

456/1
MATHEMATICS
Paper 1
2024
 $2\frac{1}{4}$ hours



UGANDA NATIONAL EXAMINATIONS BOARD

Uganda Certificate of Education

MATHEMATICS

Paper 1

2 hours 15 minutes

INSTRUCTIONS TO CANDIDATES:

*This paper consists of **two** sections; **A** and **B**. It has **six** examination items.*

*Section **A** has **two** compulsory items.*

*Section **B** has **two** parts; **I** and **II**. Answer **one** item from each part.*

*Answer **four** examination items in all.*

*Any additional item(s) answered will **not** be scored.*

All answers must be written in the Answer booklet(s) provided.

Graph Paper is provided.

Silent, non-programmable scientific calculators and mathematical tables with a list of formulae may be used.

SECTION A

Answer all items in this section.

Item 1.

Your guardian has a budget of Shs700,000 for your school expenses. To get to the school where your guardian wishes to take you for A-level, your guardian drove 4 km east from your home to the stage and then 8 km north to reach there. However, you realized later that there was a direct route from home to school your guardian could have used.

On reaching the school, you found out that, the school fees, admission fees and uniform fees are Shs900,000, Shs100,000 and Shs350,000 respectively. The school also offers a bursary of; 60% off school fees, free admission and eighty-seven thousand five hundred shillings off uniform fees to those who got first grade and according to your results, you qualify for this bursary.

It also has **two payment plans** on school fees that the guardians can choose from and they are:

- Paying in two instalments that is to say; two thirds of the school fees at the beginning of the term and the balance at either visitation day or end of term.
- Paying in three equal instalments; at the beginning of the term, on visitation day and end of term respectively.

Task:

- (a) How far is it from your home to school if you travel through the direct route?
- (b) (i) Since you qualify for the bursary, how much will you pay?
(ii) Will your guardian afford the school expenses according to his budget?
- (c) (i) How much will those who are to pay school fees of Shs900,000, pay per instalment, according to each of the payment plans?
(ii) Which payment plan would you recommend for them and why?

Item 2.

You have friends who rear cows and goats. During the festive season, they want to sell **at most** 10 of their cows and **at least** 8 of their goats. They also want to ensure that the number of goats they sell are less than twice the number of cows. They also **do not want to** sell more than 20 animals all together. They wish to **maximise** sales by selling each goat at Shs200,000/= and each cow at Shs1.5 millions but they do not know the number of goats and cows to sell to fulfil their wish.

Task:

- (a) write mathematical statements that show the relation between the cows and goats.
- (b) Show the feasible region of the relation on the Cartesian plane.
- (c) Help your friends to determine the maximum amount of money they will possibly make from the sale of cows and goats.

SECTION B

This Section has two Parts; I and II

Part I

Answer one item from this part

Item 3.

A day school holds a weekly assembly every Monday starting at 8:00 AM. The Head teacher has noticed a trend of learners arriving late for assembly. Since the school gates are opened at 7:30 AM, he decided to collect data from a sample of learners on their arrival times in minutes past 7:30 AM to make an informed decision about the assembly's start time. The collected data was as follows:

15, 18, 20, 22, 17, 25, 23, 28, 26, 21
30, 33, 35, 32, 36, 39, 42, 37, 41, 28
45, 48, 29, 31, 26, 27, 30, 33, 34, 31
28, 35, 40, 42, 37, 39, 36, 38, 29, 43
46, 47, 30, 32, 31, 45, 27, 44, 46, 49
52, 53, 55, 51, 50, 56, 57, 58, 59, 51

Task:

- (a) Giving a reason, based on calculations using the data collected, suggest the time the assembly should always start.
- (b) The deputy Head teacher advised the Head teacher to always start the assembly when at least 75% of the students are present. Based on the advise, determine the time the assembly should start.
- (c) If you were the Head teacher, which of the two suggested assembly start times from (a) and (b) would you consider more appropriate and why?

Item 4.

The Ministry of Health in Uganda is conducting a survey about the existence of malaria in three districts: A, B and C. The ministry will then come up with control measures if the chance of a person testing positive having visited at least one of the districts is above 50%. The Ministry has intentionally selected a sample of people who visited the three districts and tested them for malaria. The test results have revealed that 50 people who visited district A, 60 people who visited district B and 40 people who visited district C tested positive for malaria. Additionally, 20 people who visited both districts A and B, 10 people who visited districts A and C, and 15 people who visited districts B and C tested positive for malaria. The Ministry has also discovered that 20 people who only visited district C tested positive for malaria and 40 people who visited the three districts tested negative for malaria.

Task:

- (a) Determine the number of people that were tested for malaria by the ministry of health.
- (b) Calculate the probability of a person testing positive having visited at least one of the three districts.
- (c) Advise the Ministry of health, with a reason based on calculation, whether to come up with control measures or not.

Part II

Answer one item from this part.

Item 5.

Your uncle has offered to drive you to your friend's birthday party. He normally drives his car at an average speed of 50 km/h, so he requests you to get directions to the party reception and the time you are supposed to be there so that you decide on when you can leave home to reach on time. You were informed that the party will start at 2:00 PM and the directions are:

- From your home, take the north eastern direction and reach the supermarket that is 20 km away.
- Then take the road that is south of the supermarket and it will take you 45 minutes to reach the junction.
- From the junction, take the southwestern road and drive 25 km to reach the party reception.

