WAKISSHA JOINT MOCK EXAMINATIONS

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)/sheets provided.*

Graph Paper is provided.

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

Item 1.
Your friend is a market vender. She realizes that her customers prefer buying tomatoes in small quantities, so she decides to re-package her tomatoes into heaps of four. One day she bought nine heaps of tomatoes which had eight tomatoes each from the market at a cost of Ugx 2.000 per heap and was given a discount of 5%. She decides to sell her heaps of four tomatoes at Ugx 1.200 each and hence wants to find out how much gross profit she will earn from all her heaps. She further intends to visit Queen Elizabeth National Park in December 2024. Her uncle visited the same tourism centre last December 2023 with his 3 children and spent Ugx 17,000 on entrance ticket. Mr and Mrs Mukasa visited the same park in june 2024 with their child and spent Ugx.14,000. She plans to buy entrance tickets for herself, husband and five children and hence needs to know how much she will need. If park charges are adjusted every after five years.

Support material

Task:
How much;
  a) Gross profits will she earn from her heaps after re-packaging? (08 scores)
  b) Money will she spend in total to buy the tickets she needs? (12 scores)

Item 2.

Your Mathematics teacher is planning to transport not more than 400 students to a seminar in a neighbouring school located 10 kms away. He however does not know how many trips each vehicle will make so as to minimize transport expenses.

After consultations with the manager, Super free express bus company, the teacher realizes that if all students paid, their total contribution, should not be less than sh 360,000. The school is to hire a bus which carries 64 students per trip and a mini bus which carries 16 students per trip. The number of trips made by the bus should be at least two and those made by the minibus should be at most 6. The minibus should make more trips than the bus and the charges will be Ugx 40,000 and Ugx 90,000 per trip for the minibus and bus respectively.

Support material

Task:

(a) Help the teacher to find out the number of trips each vehicle should make to achieve his goal.

(b) What is the maximum number of students that the teacher can transport? (20 scores)

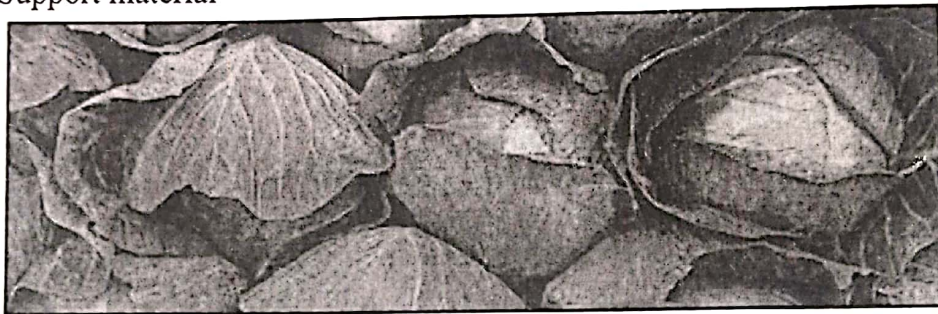# SECTION B

*This section has two parts; **I** and **II***

Part I

*Answer only **one** question*

Item 3.

Your guardian realizes during holidays that he may find it difficult to pay for sports uniform that costs Ugx 38,000 at the beginning of term III. He decides to keep you busy during the last week of your holiday moving around the village buying cabbages at Ugx 800 per cabbage. You will later group them into two groups: Group A shall be cabbages whose weight is below the average weight and Group B will be cabbages whose weight is above the average weight.

Support material

Later, you will sell the cabbages and the profits from the sales will be used to cover the cost of the sports uniform. Group A cabbages will be sold at Ugx 1350 each while Group B cabbages will be sold at Ugx 1650 each.

Before displaying the cabbages for sale, you measure and record their weights in grammes as follows.

104	99	107	96	101	84	102	78	106	108
63	104	86	111	102	100	95	100	65	112
76	87	95	85	95	103	61	105	73	99
83	102	102	97	92	90	113	107	88	102
110	91	90	109	82	66	92	91	108	73

Task

(a) Using suitable statistical method, find the average weight of the cabbages. (10 scores)

(b) If you sell all the cabbages at the planned selling price; will the guardian be able to meet his goal? (10 scores)

Turn Over

Item 4

Your Aunt who works very far away from home tells you to identify a shop that can give you beans, sugar and posho on credit and she pays for these consumables every after two weeks. She also tells you not to exceed Ugx 100,000 for the two weeks on average. After touring the trading centre you decide to pick consumables from a shop that sells a kg of beans at Ugx 4,000, a kg of sugar at Ugx 5500 and a kg of posho at Ugx 2400. You plan to always pick consumables on every Mondays and Thursdays, while taking records as follows;

Week one:

Monday: 2 kgs of sugar, 3 kgs of posho and 2 kgs of beans.

