

## S.1 HOLIDAY WORK TERM 3, 2024

### MATHEMATICS

A construction engineer is designing a triangular garden with the following specifications:

- The triangle has one angle measuring  $60^{\circ}$ , another measuring  $120^{\circ}$ , and the third determined by the geometry of the triangle.
- The side  $AB=100\text{m}$ .

Inside the garden, a circular fountain will be installed, inscribed within the triangle. The rest of the garden will be paved with decorative pavers. The cost of paving is **20,000 UGX per square meter**.

#### Tasks:

- a) Using a ruler and a protractor, construct the triangle ABC based on the given dimensions and angle
- b) Determine the incenter of the triangle and draw the circle inscribed within the triangle
- c) Measure the lengths of sides AC and BC.
- d) Calculate the total area of the triangle using an appropriate method.
- e) Calculate the area of the inscribed circle (fountain).
- f) Determine the area to be paved (total area of the triangle minus the area of the inscribed circle).
- g) Calculate the total cost of paving the area outside the inscribed circle at **20,000 UGX per square meter**.
- h) Report the total amount of money needed for paving.

### PHYSICS

#### Item

Senior one student in a certain school left for a tour at a certain beach in Kampala. Some members took hot water in flasks and others in plastic bottles, with the intention of making soya porridge at the beach. One member with an un-calibrated thermometer put the thermometer bulb in melting ice and then in steam and noted lengths, 3cm and 13cm respectively before starting the journey. The Four Queens group packed a pinhole camera whose magnification was 0.002 and length 20cm and the Born to Win group packed one with 0.04 magnification and 15 cm length. On their way learners wondered why the wires on the electric poles were left sagging and as they were still arguing the ambulance take off their buss where some students laughed at the manufacturer for the big mistake he made when writing the word ambulance on the van. And wondered how the drivers are always able to read the word. On reaching at the beach one group opted to go for swimming and enjoyed playing with the tennis balls but they wondered why it was easier to throw the balls in air that it is inside water. As they were enjoying, they observed a by passing ferry which was estimated to be 10 metres away from the beach. Learners wondered how such a heavy object can float in water yet small items like a 500-coin sinks. They picked up their pin – hole cameras to capture the ferry. After swimming learners who kept the warm water in plastic bottles wondered how it become cold yet those who kept it in flasks theirs was still warm. Some decided to make soya porridge and others black tea. But they had to check on the temperatures of their warm water first. A student immersed the bulb of uncalibrated thermometer in the flask and recorded a length of 12 cm. Another student immersed a tea bag in warm water and another in cold water and she wondered why tea mixed with water at different rates.

**Hint:** Soya can only turn into porridge if the temperature of water is above  $90^{\circ}\text{C}$  inclusive.

#### Tasks

Use your knowledge of physics to;

1. Explain why the wires looked as seen in the scenario
2. Explain whether the manufacture made a mistake when writing the word
3. Tell why it was hard to throw the balls through water than it is in air
4. Tell whether both groups were able to take the picture of the ferry.
5. Tell whether the warm water was suitable to make the soya porridge.
6. Explain why the water kept in flask was warm and that in plastic bottles was cool.
7. Explain why the item that was captured is able the float yet a 500 – coin sinks.
8. Why tea mixed with water at different rates.

### GEOGRAPHY

The existence of the major relief and drainage features of East Africa like mountains, rift valley is scientifically connected to the tectonic processes such as faulting, volcanicity, warping and folding and such features are making East Africa an attractive to many foreign tourists from Europe Asia and other parts of the world. A University student from Manchester in UK has visited you as a professor in Geology and landform development, seeking for clarity on how any one of the following features was formed and how it benefits the people in the local area.

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### Task:

Write a speech that will be read to the student from Manchester by your secretary that will satisfy the student to the extent of promising to visit you again for further geographical research.

### AGRICULTURE

You have been invited by the chairperson LC1 of your area to advise people in that area about vegetable growing.

**TASK:** Advise them on how to grow one vegetable of your choice up to harvesting.

### PHYSICAL EDUCATION

"I am an accountant and my wife is a lawyer. We didn't need sports to become what we are! Bricks High School is our private school. Our focus is to see that students get the highest scores in UNEB examinations. We don't need P.E and sports in our school!" Said Mr. Oken.