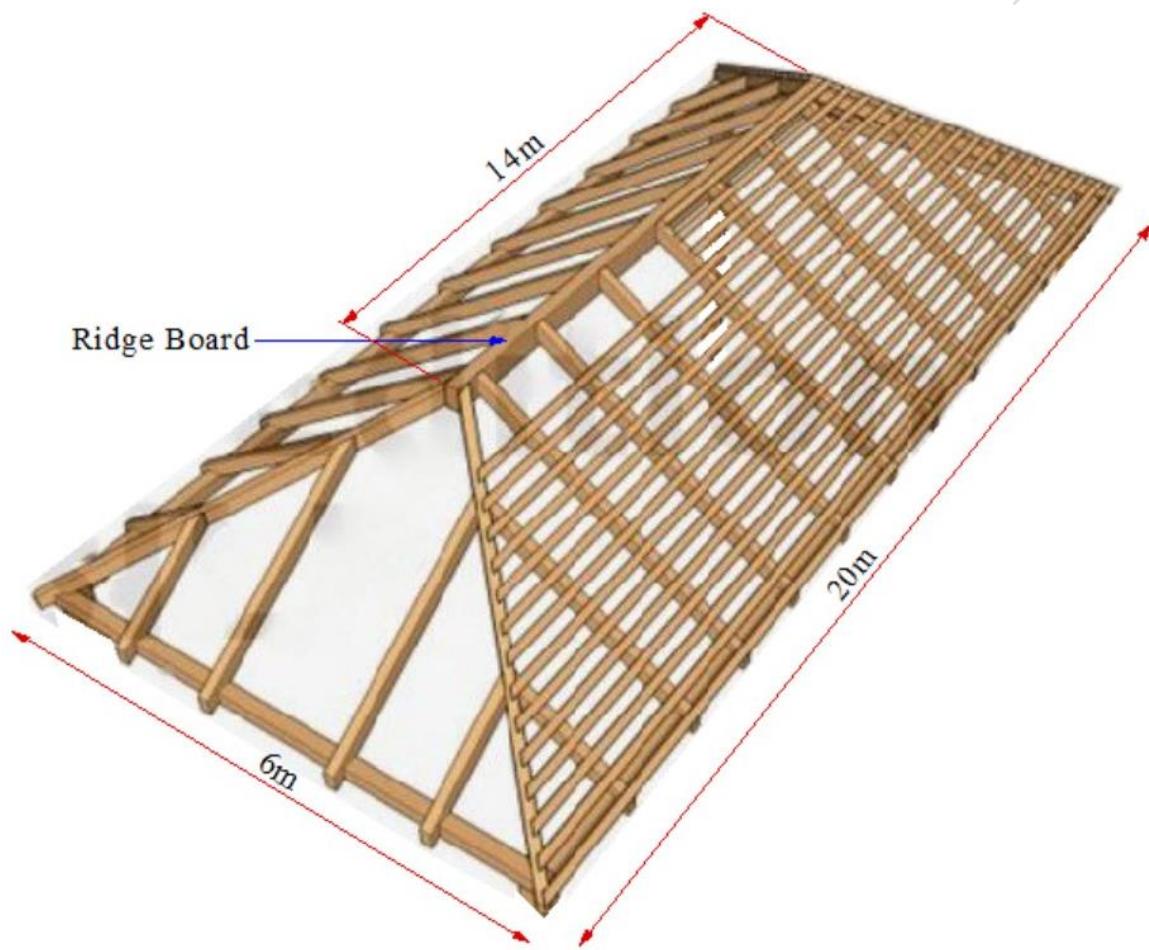
On reaching the party reception using the given directions, your friend remembers that there is a direct route from your home to the reception that you could have used but does not know how long it is.

Task:

- (a) (i) Describe the direction of your home from the party reception.
(ii) How far is the party reception from your home using the direct route?
- (b) What time would you have to leave home for you to reach the party reception on time, if you used the direct route?

Item 6.

Your neighbour has a building structure that is at a roofing stage with the roof frame installed as shown below:



The roof frame has a rectangular base with dimensions of 20 m by 6 m and the ridge board of 14 m centrally placed. The triangular faces are equilateral.

She wants to use iron sheets that are available in two types; type **A** and type **B**. The iron sheet of type **A** costs Shs33,000 each and that of type **B** costs Shs42,000. Each iron sheet has a length of 10ft and usable width of 2.623 ft. (1ft = 0.3m)

The hardware shop from which she wants to buy the iron sheets gives a discount of 6% on the total cost of every fifty (50) iron sheets of type **A** bought and a discount of 10% on the total cost of every seventy (70) iron sheets of type **B** bought.

She intends to borrow money from a bank to buy the iron sheets but she is not so sure of the amount to borrow.

Task:

- (a) Help your neighbour to estimate the amount of money to be borrowed from the bank for either type of iron sheets.
- (b) Give your neighbour advice, with reason(s), on the type of iron sheets to buy.

Candidate's Name:

Signature:

Random No.						Personal No.		

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

553/1
BIOLOGY
Paper 1
2024
2½ hours



UGANDA NATIONAL EXAMINATIONS BOARD
Uganda Certificate of Education

BIOLOGY

Paper 1
Theory

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES:

*This paper consists of **seven** examination items. It has two sections; **A** and **B**.*

*Section **A** has **three** compulsory items.*

*Section **B** has two Parts; **I** and **II**. Answer **one** item from each part.*

*Answer **five** items in all.*

Any additional item(s) answered will not be scored.

SECTION A

Answer all the items in this section in the spaces provided.

Item 1.

Mr. Nsamba's cassava garden was invaded by the neighbour's goats at the time of tuber formation. The owner of the goats has refused to compensate Mr. Nsamba, and Mr. Nsamba is worried that the yields will be poor.



Fig. 1 shows Mr. Nsamba in his garden which was invaded by the neighbour's goats.

Task

- (a) Identify the plant structures affected by the goats.

- (b) Explain how the goats affected the processes in the cassava plants.

- (c) Why should Mr. Nsamba be compensated even if the cassava plants were able to grow again?

Item 2.

John was suspended from school as a result of drinking alcohol. He engages in heavy drinking of alcohol in the nearby trading centre. One day, as John approached a swamp on his way home staggering from drinking alcohol at 6:00 pm, he encountered a snake. His heart started beating faster and his breathing rate increased. He tried to pick a nearby stick but he could not get hold of it on several attempts, so the snake escaped.



Fig. 2 shows John walking home from drinking alcohol.

Task

- (a) Describe how John's body coordinated to bring about his reactions from the time he encountered the snake up to when his rate of breathing increased.

- (b) What are the likely effects of John's lifestyle as described in the scenario?

- (c) Suggest ways in which John can change his lifestyle.

Item 3.

Mrs. Kasuru had been taking her baby boy for routine immunization and the nurses kept on plotting the baby's weight as a growth curve on the immunization card. On one of the visits, the nurses got concerned and referred the baby to the doctor, who diagnosed the baby with a genetic inherited disease. Mrs. Kasuru could not understand how her baby got the disease since both her and the father of the baby look healthy and normal. The doctor explained to her that the baby's condition was because of genetic disease.