Thursday: 4 kgs of posho and 3 kgs of beans

Week two;

You had visitors this week and picked more items as follows;

Monday: 3 kgs of sugar, 4 kgs of posho and 2 kgs of beans

Thursday: One kg of sugar, 2 kgs of beans and 5 kgs of posho.

Support material

Your Aunt is now back and asking you how much money you owe the shopkeeper.

Task

(a) How many kgs of each consumable did you pick from the shop all together for the two weeks?

(b) How much money will you tell your Aunt to pay?

(c) Did you fit in the planned expenditure budget proposal by your Aunt?
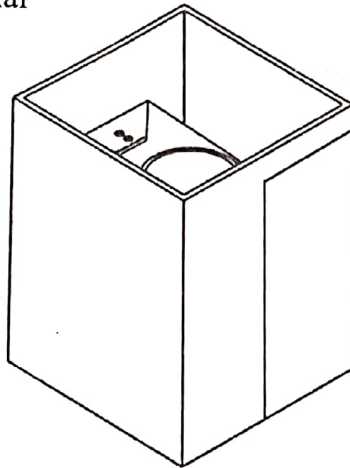
(20 scores)

Item 5.

Your uncle has a bathroom with three walls and the floor that he wishes to tile. The person who wishes to do this work gave him the quotations required to complete this work as follows;

- Each box of tiles can cover a space of 1.5 square metres and costs Ugx 32,000.

- The two opposite walls measure 6 feet by 6 feet each.

- The floor and the other remaining wall measures 5 feet by 6 feet.

- Labour charges is Ugx 9000 per square metre.

- Other expenses on consumable materials namely: adhesive, sand, cement, spacers and grout amount to Ugx 200,000. He has money for all other expenses in hard cash but must borrow the money for tiles and labour from his siblings at a compound interest rate of 5%, if he can pay back by the end of 1.5 years.

However, Uncle is finding it hard to determine how much to borrow and how much is expected to pay back. Note: 1 feet = 0.305metres.
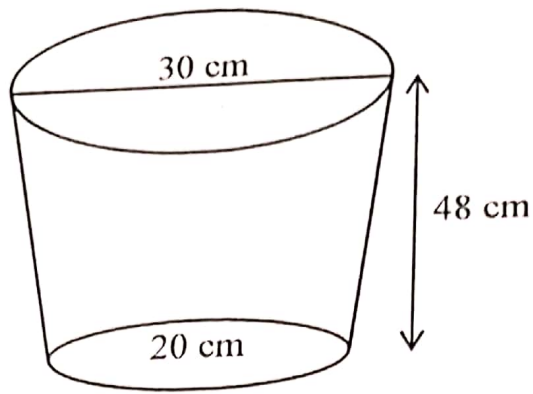
Support material

Task:

Help your uncle to find out how much money to borrow and how much to pay back to his siblings.

(20 scores)

Item 6

A manager owns a paint company which makes paint of various colours. He receives an order from his clients to make paint by mixing three colours; White(W), Blue(B) and Red(R) in the ratios W:B = 3:2 and B:R = 3:2. The customer orders for 380 litres of similar paint. Paint W costs Ugx 2200 per litre. Paint B costs Ugx 2700 per litre and Paint R costs Ugx 2850 per litre. The manager packs the similar paint made in buckets in a shape of a frustrum with top diameter 30 cm and bottom diameter 20 cm. The buckets are 48 cm deep as shown.

Turn Over

If the manager buys a cylindrical tank of diameter 1.8 m height 1.2 m which he wants to fill with paint so as to cater for any urgent demand that may arise.

Task

(a) (i)   Determine the quantity of each paint in the mixture.

(ii)   Find the amount of money needed to make 1 litre of the mixture.

(iii) Obtain the percentage profit made by selling the mixture at Shs. 3800 per litre.

(b) Help manager in determining the number of buckets that must be drawn to fill the tank.

(20 scores)

END