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Mathematics
Paper 1
$2\frac{1}{4}$ Hours
July/August 2024

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CATHOLIC POST PRIMARY SCHOOLS / INSTITUTIONS HEADS ASSOCIATION
(C A P P S I H A)

Uganda Certificate of Education
JOINT MOCK EXAMINATIONS 2024
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. COMPULSORY *(Attempt all items in this section)*

ITEM I

1. A market vender, sells vegetables in one of the markets. One day she bought 8 packs of tomatoes each containing 10 tomatoes from a famer. She sold 25% of the total number of packs before her longtime friend come to visit her and decided to take her out for coffee at a hotel. At the hotel, the friend ordered for 2 cups of tea each costing five thousand one hundred shillings and 2 plates of food each at ugx 20,000. While enjoying the meal, her friend told her that he comes to the hotel gym every after 4 days and she decided to be coming there too every after a week to exercise. After the meal her friend gave her ugx 20,000 for transport back to the market and on reaching the market, she found a sixth of the remaining packs of tomatoes damaged and could not be sold. She decided to re-pack the undamaged ones in new packs of five tomatoes.

SUPPORT

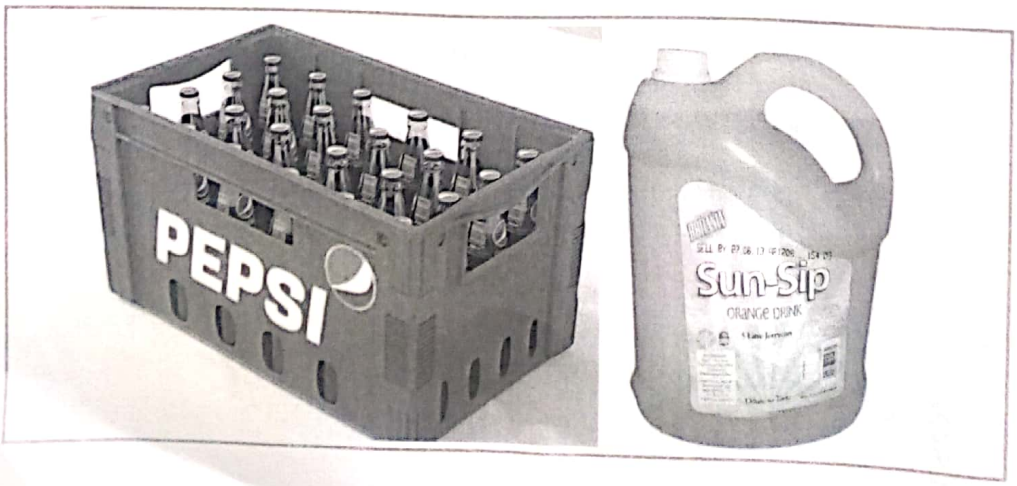
TASK

a) What percentage of the number of tomatoes got damaged?
b) How many packs of fives and five fives did she get after repacking?
c) After how many days will she meet her friend again at the hotel gym.
d) How much money (in words) did her friend spend on the outing.

ITEM 2

You are in a management committee that is organizing a farewell party. The committee wants to establish the number of people to attend the party keeping the cost as minimum as possible. You have been assigned a department of drinks which has a maximum amount of Ugx 450,000. You are planning to buy creates of soda and jerrycans of juice. Each crate of soda costs ugx 20,000 a jerrycans of juice Ugx 30,000. You intend to buy more crates of soda than jerrycans of juice. The jerrycans of juice should be more than 6 and the crates of soda should be less than 12. Each person will be served only one type of drink once and in the budget 24 students are to take a crate of soda and 20 students are to take a full jerrycans of juice.

SUPPORT



TASK

a) Write down mathematical statements to show the relation between the number of crates of soda and number of jerrycans of juice.
b) Show the feasible regions of the relation or a Cartesian plane.
c) Help the committee establish the number of students who are to attend the party at a minimum cost.

SECTION B. *(Attempt two items from this section)*

PART 1. Attempt one item from this part.

ITEM 3

At the beginning of a new term a parent plans to make shopping of scholastic materials for his 3 children A, B, C. He has made a budget basing on the list of requirements given by their class teachers.