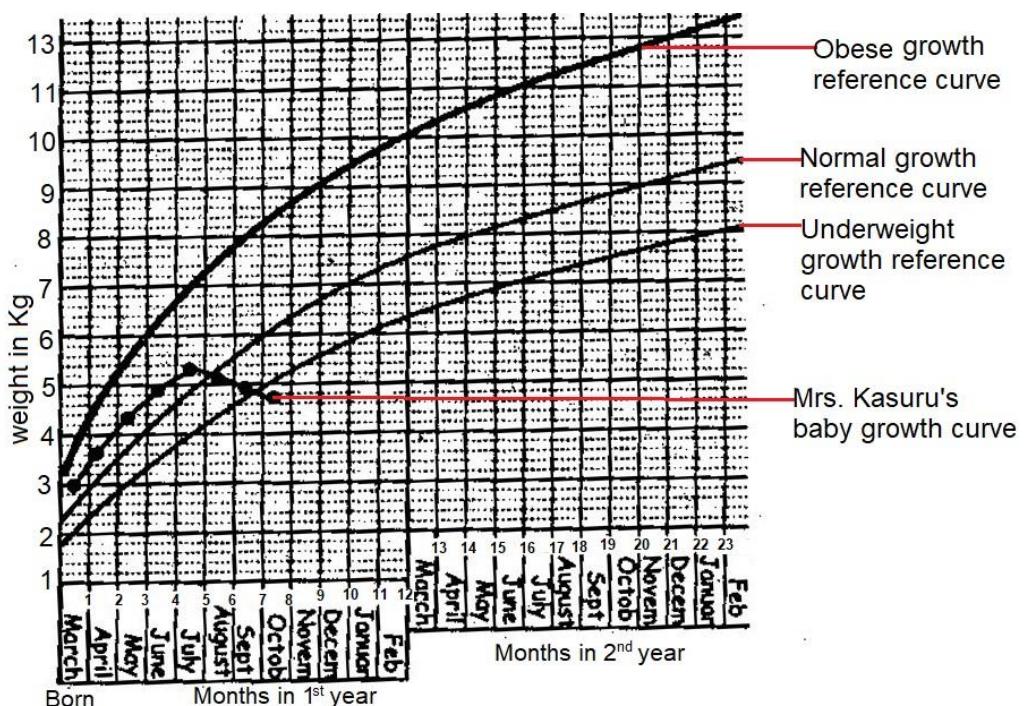


Fig. 3 shows growth curve of Mrs. Kasuru's baby.

Task

- (a) Identify the genetic disease and show how it was genetically passed on to the baby.
-
-
-
-
-
-

- (b) Describe the likely appearance of Mrs. Kasuru's baby boy.

- (c) Suggest how the family can manage their baby's condition.

SECTION B

Part I

Answer only one item from this part. Answers should be written in the answer booklet(s) provided.

Item 4.

In a village in western Uganda, swamps have been cleared for cattle farmlands and sand mining. The area environment officer organized a radio talk show on sustainable use of natural resources in swamps. Unfortunately, Mary a resident of the area only heard the concluding statement, “*From the presentation, I kindly request everybody to use our natural resources sustainably.*”

Task

Explain to Mary the environmental problems being addressed by the environment officer and how they can be solved. Explain why the village should conserve the natural resources in the swamps.

Item 5.

As a result of a civil war in one of the countries neighbouring Uganda, many people entered Uganda as refugees. The local authority decided to settle the refugees on a piece of land, part of which was covered by a forest reserve next to a swamp. Several challenges arose in the community.

Task

Explain to the community how the environmental challenges came about. Advise them on how to minimize effects of the challenges and show the value of conserving the environment in the area.

Part II

Answer only one item from this part. Answers should be written in the answer booklet(s) provided.

Item 6.

Two Ugandan Towns **A** and **B** each have industries that release carbon dioxide gas, smoke and dust. The levels of air pollution in the two towns are as shown in table 1.

Table 1: levels of air pollution in two towns **A** and **B**.

Town	Level of air pollution (units)
A	30
B	70

(According to **American Lung Association**, 2023, the normal range of air pollution is 0 – 50 units).

Samuel was living in town **A**. He used to jog everyday, and would experience normal changes in his body during and after jogging.

When he shifted to town **B**, he continued with his usual routine of jogging. However, he started experiencing complications such as difficulty in breathing, chest pain and coughing.

Task

Explain to Samuel his experiences while living in town **A** and the new ones encountered in town **B**. Advise Samuel on how to manage the challenges experienced in town **B**.

Item 7.

In preparation for an inter-house competition, Chesang, a 40 kg female athlete ate a meal containing 470 g of carbohydrates in the morning. She believes the meal will help her perform better during the competition. However, her young brother does not seem to understand how the meal will contribute to Chesang's success.

Chesang finally won the competition but experienced muscle cramps. She rested for 20 minutes, returned home walking but the brother wondered how she still had the strength to walk home after the competition.

[The recommended daily carbohydrate intake of a 40 kg female athlete is (280 – 480 g)]

Task

Explain to Chesang's brother the processes that the meal she ate went through to enable her win the race, be able to come back home and how her body regained the normal state.

**553/2&3 Inst. Sch.
BIOLOGY
PRACTICAL
INSTRUCTIONS
2024**



UGANDA NATIONAL EXAMINATIONS BOARD

Uganda Certificate of Education

BIOLOGY PRACTICAL INSTRUCTIONS

553/2&3 Inst. Sch.

CONFIDENTIAL

This information is given only to facilitate preparation of examination.

Great care should be taken that the information given below does not reach the candidates either directly or indirectly.

INSTRUCTIONS FOR PREPARING SPECIMENS AND APPARATUS:

The teacher responsible for preparing specimens must ensure that candidates are provided with correct specimens and other materials as specified in these instructions. Specimens and solutions which have been assigned codes should be presented to candidates using those **codes only** and not any other identity. The head teacher **must** ensure that the teacher responsible for preparing the specimens hands in his/her trial results for the physiology/biochemistry question, properly sealed in a separate envelope and **firmly** fastened (attached) to the candidates' script envelope(s).

Each candidate should be provided with;

25 cm³ of solution **A** (*is prepared by crushing 125 g of peeled fresh cassava, into paste, add 500 ml of water, mix and decant the solution then dilute it to 1000 ml using distilled water*).

25 cm³ of solution **B** (*is prepared by soaking 125 g of beans in water for 24 hours, pound the beans into paste and mix with 500 ml of distilled water. Decant the solution and dilute to 1000 ml using distilled water*).

Freshly killed housefly, labelled specimen **Y**.

Freshly killed worker termite, labelled specimen **X**.

Access to:

Reagents for food tests.

2 Beakers.

Hand lens.

Source of heat.

6 Test tubes.

Test tube holder.

Test tube rack.

Droppers.

A thermometer.

This information MUST be completed and returned in a separate envelope firmly attached to the script envelope(s).

