**456/1**

**MATHEMATICS**

**Paper 1**

**November 2024**

**1 Hour 45 Minutes**

**UGANDA CERTIFICATE OF EDUCATION**

**END OF TERM III EXAMINATIONS 2024**

S.3 MATHEMATICS

**Paper 1**

**1 Hour 45 Minutes**

**INSTRUCTIONS**

* This paper has **three (3)** examination items.
* All the **three** items are compulsory.
* Begin each item on a fresh page.
* Graph paper is provided.
* Silent, non-programmable scientific calculators and mathematical tables with a list of formulae may be used.

**Item 1**

Tom wants to make a gift in shape of a cube with a capacity of to pack his friend’s graduation gift. He needs to know the dimensions of the faces he is to cut out of a cardboard he plans to use to achieve his need.

He was also called for the job interview in place Y that is 120km away from his home. He was wondering what time he will possibly reach there if he sets off from home at 09:00am given the fact that he usually travels 100km in 2 hours. He also wishes to start a business with a friend. According to their budget, they need Ugx.3,000,000.

Tom says he can contribute Ugx. 1,000,000 and the friend is to contribute 1 of Tom’s amount. They need to know if their contributions will be enough to cover the budget and if not, they acquire a loan to supplement their contributions.

**Task:**

1. Help Tom to determine the dimensions of the faces he will cut out of the cardboard.
2. What time will Tom possibly reach the interview?
3. Will they need to acquire a loan or not? Justify your answer.

**Item 2**

A certain organization realized that the major causes of school dropouts in a certain community are pregnancy, bullying by friends and teachers and lack of school fees.

They want to create a magazine on each cause showing how it can be solved.

To select which reason they can start with, they gathered data from a sample of 150 dropout in the community and below were the findings;

40 dropout due to lack of school fees only, 15 dropout due to bullying only, 30 dropout due to pregnancy only, 22 dropout due to lack of school fees and bullying, 30 dropout due to lack of school fees and pregnancy, 11 dropout due to neither of the reasons and some dropout due to all the three reasons.

**Task:**

1. Which two reasons have equal chances of being selected?
2. What is the probability that school dropouts will reduce if any of the two reasons selected?

**Item 3**

Your guardian operates a catering company. He gave you a list of major ingredients he will need to cook beans and beef at the two Occasions he was called at such that you help him account for how much he will need in total for both.

OCCASION ONE

BEEF: I bucket of tomatoes, 2 bunches of onions and 2 litres of cooking oil.

BEANS: bucket of tomatoes, 1 bunch of onions and 1 litre of cooking oil.

OCCASION TWO

BEANS: bucket of tomatoes, 1 bunch of onions and 1 litre of cooking oil.

BEEF: 1 bucket of tomatoes, 3 bunches of onions and 2 litres of cooking oil.

UNIT PRICES

A bucket of tomatoes is Ugx.10,000, a bunch of onions Ugx.5000 and a litre of cooking oil at Ugx.7000.

**Task:**

1. What are the total quantities of each ingredient he will need for beef and beans respectively for both Occasions combined?
2. How much money will he need for both beef and beans respectively for both Occasions combined?
3. (i) If the total amount on the budget for both Occasions is Ugx.400,000, what percentage of that amount will go on ingredients?

(ii) According to the percentage, should he cut the budget for ingredients or not? Justify your answer.

**END**