

NAME:.....STREAM.....

456/1

MATHEMATICS

Paper 1

2 hours



Uganda certificate of Lower secondary education

S.2 MATHEMATICS ASSESSMENT ONE

Paper 1

2 hours

INSTRUCTIONS TO CANDIDATES:

- ✓ *This paper consists of **FOUR (4)** scenario-based items carrying equal scores.*
- ✓ *Answer any **THREE** questions.*
- ✓ *You may lose marks if you do not show **ALL** your working.*
- ✓ *Poor handwriting and untidy work **shall** lead to loss of marks.*
- ✓ *At the end of the examination, fasten all your work securely together.*

Item 1.

A certain member of your family re-wrote each digit of his 4-digit **ATM** card pin from number system ten (base ten) to another number system less than four. He did this in fear of theft. Now he is sick in the hospital, he can neither talk nor write but the money on his account is needed to finance hospital bills. Here is how he wrote the pin: 15 21 12 11. Assuming that you have been able to encrypt the **ATM** pin for the family and funds are available to take care of him. The hospital has a nurse who takes checks on him after every two hours and a medical doctor who checks on him after every four and half hours. Both medical personnel last checked on him together at **9: 00am**. He was treated well and discharged and advised as follows. He was advised to spend three eighths of the day resting, one sixth of the day eating, two thirds of the remainder having a healthy diet and the rest of time of the day visiting the hospital for further checkup.

Tasks:

- (a) (i) Which number system do you think he used to re-write the pin and why? (02 scores)
- (ii) Use the identified number system to help your family members to regenerate the original pin. (06 scores)
- (b) (i) At what time did will both the nurse and medical doctor check on him again at the same time? (06 scores)
- (c) How many hours of the day in a week does he have to spend on visiting the hospital. (06 scores)

Item 2

(i) Yiga was given shs. 80000 as his pocket money at the beginning of the new term. His target is to have a balance of shs.48000 at the end of the term as he plans to buy a radio at shs. 48000. If he spends shs. 4000 per week, determine the maximum number of weeks in the term if he is to achieve his goal. (06 scores)

(ii) Represent the solution set for number of weeks in the term on a number line. (02 scores)

(b) The community veterinary doctor visited a famer in order to vaccinate animals on his farm. The farmer informed the doctor that the farm has not less than 15 cows and not more than 100 animals altogether. However, the farmer was not sure of the actual number of goats on the farm. Afterward, the doctor noticed that he had vaccinated at least 40 goats.

- (i) Write mathematical statements that represent the animals on the farm (04 scores)
- (ii) Use a graph to show the region(s) that represent the number of animals on the farm. (07 scores)

Item 3.

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.

(a) (i) Describe the direction of your home from the party reception.
(10 scores)

(iii) How far is the party reception from your home using the direct route?
(04 scores)

(b) What time would you have to leave home for you to reach the party reception on time, if you used the direct route?
(06 scores)

Item 4.

The caterer of a school located in Kira Municipality is required to buy food stuffs for a school party. The food stuffs to be bought include: 100 kg of rice, 150kg of meat and 200kg of Irish potatoes. The cost is UGX 4000, UGX18, 000, and UGX1500 per kg of rice, meat and Irish potatoes respectively in kyaliwajara market. The same items cost UGX. 2500, UGX. 14,000 and UGX. 1,200 per kg of rice, meat and Irish potatoes respectively, in Gayaza market. To hire a pick-up from Kyaliwajara market to school costs UGX 50,000 while a pick-up hire from Gayaza farmers' market is UGX100, 000.

Using the information provided above, help the caterer decide on where to do the shopping from? Justify your answer.
(20 scores)

END