UGANDA CERTIFICATE OF EDUCATION

2024

REPORT ON BIOLOGY PRACTICAL 553/2&3

Section I:

Any information which the teacher responsible for preparing the specimens and apparatus thinks may be useful to the examiners should be given on this sheet. The teacher must try the physiology/ biochemistry question and submit his/her results in the space provided below to guide the examiners about the specimens, apparatus, and concentrations of the chemicals used.

NB: Teachers who **DO NOT** submit their trial results will be held responsible for their candidates' performance.

Results:

Section II:

The invigilator in consultation with the teacher responsible for preparing the specimens should give details below of any difficulties experienced by particular candidates, giving their names and personal numbers. This should include reference to:

- (a) Candidates who were unable to use specimens,

- (b) Insufficiency of specimens or shared specimens,

- (c) Substituted specimens,

- (d) Any other information.

Other cases of hardship e.g. illness, disability, should be reported directly to UNEB in the normal way.

A plan of work benches, giving details by personal numbers of the places occupied by the candidates for each session, must be enclosed with the scripts.

DO NOT STAMP ANYWHERE ON THIS DOCUMENT.

Invigilator's Name _____ Signature _____

Signature of the teacher responsible for preparing specimen _____

Signature of the head teacher _____

Random Number _____

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

2024

2 hours



UGANDA NATIONAL EXAMINATIONS BOARD

Uganda Certificate of Education

CHEMISTRY

Paper 1

2 hours

INSTRUCTIONS TO CANDIDATES:

This paper consists of two sections; A and B. It has six examination items.

Section A has two compulsory items.

*Section B has two Parts; I and II. Answer one item from each part.
Answer four items in all.*

*Answers to Section A must be written in the spaces provided while those of
Section B must be written on the answer booklet(s) provided.*

Any additional item(s) answered will not be scored.

SECTION A

Answer all the items from this section.

Item 1.

Onyera, living in an area where they use bore hole water, slid, fell and his white shirt became dirty. He decided to use a detergent to clean his shirt. The shirt remained with some brown spots yet he had rinsed it several times.

Task:

As a chemistry learner;

- (a) point out the problem Onyera made when choosing a product.

- (b) help Onyera understand how the product works.

- (c) advice Onyera on the challenges associated with the long term use of the product.

Item 2.

Peter is in the process of constructing his house without affecting the environment. He wants to build a good strong house; there are various building materials of different quality and properties on the market. However, he does not know the quality of materials to use.



Peter knows that choosing quality materials depends on the nature of the material and has come to you for advice.

Task:

Use your chemistry knowledge to;

- (a) Explain
(i) Categories of materials.

(ii) The suitability of the materials.

(b) Advise peter on the choice of materials.

SECTION B

Part I

Answer one item from this part.

Item 3.

One of the large scale uses of chlorine is treating water, to ensure that chlorine is readily available and at a cheaper cost. Government has cleared a local investor to set up a chlorine production plant near Lake Katwe in Kasese district. However, the community is concerned about its environmental effects and how the environmental process will occur.



The class teacher has appointed you to sensitize the other learners.

Task:

Prepare a presentation you will make during the meeting.

Item 4.

Air which is a mixture of different components contains 21% oxygen. Due to a wide spread of respiratory illnesses caused by COVID-19, there was an increased demand for oxygen by patients in hospitals. The government supply of oxygen is not enough and is planning to set up an oxygen production plant with minimal environmental impact.



However, the science club members in your school would like to know how the process of production will be carried out.

Task:

As chemistry student, make a write up you will use during the presentation.

Part II

Answer one item from this part.

Item 5.

Natural resources have been destroyed as a result of increasing population and human activities. This has attracted the attention of the officials from the National Environment Management Authority (NEMA).



The officials are planning to create awareness to the people of the country through sensitization workshops organized in different district communities.

Task:

As a chemistry student, prepare a short presentation you will deliver during the workshop upon invitation.

Item 6.

Osukuru village in Tororo district is at the foot of Tororo rock. People of this village for a long time have practiced charcoal burning , animal husbandry , crop husbandry and stone quarrying, recently the animals have started dying and wells are drying up yet the little water available is not fresh. The locals are now wondering why all these are happening.



A sensitization workshop is to be organized to explain the existing situation in the village. The theme of the work shop is **MY ENVIRONMENT MY RESPONSIBILITY**.

Task:

As chemistry student, write a massage you will deliver upon invitation.

Candidates Name:

Signature:

Random No.						Personal No.	

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

545/2&3

CHEMISTRY

Paper 2

2024

2 Hours



UGANDA NATIONAL EXAMINATIONS BOARD

Uganda Certificate of Education

CHEMISTRY

Paper 2&3

Practical

2 Hours

INSTRUCTIONS TO CANDIDATES:

This paper consists of one compulsory examination item. Answers to this item are to be written in the spaces provided in this booklet. Use blue or black ink.

All working must be clearly shown. Graph paper will be provided.

Mathematical table and silent non-programmable scientific calculators may be used.

You are not allowed to use reference books (i.e. text books, booklets on qualitative analysis etc.)

Candidates are advised to carefully read the item, make sure they have all the apparatus and chemicals they may need and then plan appropriately before starting.

Item1.

An organisation operating in fishing around Lake Kyoga organised a workshop to train local fish dealers on how to make common salt on a small scale which they can use to preserve fish fresh. This involved mixing sodium hydroxide and hydrochloric acid. During the training, a participant was randomly picked and instructed to add a prepared solution of an acid to a base solution in a container. The participant noted that the container became warmer as he kept on adding the acid. He could not understand why and how much heat had been generated.

Sodium hydroxide reacts with hydrochloric acid according to the following equation.



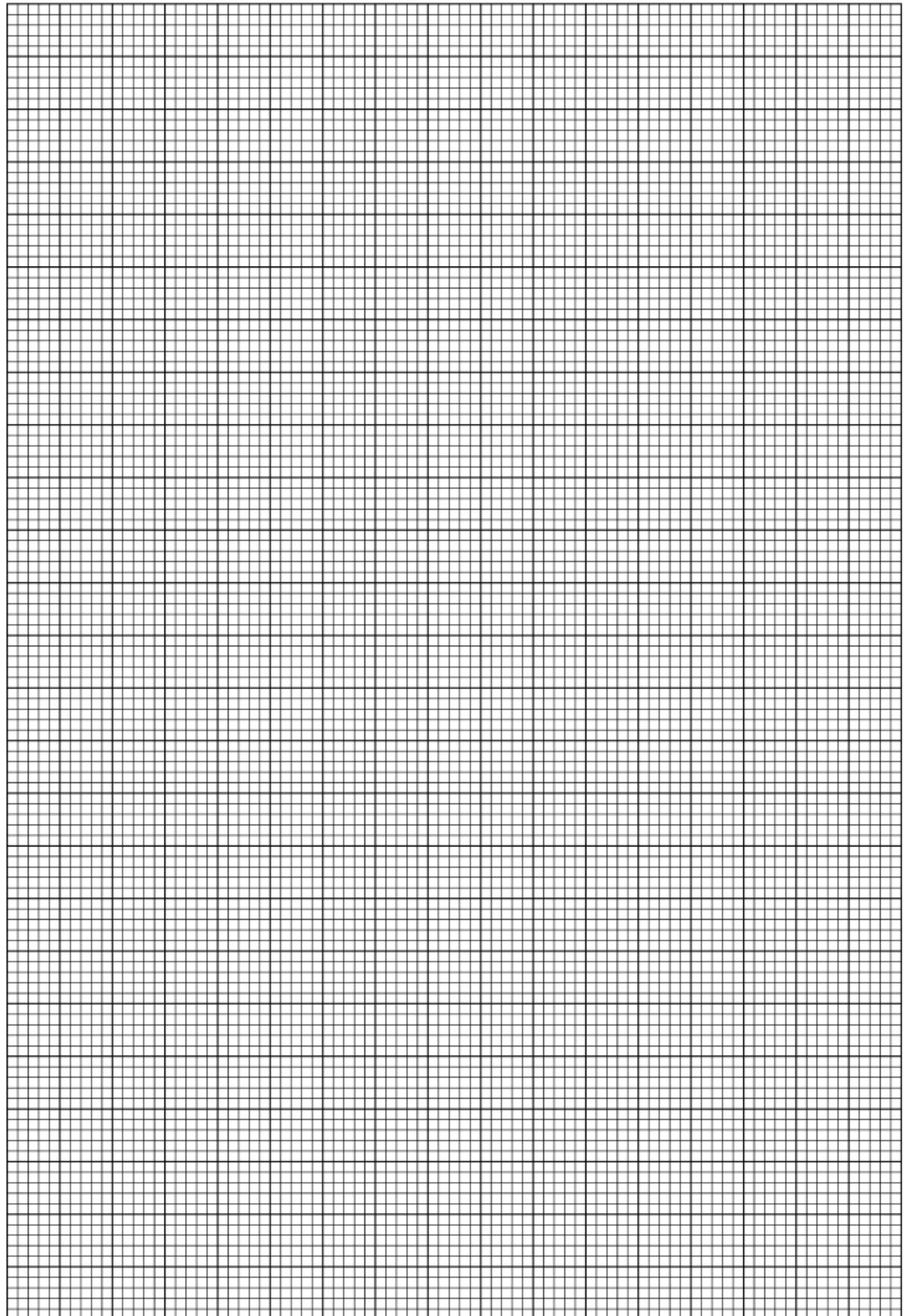
The heat produced varies with the volume of acid added to the base.

The acid provided is labeled **BA1** and the base provided is labeled **BA2**.

Task:

- (a) As a learner of chemistry;
- (i) design an experiment you will carry out to determine the amount of heat, produced during reaction between **BA1** and **BA2** or produced when **BA1** is added to **BA2**.

SAMPLE PAPER



(ii) carry out the experiment and record your findings.

(iii) Obtain the maximum heat produced during the reaction.

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(b) What can the participant deduce from your findings?

535/1
PHYSICS
Paper 1
2024
2½ hours



UGANDA NATIONAL EXAMINATIONS BOARD
Uganda Certificate of Education

PHYSICS

Paper 1
Theory

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES:

*This paper consists of **two** sections; **A** and **B**. It has **seven** examination items..*

*Section **A** has **three** compulsory items.*

*Section **B** has **two** parts; **I** and **II**. Answer **one** item from **each** part.*

*Answer **five** items in all.*

Any additional item(s) answered will not be scored.

*All answers **must** be written in the booklets provided.*

SECTION A

Answer all the items from this section

Item 1.

A brass band was invited to play during a celebration near a tall building, a distance slightly more than 17 m away. Two friends standing in the same direction and in line with the playing band, heard the sound from the band at different intervals of time which attracted them to go and attend the celebration. On arrival, the sound they heard was unclear, confused and indistinct. Later in the night during the cerebration, coloured lights flashing red, blue and green made the colours of their clothes look different from the original colours which puzzled them.

Hint: Speed of sound in air = 330 ms^{-1} .

The two friends heard sound after 4 s and 5 s, respectively.

The friends were originally wearing yellow clothes.

Task:

As a physics student, help the two friends to understand why;

- (a) they heard the sound at different intervals.
- (b) the sound they heard was unclear, confused and indistinct.
- (c) the colour of their clothes kept changing when coloured lights flashed on them.

Item 2.

In a certain town, people are concerned about the waste disposal from the factory into the nearby lake which is their source of water for home use. They raised this issue to the chairperson Local Council 1 (LC1) who directed the management of the factory to stop disposing waste into the lake. A scientist was contacted to investigate the presence of radioactive material in the water. The scientist found out that the water was indeed radioactive as shown in Table 1.

Table 1

Time/days	0	5	10	15	20	25	30
Activity/counts per minute	1200	740	440	260	160	90	60

Although the water from the lake remains radioactive for a long time, the scientist recommended that water will be safe for use again when the activity is less than 38 counts per minutes.

Task:

As a student of physics;

- (a) Advise the chairperson LC1 about the time the community will wait for the water to be safe for use again.
- (b) Sensitise the members of the community about the risks associated with radioactive materials and how such materials should be handled.

Item 3.

In a certain country, a Television (TV) reporter was reporting live near the ocean about the high tides during night time. Viewers in another country were watching the live broadcast of the news bulletin during day time. The viewers wondered how it could be day and night at the same time, and how the event in one country could be watched live on TV in another country.

Task

Using your knowledge of physics to help the viewers to understand;

- (a) the possibility of it being day in one place and night in another place.
- (b) the occurrence of high ocean tides.
- (c) how an event in one place can be broadcast live in another country.

SECTION B**PART 1**

Answer one item from this part

Item 4.

A certain home owner intends to put up a metallic tank of height 4 m with a maximum volume of 5000 l fitted with an electrical heater which supplies 20,000 kJ of heat energy as shown in figure 1.

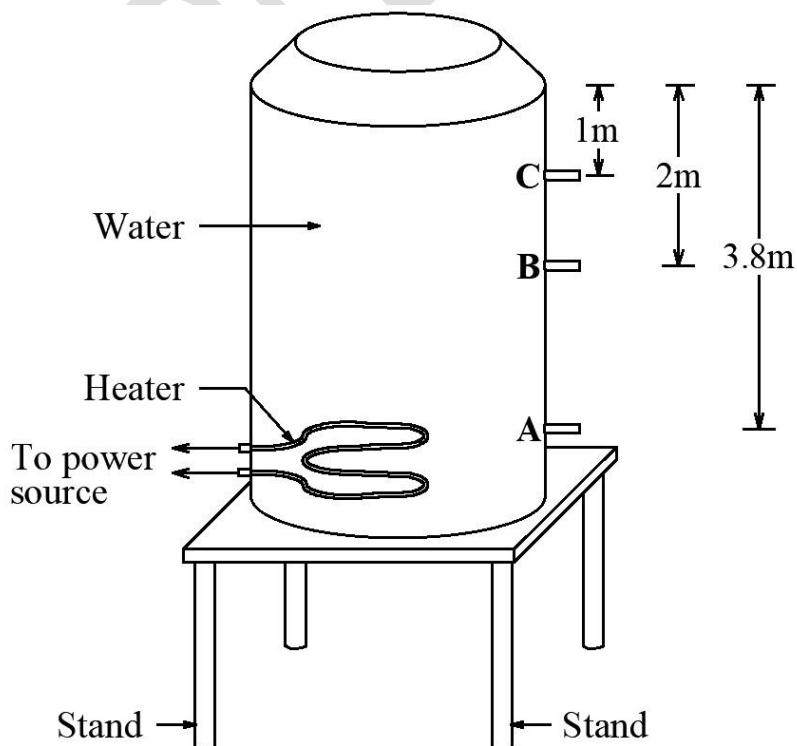


Fig. 1

The home owner found out that the heater was fitted at the lower part of the tank but he did not understand why it was done like that. Just before the hole for the outlet pipe was drilled at point A, the home owner told the person with the drill that the correct position was either B or C.

Task:

As a learner of Physics;

- (a) Explain to the home owner why;
 - (i) the electrical heater was fitted at the lower part of the tank and how eventually all the water gets hot.
 - (ii) the outlet pipe was drilled at point A.
- (b) If the initial temperature of the water in the tank is 20 °C, help the home owner to find out if the heater is working.
- (c) Advise the home owner on measures that can be taken to ensure that the tank stand can withstand the weight of the tank and water for a long time.

Use:

$$\text{Density of water} = 1000 \text{ kgm}^{-3}.$$

$$\text{Specific heat capacity of water} = 4200 \text{ J kg}^{-1} \text{ K}^{-1}.$$

$$\text{Acceleration due to gravity} = 10 \text{ ms}^{-2}$$

Item 5

A certain hotel has its bathrooms situated on the 3rd floor of a building. A customer of the hotel expects to bathe water at 32 °C. The hotel provides 10 litres of water at 20 °C to each customer. A boiler on ground floor heats water to 80 °C for the customers to use. The hotel management does not allow its workers to carry the hot water via the staircase.

Task:

Having studied physics;

- (a) help the hotel management to determine the quantity of hot water to be given to a customer for bathing.
- (b) advise the hotel management on how to keep the boiled water hot for a long period of time without keeping the boiler on.
- (c) explain to the management how the water from the boiler can reach the third floor safely.

Use:

$$\text{Density of water} = 1000 \text{ kgm}^{-3}.$$

$$\text{Specific heat capacity of water} = 4200 \text{ J kg}^{-1} \text{ K}^{-1}.$$

$$\text{Acceleration due to gravity} = 10 \text{ ms}^{-2}$$

PART II

Answer one item from this part.

Item 6.

Small pieces of metal which are unsafe to be eaten by chicken were found in feeds that had just been bought from a milling company by a poultry farmer. The small pieces of metal were later identified as iron. The farmer thought of disposing off the feeds but remembered that the pieces of metals could be sorted with a magnet which he did not have.

Hint:

A nail, connecting wires of resistance 0.5Ω , two dry cells each of 1.5 V were available to the farmer.

Task:

As a student of physics;

- (a) Help the farmer to remove the pieces of iron from the feeds.
- (b) Comment on the effectiveness of what you have designed, given that current of 4 A is enough to create a strong magnet.

Item 7.

In a certain place, electricity is transmitted at 120 V . A business person intends to connect 4 bulbs in a house rated 240 V , 60 W each, and other domestic electrical appliances such that there is minimum power wastage. The business person has been advised to purchase a transformer of suitable specifications to achieve the objectives. The business person does not know what a transformer is, how it works and is bothered by the type of transformer that should be purchased.

Task:

As a student of physics, help the business person to solve the problems he/she is faced with.

535/2&3
PHYSICS
Paper 2&3
2024
2 hours



UGANDA NATIONAL EXAMINATIONS BOARD
Uganda Certificate of Education

PHYSICS

Paper 2 & 3
Practical

2 hours

INSTRUCTIONS TO CANDIDATES:

This paper consists of two examination items.

Answer one item in all.

Any additional items answered will not be scored.

Candidates are not allowed to start working with the apparatus for the first quarter of an hour. This time is to enable candidates; read the items thoroughly, checking for the apparatus they will need and plan appropriately.

A graph paper will be provided.

Mathematical tables and silent non-programmable calculators may be used.

Item 1

In a certain trading centre, empty mineral water bottles were littered everywhere causing blockage of trenches and other environmental hazards. A trader came to the trading centre with the intention of buying empty water bottles of mass 15 g each. A student had gathered a pile of 20000 empty identical mineral water bottles (500 ml each) but was not sure about the mass of each bottle. There was no instrument to determine the mass of the bottles and the student did not know the amount of money to be earned from the sale of the bottles.

Task:

As a student of physics, carry out a scientific investigation to help the student determine the mass of an identical empty bottle provided to you in order to ascertain how much the student will earn.

Hint:

- ✓ The trader pays UGX.400 per kilogram of such bottles.