**TASK:** You have been elected as the sports prefect of that school, write a letter to Mr. Oken convincing him to change his mind. (10 scores)

### KISWAHILI

Jenga setensi tano katika wakati uliopo na wakati uliopita halafu huzibadilishe katika mtindo wa kukanusha. (Present continuous tense and past tense)

### TECHNICAL DRAWING

- 1). The design of a tap handle is to be got from a triangle whose base is 40mm, perimeter 120mm and base angle 45°. Geometrically obtain the design.
- 2). A table mat to be designed using geometrical shapes sharing the same base consists of a square, pentagon and hexagon all having sides equal to 40mm. Illustrate the design.

### ENTREPRENEURSHIP

The LCL environment lacks a natural look. However, it can be made a better place for all of us

**Task:** As an Entrepreneurship student, use your creativity and innovative skills to ensure that we get a natural environment using the following guidelines.

- a). Identify an outdoor flower plant that can survive under the outdoor circumstances
- b). Design a durable flower pot that is either plastic or metallic
- c). Put small holes at the bottom of our pot to enable proper aeration.
- d). Add soil and plant the identified flower plant in (a) above
- e). Take care of the plant during the holiday and present it as your report back to school.

### LUGANDA

Ng'ekibiina, mwakyalira faamu emu okulundirwa ebisolo n'ebinyonyi eby'enjawulo era agikulira n'abalambuza nga bwababuulira ku bizibu abalunzi bye basing okusanga mu mulimu gwabwe. Banno abatasobodde kugenda bakusabye obannyonyole ebizibu abalunzi bye basanga. Bategeeze.

### ART

Your guardians/parents would want to improve the appearance of the dining room with beautiful art works. But they have no idea of doing it because they are not artists.

### Task.

As an artist at home, help your guardians/Parents to solve the above challenge with suitable art works of choice.

### BIOLOGY

Rashid uprooted two maize plants from his garden and observed that the one from the northern part of the garden had few short roots and big leaves while the other from the southern part had many long roots and small leaves. At harvest time, the northern part had high yield while the southern part had low yield. Rashid was told that the difference in the yields from the two parts of his garden could be due to the difference in the ability of the two soils to retain water. Rashid wants to understand why the two parts of his garden had different yields.

**Task:** Explain to Rashid the reason behind these observations.

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### ICT

1. Give two advantages of using a digital camera over a traditional film camera
2. Name two factors that determine the quality of a scanner
3. Give two advantages of using an automatic input (e.g., a OMR reader) over manual input.
4. Give two advantages of using a barcode reader at a point of sale terminal (POS)
5. Give advantages and two disadvantages of using voice recognition for input.
6. Give two real life applications of sensors for detecting external changes in an environment.

### ENGLISH

You have travelled to tour several places during your vacation, you experience many wonderful things while you are away from your family friends. Design a greeting card with a message that you would send to your family or friend.

### LITERATURE IN ENGLISH

**Scenario:** You are the prefect in charge of your class or stream. Some learners in your class (you also learn in other classes, too) are naughty during preparation (prep) time both at school and at home. They are always serving punishments administered by teachers on duty. The School Administration and their parents for making noise and other mischievous behavior. You talk to your classmates and they say they are always bored because there is nothing interesting to read.

**Task:** Think of an interesting book you have read from any category – a play, novel (literature text, romance, adventure, fiction or non-fiction) and write a review to interest your colleagues to read and develop their reading culture.

### HISTORY

Today there is an increase in the number of migrant workers from Uganda to the Middle East in search for greener pastures. Many youths are moving to Saudi Arabia, Oman, Dubai and Iraq among other countries. These have been estimated to be over 140,000 Ugandans. These immigrant workers however, suffer in those areas. They live under poor conditions, xenophobia and racism are high and many are killed by their employees.

**Task:**

- i) Identify the causes of the situation in the scenario above.
- ii) What are the possible solutions to stop the above mentioned problem in Uganda today?

### CHEMISTRY

Your cousin who is just new to city life has found it interesting to stay in the city as well as being interested in preparing meals at home. As she was preparing your home breakfast, she accidentally knocked the tin containing table salt, fell into a nearby bucket containing water and being puzzled about what to do she poured the resultant mixture on the ground to hide evidence of what had happened. Your mother has however got to know about it due the CCTV surveillance around your home and she has called the two of you to caution you about the situation as well as requesting you as a student of chemistry to advice on what would have been done by your cousin.

**Task:**

As a student of chemistry please guide about;

- a). category of the resultant substance formed and was poured away by your cousin.
- b). the properties of the resultant substance
- c). impact of what your cousin did after the accident had happened
- d). your mother's request.