

- (c) State two properties of ionic compounds.

(2 marks)

- (d) In what aspect do the neon atom, the sodium ion and the fluoride ion

(i) Resemble each other

(ii) Differ from each other

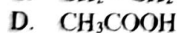
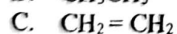
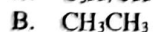
(2 marks)

- (e) State ONE use of fluorine or its compound.

(1 marks)

(Total = 10 marks)

2. Consider the following organic compounds which belong to different homologous series and contain different functional groups;



- (a) What is a functional group?

(1 marks)

- (b) Name the homologous series to which compounds B and D belong using the table below;

Compound	Homologous series
B	
D	

(2 marks)

- (c) Compound A can undergo isomerism.

(i) What is isomerism?

(ii) Draw two isomers of A

.....

 (3 marks)

(d) Compounds A and D can react together in the presence of a catalyst to form another organic compound E, by a special type of reaction

(i)

(ii)

(iii)

..... (3 marks)

(e) Write an equation to show how compound C is converted to form compound B

..... (1 mark)

(Total = 10 marks)

3.

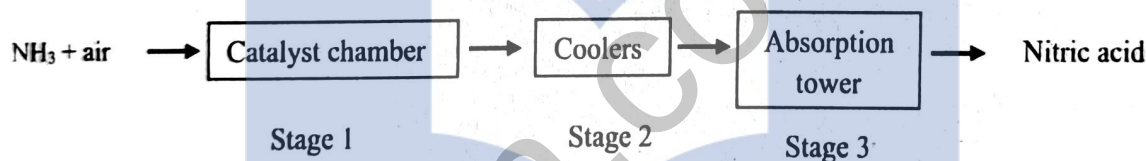
(a) Give a substance in the industry which is reacted with ammonia to make a fertilizer and give the formula of the fertilizer

(i) Substance

(ii) Fertilizer

..... (2 marks)

(b) Nitric acid is manufactured according to the simplified flow diagram below.



(i) What catalyst is used in the process?

(ii) Would it be necessary to continue heating the catalyst chamber throughout the process? Explain

(iii) What would be added at stage 3?

(iv) What products would be obtained in :

A: Stage 1

B: Stage 2

(v) Write equations for the reactions occurring in:

A: Stage 1:

B: Stage 2:

..... (8 marks)

(Total = 10 marks)

4. Electrolysis is an important application in some industrial processes. In one such experiment, a current of 2.5A was passed through an aqueous solution of copper(ii) sulphate, CuSO_4 for 1 hour 15 minutes using graphite electrodes.

(a) Draw a simple electrolytic cell used to carry out the experiment

.....

(2 marks)

- (b) Write equations for the reactions occurring at both electrodes:
X: At the cathode:

Y: At the anode:

- (c) Calculate the quantity of electricity used during the experiment;
(i) In Coulombs

(ii) In Faradays

- (iii) What volume of gas was released at the anode at room temperature and pressure?

- (d) Give one application of electrolysis

(Total = 10 marks)

5. Excess dilute hydrochloric acid is added to 2.4g of magnesium ribbon in a beaker. The following reaction occurs:
$$\text{Mg}_{(s)} + 2\text{HCl}_{(aq)} \longrightarrow \text{MgCl}_{2(aq)} + \text{H}_{2(g)}$$

- (a) Calculate the volume of hydrogen gas collected at r.t.p

(3marks)

- (i) Identify the salt formed in the beaker

- (ii) Based on the procedure is the salt obtained pure or impure

- (iii) How would you obtain crystals of the salt from the salt solution?

(4 marks)

- (i) Name one other salt that can be prepared by this method

- (ii) Briefly state the procedure involved in reacting the metal and the acid

(Total = 10 marks)

SECTION B:

6. Answer both questions in this section using the spaces provided. Both questions carry equal marks.

- In order to determine the molarity of dilute HCl solution, a student is provided with the following: conical flask, phenolphthalein indicator, clamp and stand, burette, pipette and standard solution of Na_2CO_3

(a) State the 3 steps involved in preparation of the standard solution

(b) 25cm³ of 0.1M sodium carbonate is transferred into a flask X using equipment Y and three drops of phenolphthalein indicator is added. The solution is then titrated with dilute HCl till the end point is reached. (3 marks)

(i) Name flask X and equipment Y
Flask X
Equipment Y

(ii) Draw the experimental set up used in the titration indicating clearly the contents of each equipment used (2 marks)

(iii) State the colour change of the indicator at the end point. (4 marks)
Initial colour
Final colour

(c) In one such titration, a student obtained the following results for the volume of the acid.