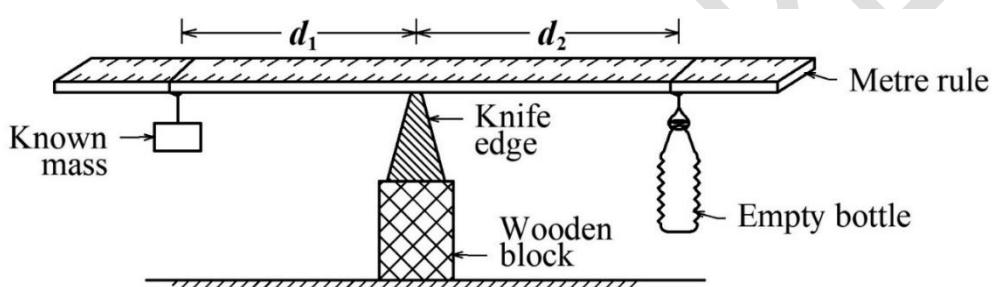


Fig. 1

- ✓ Other experimental set ups may be used.

Item 2

A student complained about pain in the eyes and could not see nearby objects clearly. After visiting a hospital, a doctor recommended that the student uses spectacles with a lens of focal length 10 cm. The student visited an eyeglass shop, presented the doctor's prescription/report and bought spectacles. The student, however felt uncomfortable while using the spectacles and the problem persisted.

Task:

You are provided with lens, X that has same properties with that of the lens in the spectacles a student bought. Verify the accuracy of the lens in the spectacles the student bought.

Hint:

- ✓

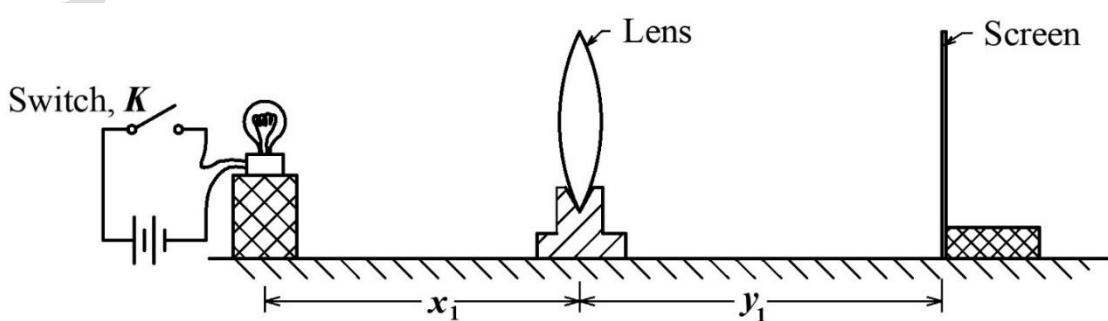


Fig. 2

- ✓ Other experimental set ups may be used.

840/1
INFORMATION AND
COMMUNICATIONS
TECHNOLOGY(ICT)

Paper 1

2024

2 $\frac{1}{4}$ hours



UGANDA NATIONAL EXAMINATIONS BOARD

Uganda Certificate of Education

INFORMATION AND COMMUNICATIONS TECHNOLOGY

Paper 1
Theory

2 hours 15 Minutes

INSTRUCTIONS TO CANDIDATES:

*This paper consists of **two sections; A and B**. It has **five examination items**.*

*Section **A** has **one compulsory item**.*

*Section **B** has **two parts; I and II**. Answer **one item from each part**.*

*Answer **three examination items in all**.*

*Any additional item(s) answered will **not be scored**.*

*All answers **must** be written in the answer booklet(s) provided.*

SECTION A

Answer the item in this section.

Item 1.

Isaac is currently running a stationery shop where he sells scholastic materials and provides photocopying services only. On daily basis he gets clients inquiring about passport size photographs, business reports, statistical data and formal letters. He is concerned that he may lose some of his customers due to limited services. He contacted a company dealing in ICTs which sent him a brochure bearing some of the ICT tools shown below.



IMAGE 1: Source- <https://www.monitor.co.ug/uganda/magazines>

IMAGE 2: Source- [images of digital devices - Search \(bing.com\)](http://images of digital devices - Search (bing.com))

Given limited knowledge on the ICT tools displayed on the brochure, Isaac failed to select which ICTs would be appropriate for his business

Task

- Guide Isaac to select the appropriate ICT tools that will help him improve his services and retain his customers.
- Advise Isaac on how best he can maintain the ICT tools in good working condition.

SECTION B

This section has two Parts; I and II.

PART I

Answer one item from this part.

Item 2.

A few days ago, thieves broke into the computer laboratory of a school and stole various equipment. The network server was amongst the stolen equipment and a lot of the school's important information was lost. As it all happened, some computer parts were broken and scattered all over the laboratory floor.

The following morning, the laboratory attendant collected the damaged parts in a box and dumped them at the garbage pit assuming that most of them would no longer function.

Box of damaged computer parts and dumped items



Source: www.boldbusiness.com

Task

- (a) Advise the laboratory attendant and the school management on what could have caused such occurrences and the measures they should put in place to prevent similar incidences.
- (b) Demonstrate how the school and other partners can manage the items dumped at the garbage pit.

Item 3.

The youth today are fond of spending most of their time using ICT mobile devices while on the road and being online late in the night, as reflected in images 1 and 2.



IMAGE 1: <https://missionaryjill.com/wp-content/up1>

IMAGE 2: <data:image/jpeg;base64,/9j/4AAQSkZJRgABA>

Majority of the youth are not aware of the consequences of continuous use of ICTs and some have suffered **health issues, data loss and breach of privacy**.

The newly elected chairperson of the youth at the district wishes to address this challenge through a sensitization campaign on the theme “ICT’s and the youth today”.

Task

You have volunteered to talk to the youth. Prepare a presentation about these consequences and how they can be avoided.

Part II

Answer one item from this part.

Item 4.

Noeline is a qualified primary school teacher who has taught in a nursery school for quite some time. She has been earning a monthly salary of UGX 200,000 though not promptly paid.

She recently landed on her dream job in a newspaper advert below.

Sure Junior School

Website: <https://www.sjsu.ac.ug>

Vacancy title: Primary Teacher

Salary: UGX 1,000,000 monthly

Level of Education: Diploma in Education Primary

Job application procedure: Send your Application, Academic credentials and CV to: info@sjs.ac.ug

Deadline of this Job: Friday, April 26, 2024

The school requires applicants to submit their application letters, Curriculum Vitae (CV) and academic documents online. However, Noeline's academic documents are kept somewhere in an envelope and she does not know how to go about this process.

Task

If Noeline approaches you to guide her through the procedure, provide a write up showing required steps and ICT tools that Noeline should use to successfully submit her job application.

