

Candidate's Name:

Signature:

Random No.					Personal No.		

(Do not write your School / Centre Name or Number anywhere on this booklet.)

545/1
CHEMISTRY
Paper 1
Oct./Nov. 2025
2 hours

For Scorers' Use Only

Total Weighted Score		
Initials		



UGANDA NATIONAL EXAMINATIONS BOARD

Uganda Certificate of Education

INSTRUCTIONS TO CANDIDATES:

This examination paper consists of two sections; A and B.

It has six examination items.

Section A has two compulsory items.

Responses to section A must be written in the spaces provided.

Section B has two Parts; I and II. Respond to only one item from each part.

Responses to section B must be written in the answer booklet(s) provided.

Respond to four items in all.

Responses to each item in Section B should start on a fresh page.

Any additional item(s) responded to will not be scored.

For Scorers' Use Only

Item No.	Basis Code	Weighted Score	Scorers' Initials
1	T		
	D		
	E		
2	C		
	X		
	I		
____(3/4)	P		
	S		
	B		
____(5/6)	N		
	M		
	Be		
Total Weighted Score			

SECTION A

Respond to all the items in this section in the spaces provided.

Item 1

When preparing chicken sauce for her family, Jane adds common salt only. However, when she visited a restaurant, Jane noted that the chicken sauce served to her contained onions, tomatoes and curry powder in addition to common salt. Figure 1 shows some of the ingredients used in the preparation of chicken sauce in the restaurant. Jane was highly impressed by the restaurant sauce, which tasted much better than the one she prepares at home. She wants to know more about the ingredients used in the restaurant and has approached you for help.



Fig. 1. Some of the ingredients used in the restaurant

Task:

- (a) State the category of the ingredients and the function of each ingredient.

For Scorer's Use Only

Basis Code	T
Score	

- (b) Describe the side effect(s) associated with the ingredients.

For Scorer's Use Only

Basis Code	D
Score	

- (c) State the;
(i) similarities of the ingredients.

- (ii) differences between the other ingredients and common salt.

For Scorer's Use Only

Basis Code	E
Score	

Item 2

Mary, a 60-year-old, complains of dental caries, joint pains and muscular cramps. During one of her visits to a hospital, the doctor advised her to drink water from a bore hole because it contains a compound that can solve her problems. Mary would like to know more about the compound and has approached you for assistance. Your chemistry teacher told you that the compound is chemically written as XY_2 (where X and Y are **not** the actual symbols of the elements). The teacher further informed you that X belongs to group II and period 4, while Y belongs to group VII and period 2 of the periodic table. Figure 2 shows a periodic table of the first 20 elements.

H¹ Hydrogen A_r = 1 He² Helium A_r = 4 The Periodic Table							
Li ³	Be ⁴	B ⁵	C ⁶	N ⁷	O ⁸	F ⁹	Ne ¹⁰
Lithium	Beryllium	Boron	Carbon	Nitrogen	Oxygen	Flourine	Neon
A _r = 7	A _r = 9	A _r = 11	A _r = 12	A _r = 14	A _r = 16	A _r = 19	A _r = 20
Na ¹¹	Mg ¹²	Al ¹³	Si ¹⁴	P ¹⁵	S ¹⁶	Cl ¹⁷	Ar ¹⁸
Sodium	Magnesium	Aluminium	Silicon	Phosphorus	Sulphur	Chlorine	Argon
A _r = 23	A _r = 24	A _r = 27	A _r = 28	A _r = 31	A _r = 32	A _r = 35	A _r = 40
K ¹⁹	Ca ²⁰						
Pottasium	Calcium						
A _r = 39	A _r = 40						

Fig. 2. Periodic table for the first 20 elements

Task:

- (a) Explain the nature of substances X and Y, and identify them.

1. The first part of the document is a list of names and their corresponding addresses. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

2. The second part of the document is a list of names and their corresponding addresses. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

3. The third part of the document is a list of names and their corresponding addresses. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

4. The fourth part of the document is a list of names and their corresponding addresses. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

5. The fifth part of the document is a list of names and their corresponding addresses. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

6. The sixth part of the document is a list of names and their corresponding addresses. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

7. The seventh part of the document is a list of names and their corresponding addresses. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

8. The eighth part of the document is a list of names and their corresponding addresses. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

9. The ninth part of the document is a list of names and their corresponding addresses. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

10. The tenth part of the document is a list of names and their corresponding addresses. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

- (b) Describe how X and Y form the compound.

1. The first step in the process of creating a new product is to identify a market need. This involves conducting market research to understand the preferences and behaviors of potential customers. Once a need is identified, the next step is to develop a concept for a product that addresses this need. This concept should be unique, valuable, and feasible. The third step is to create a prototype of the product. This allows the team to test the product's design and functionality before committing to full-scale production. Finally, the product is launched into the market, and the team monitors its performance and customer feedback to make any necessary adjustments.

For Scorer's Use Only

Basis Code	C
Score	

(c) Explain the properties of the compound.

(d) How does the compound address Mary's complaints.

For Scorer's Use Only

Basis Code	X
Score	

(e) Write down **one** impact of having a lot of compound XY_2 in the environment and how it can be mitigated.

For Scorer's Use Only

Basis Code	I
Score	

SECTION B

Part I

Respond to only one item in this part in the answer booklet(s) provided.

Item 3

Chlorine is one of the disinfectants commonly used to kill micro-organisms that cause diseases. An investor has set up a chlorine manufacturing industry in an urban centre in Uganda. Figure 3 shows a chlorine manufacturing plant.



Fig. 3. Chlorine manufacturing plant

However, the population in the area have requested to be informed about the process leading to the production of chlorine, the economic and social benefits of the manufacturing plant and how any side effect(s) is/are mitigated. A radio talk show has been organised to address the request by the population and your school has chosen you as their representative.

Task:

Write details of the key issues you will present during the talk show.

Item 4

Nitrogen is an essential nutrient for crops. Nitrates are one of the sources of nitrogen. A maize farmers' group in an area experienced poor yields in the past season, which was due to very low levels of nitrogen in the soil.

In response, government has authorized an investor to set up an ammonium nitrate manufacturing plant in the area as a source of nitrates.

Aware of the merits and demerits of such a factory, your School Science Club wishes to write a sensitisation article in a daily newspaper. The article is to highlight production process of ammonium nitrate, the social and economic benefits of the plant to the community and how any side effect(s) is/are to be mitigated. You have been asked to prepare the article.

Task:

Make a write-up of the article.

Part II

Respond to only **one** item from this part in the answer booklet(s) provided.

Item 5

A youth group has a washing bay along the river. As they wash vehicles, the waste water drains into the river.

When senior one students from a nearby school went for a chemistry study tour to river, they found the youth busy with their routine work. One of the students noticed that the water- body around the washing bay looked abnormal. The student expressed worry about the safety of the people around the river and drew the attention of the area local authority. In response, the local authority has called for a meeting with the youth. You have been selected to give a sensitisation talk.

Task:

Write details of the key issues you will address during the sensitisation talk.

Item 6

Air is an important natural resource that should be conserved. There is improper waste management in some homes and schools involving open dumping and burning of garbage. These activities release toxic fumes into the atmosphere hence affecting the air quality. A head teacher has tasked the School Science Club to organise a sensitisation campaign aimed at mitigating the challenge. The theme of the campaign is **Be an air quality champion**. You have been chosen to speak to the rest of the students regarding the theme. Figure 4 shows rubbish being burnt in a residential area.



Fig. 4. Rubbish burning

Task:

Make a write-up of the message you will present.