Child A: 6 exercise books, 3 pencils, 2 graph books, 3 pens.
Child B: 3 pencils, 1 graph book, 6 exercise books, 3 pens.
Child C: 2 graph books, 4 exercise books, 3 pencils & 5 pens.

At the time of making the budget, the parent considered prices as follows 1 graph book@ ugx 2000, 1 pencil @ugx 100, 1 exercise book @ ugx 1500 and 1 pen ugx 500. So, the parent gave his children ugx 200,800 for shopping scholastic materials and to be share the remaining money equally as pocket money. The children decided to buy from the school carteen and found out that the prices at the carteen had increased by 10% for each item, and the school administration said that each item listed should increase the number by 2 since the school plans to each extra two weeks after closure of term to later for lost time in previous term.

TASK

a) If the children were to buy items before going to school, using matrices help their father determine how much each child would have spent.
b) Using matrices find how much each child spent to buy items from the school carteen.
c) Help the children to determine how much each child share as pocket money after buying items from school carteen.

ITEM 4

A company holds daily morning briefings at 08: 05am for all its workers who walk to work from different places of residence. The company supervisor notices that some workers miss important communication because they arrive late. She decided to collect data about arrival time of workers so as to make necessary adjustment in the starting time of the morning briefings.

The data collected of arrival time in minutes from the start briefing was as follows.

52	49	11	16	32	28	32	55	38	24
15	23	33	20	40	39	22	37	53	30
29	58	38	44	31	21	18	39	25	47
51	49	35	24	47	34	48	44	55	19
27	38	41	59	33	52	27	36	46	46
32	28	47	54	34	21	58	37	26	42

TASK

a) With a reason based on the calculation from the data above, suggest the appropriate time when the morning briefs should always start.
b) Using a suitable graph determine the maximum time of arrival for the first 50% of the workers.

PART II. Attempt one item from this part

ITEM 5

Mr. Thomas plans to build a small house next to his main house where he can always rest from in his free time. The house is to have sides in form of a cuboid with dimensions 12m by 8m by 4m and a pyramidal roof. The house is to have three windows of dimensions 0.9m by 0.6m and one door of dimensions 2.1m by 0.8m. He plans to paint the outer walls of the house using 1 litre tin paint and each tin costs Ugx 15,000. A tin can paint $5m^2$

SUPPORT

TASK

a (i) Help Mr. Thomas to calculate the surface area of the wall to be painted.

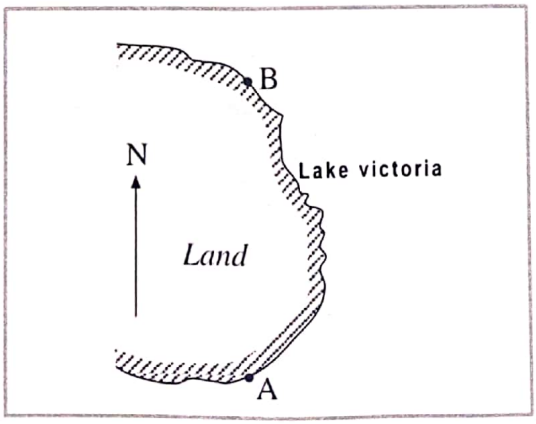
(ii) How many tins of paint will be required to paint the house.

b) How much money will he spend on paint for the whole house.

ITEM 6

Two friends have been working in Dubai, they recently returned back to Uganda and when they reached Entebbe international airport, they exchanged United Arab Emirates Dirham (AED) 5000 for Ugandan shillings at an exchange rate of AED 1= Ugx 1011. They later visited beach A on Lake Victoria and wanted to also visit beach B which is 50km north of beach A. Since there is no direct road connecting beach A to beach B, they decided to hire a motor boat such that they would use water transport to reach beach B. The boat moved 20km from A on a bearing 085^0, then another 20km on a bearing of 320^0 and then stopped for a moment. The boat hiring company charges ugx 10,000 for every one kilometer of distance covered.

SUPPORT



TASK

a) How much did the two friends receive in Ugx after exchanging?

b) On what bearing should the captain of the motor boat move to reach B from where he had stopped for a moment.

c) What was the total expenditure on transport from A to B.?

END.