Item 5

The Government of Uganda wishes to boost all Saving and Credit Cooperative Organizations (SACCO) in various districts by providing them with funds.

A women's SACCO wishes to apply for the funds and the group does not want to miss out on this golden opportunity. They are required to access an online template, fill it with the SACCO details before the deadline which is soon.

The chairperson of the SACCO finds it challenging to download, fill and submit the filled form to the district website since she lacks ICT skills.

The form to be filled is shown below.

PROJECTS APPLICATION FORM	
PROJECT IDNO:	
(Assigned by the District Focal Point Person after Project Approval)	
1.0 Project Identification Information:	
1.1 Project Name: _____	
1.2 Component (<i>i.e. Skills Development or Livelihood Support</i>): _____	
1.3 Sector (<i>e.g. Agriculture, Trade & Industry etc.</i>): _____	
1.4 Project Type (<i>e.g. Dairy Production, Carpentry, Fish farming etc.</i>): _____	
1.5 Project Location: Village/Cell: _____ Parish/Ward: _____ Sub-county/Division/Town Council: _____ District: _____ Location (<i>tick appropriate box</i>): Rural <input type="checkbox"/> Urban <input type="checkbox"/>	
1.6 Project Contact Person (<i>Name & Telephone of Chairperson of the Interest Group</i>): Name: _____ Telephone: _____	

Task

The Chairperson approaches you to guide her through the required procedure. Provide a write-up indicating the necessary steps and ICTs to be used by the Chairperson.

840/2
**INFORMATION AND
COMMUNICATIONS
TECHNOLOGY (ICT)**

Paper 2

2024

2½ hours



Uganda Certificate of Education

INFORMATION AND COMMUNICATIONS TECHNOLOGY

Paper 2
Practical

2 hour 30 minutes

INSTRUCTIONS TO CANDIDATES:

*This paper consists of **two** examination items.*

*Answer **both** items in this paper.*

*You are provided with support files in the folder **UNEB Support Files** on the computer desktop. Use the support files where applicable to supplement the items.*

*You are provided with a new blank **Compact Disc (CD)**.*

*Use a **permanent marker** to write your name, random number and personal number on your CD.*

*You should continuously **save** your work.*

*You **must** produce a **hard copy** for each of your work to accompany a soft copy on the Compact Disc (CD).*

Item 1

In a certain community, a group of employees formed a **savings group** called **Sente Kumeza Fund**. The treasurer of the group has a metallic box where money is kept and a small exercise book where members' transactions are recorded. The members who borrow, sometimes complain of how the calculations of loan repayment amount are made.

The savings group recently received a new member, who expressed concern about the way records are being managed and suggested that a computerized system be adopted to manage the records. The members took the concern positively but none of them has computer knowledge and skills.

The records in the small book have been extracted and provided in the support file **KUMEZA.docx**. and a sample of the reminder letter for those with loan balances in the file **DEMAND.docx**.

Task

Using the support files provided;

- (a) Create an electronic storage of the records and use it to produce a graphical representation of members' savings.
- (b) Generate a list of members with loan balances and prepare a reminder letter for each of them.

Item 2

In a certain school, the administration wishes to use ICTs to interact effectively with the Public on all events happening at the school, such as academic affairs, current projects, sports among others. The public should be able to provide feedback.

The administration is also intending to provide an **active form** for those students who would wish to join the school.

Task

Develop an online platform that illustrates to the administration, on how to address the concerns of the school. A support folder called **My_School** has been provided containing some files which may be used

555/1
PHYSICAL
EDUCATION
2024
2 ¼ hours



UGANDA NATIONAL EXAMINATIONS BOARD
Uganda Certificate of Education

PHYSICAL EDUCATION

Paper 1
Theory

2 hours 15 minutes

INSTRUCTIONS TO CANDIDATES:

*This paper consists of **two** sections; **A** and **B**. It has **four** examination items.*

*Section **A** has **two** compulsory examination items.*

*Answer only **one** item from Section **B**.*

*Answer **three** examination items in all.*

*Any additional item(s) answered will **not** be scored.*

*All answers **must** be written in the Answer booklet(s) provided.*

SECTION A

Answer both items in this section.

Item 1

During the interclass volleyball competitions, John a player of S.2 class moved from class which is a few meters from the volleyball court and immediately requested to start playing and he was allowed.

After a few minutes of play, John complained to the umpire of sudden pain at the ankle, and was seen limping off the court.

The play was stopped, the other players observed that there was also swelling at the ankle and John told them that he started playing when he was normal. Everyone had no knowledge on how to help him before referring him to the health centre.

Task:

- (a) How is John's conduct responsible for the pain and swelling?
- (b) Make a write up that can be used by S.2 students to help John.

Item 2

The district has organized a football championship where sub-counties are to be represented. The coach for your team tried out the players through a friendly match to check their preparedness for the competitions. The coach made the following observations;

- (a) A number of players easily got tired and requested for substitution more frequently
- (b) Many players made passes that failed to reach the identified target
- (c) Players easily staggered and at times fell down with even a slight push from the opponents
- (d) In most cases, the opponents could reach the ball first whenever long passes were made.
- (e) Players eat a lot of food and drink water few minutes before training because they need energy during training.

Based on the observations made, the coach has requested you to give support to the team in the area of physical fitness. There are three weeks left to the start of the competitions.

Task:

Make a detailed write up that can be used to support the football players for two weeks.

SECTION B

Answer only one item from this section.

Item 3

Samuel is a wheel chair basketballer who desires to become an international basketball player. He lives in one of the refugee camps in Uganda. He shared some of the challenges in the refugee camps as being limited space, inadequate equipment for women and children to participate in physical activities. He added that he was denied an opportunity to use the available courts (playgrounds) because he is both non-Ugandan and disabled.

He further noticed that athletes were using drugs and becoming violent during play.

A local media house has approached you for an article in the newspaper addressing the challenges in the camp.

Task:

As a student of physical education, make a write-up of between 300 and 500 words that can be published in a newspaper addressing the challenges in the camp.

Item 4

Makuru and Pakuru sub counties in Uganda have remained under developed compared to their neighbours. The two areas have problems such as endless fights, quarrels among the residents because of their political, social & religious differences but for the youth, its largely drug abuse. During a radio talk show, the district sports officer said that sports activities can be one of the tools to overcome such problems and further mentioned that media is key in aiding sports for development. However, some officials do not agree with the District sports officer.

Task:

As a physical education student, **make** a write up in support of the district sports officer.