Final burette reading	Approximate	Accurate 1	Accurate 2
	16.3	33.3	49.6
Initial burette reading	0.0	17	33.4
Titre			

(i) Complete the table above and determine the mean titre (2 marks)

(ii) Using your answer in (c) above, calculate the concentration of the dilute hydrochloric acid solution.
 $\text{Na}_2\text{CO}_3 + 2\text{HCl} \longrightarrow 2\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2$

(iii) State one of the precautions to be observed during the titration to ensure accurate results. (6 marks)

(d) Complete the following table on separation of mixtures (3 marks)

Technique	Mixture
Fractional distillation	Pigments from a leaf
	A mixture of iodine crystals and powdered sulphur.

(Total = 20 marks)

7. (a) Three bottles without labels containing three salt: X, Y and Z. are presented to a student. The student carried out a series of tests to identify the different chemicals in the bottles.

- (i) A flame test is carried out on a sample of salt X. A golden yellow flame colour is seen. Describe briefly the procedure for flame test and identify the metal ion present in salt X.

Procedure.

Metal ion

- (ii) A few drops of dilute HCl are added to solid X in a test tube. A colourless gas with the smell of a burning match evolved. Identify the gas and the anion presented in salt X.

Gas

Anion

- (iii) Identify salt X

(b)

- (i) To a sample of salt Y in a test tube is added 3 drops of Barium Chloride solution followed by dilute HCl solution. A white precipitate is observed. The white precipitate does not dissolve in excess HCl. Identify the precipitate and anion in salt Y, if salt Y burns with a blueish green flame.

Precipitate

Anion

- (ii) Give the chemical identity of salt Y

(c)

- (i) Salt Z contains a bromide ion. State what will be observed if a few drops of aqueous silver nitrate are added to solution of salt Z

- (ii) State the colour of bromine at room temperature?

- (iii) To a solution of salt Z is added a few drops of sodium hydroxide solution. A reddish brown precipitate is observed. Identify the precipitate and metal ion of salt Z.

Precipitate

Metal ion

- (d) In order to prepare a pure dry sample of carbon dioxide, a student was provided with the following: A flat-bottomed flask, a thistle funnel, a conical flask, a gas jar, delivery tubes and rubber bungs, dilute HCl, concentrated H_2SO_4 , and solid marble.

- (i) Describe the laboratory procedure used by the student. You can choose to describe by only drawing the experimental setup used.

- (ii) Is it practically suitable to replace the dilute HCl with dilute H_2SO_4 ?

SECTION C:

Answer **ONLY TWO** questions in this section in the spaces provided below. If you attempt more than two questions, only the first two will be considered. Where appropriate, equations and diagrams should be used to illustrate your answer. Write your answers on the sheets that follow.

8. Construction of bridges in Cameroon is mostly done using a particular metal.
- Name the metal used for this activity.
 - Describe how this metal is extracted from a named ore.
 - State two other uses of this metal and relate each to a particular property.

(1,15,4 marks)

9. Salts are generally prepared in the laboratory by the following methods:

- Action of dilute acids on metal oxides.
- Action of dilute acids on alkalis.
- Action of dilute acids on metals.

For each method, choose a suitable salt and describe how a pure dry sample of each salt is prepared. Your description should show the starting material, necessary equations and precautions.

(6, 7, 6 marks)

10. Differentiate between the following giving examples in each case

- Allotropy and polymorphism
- Physical changes and chemical changes
- Esterification and isomerism
- Addition polymerization and condensation polymerization.

(5, 5, 5, 5 marks)

STOP!
GO BACK AND CHECK YOUR WORK

Question No: