NAME:_____ SIGNATURE_____

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MATHEMATICS

PAPER 1

$2\frac{1}{4}$ hours

CLEVERLAND HIGH SCHOOL-MAYA
END OF TERM I EXAMS 2025
Senior three
MATHEMATICS
PAPER 1
2 hours and 15 minutes

INSTRUCTIONS TO STUDENTS;

• Attempt two questions in section A and At least 2 questions from section B with at least one question from each part.

SECTION A

Attempt all the questions in this section

Item 1

Mr. Kato's family has siblings, Shamim, Gorret, David, Juma and Esther. There is an interval of 2 years between the ages of children from Esther to Shamim. Shamim is 2 years old.

Mr. Kato and Wasswa have chapatti making chapatti to St. Lawrence schools and St. Joseph of Nazareth respectively to support their families. They take chapattis to those schools at intervals of 30 minutes and 40 minutes respectively. They first took chapattis together at 8:30. However they are uneducated.

Task.

(a) As a mathematician help them to know the time when they will take chapattis to those schools again at the same time.

(b)Using an arrow diagram, explain the information about Mr. Kato's family.

Item 2

You are the CEO of a certain construction company that has been contracted to construct a bridge in a swamp has a scale reading 1:250,000. On this map, the swamp of the area is 7.36cm$_2$.

According to the work plan, you will use either a bulldozer vehicle if the actual area of the swamp is less than 40km$_2$ or an excavator vehicle if the actual area of the swamp is greater than 40km$_2$. If you are to use a bulldozer, 25 operators will be needed each being paid UGX 65,000 per day and if you are to use an excavator, 14 operators will be needed each being paid UGX 125,000 per day. The company has been given fifty million shillings to do the work in only two weeks.

After paying the operator' expenses, the balance are to be used in; 40% as your pay, 18% to go to maintenance and repair of vehicles and remaining amount to the director.

Task.

(a) (i)Calculate the actual area of the swamp in km$_2$.

(ii)Which types of vehicle are you going to use?

(b)How much money will be paid to the operators for the duration you will construct the bridge?

(c) What is the difference between your payment and director's payment?

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SECTION B

PART I

(attempt one question from this part)

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Item 3

Your guardian realizes during holidays that he may find it difficult to pay for sports uniform that costs ugx 38000 at the beginning 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 sales will be to cover the cost of the sports uniform. A cabbage 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 follow.

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, find the average weight of the cabbages.

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

Item 4

James has been sent to a certain region to find out whether it is necessary to set up a new office for processing national identity cards, driving permits and passports if the probability of a person having only one document is less than 50%. James randomly interviewed 75 people in that region. He found that 18 people did not have any of three documents, 30 people had passport. The number of people who had both National Identity card and driving permits only was twice those who had passports and driving permit but not National Identity card 4 people had passports only. 3 people had all the three documents and 12 people had driving permit only.

James had to report about the number of people who have National Identity cards but he has some missing information.

Task.

   a) Help James to find the total number of people with national identity card.
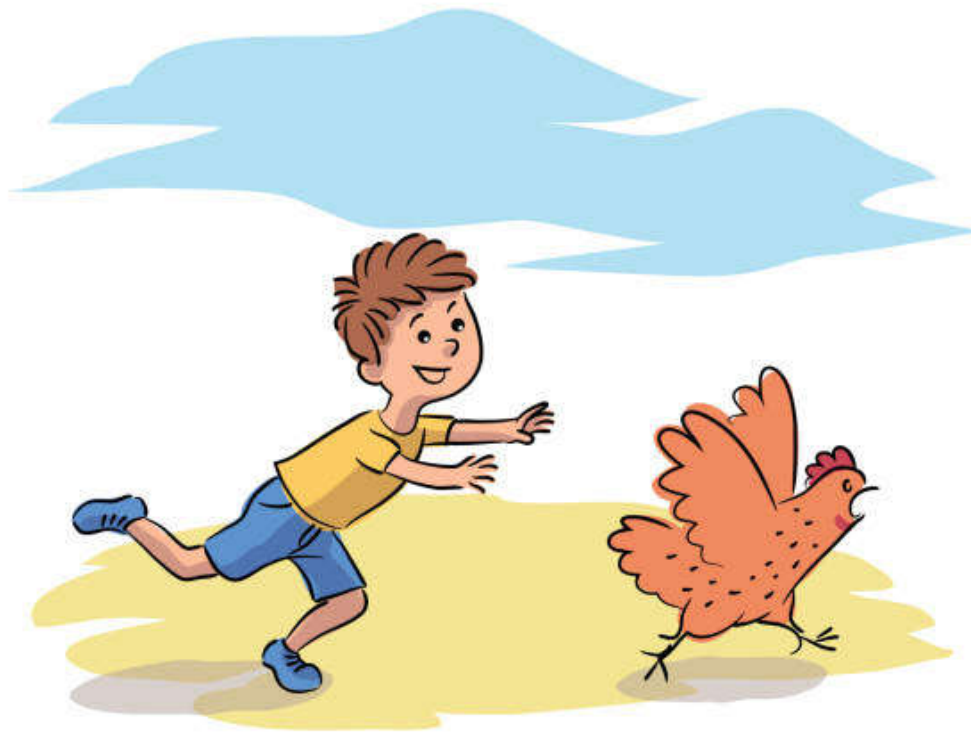   b) Determine if there is need for a new office in the region. Give a reason for your answer. (20 scores)

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PART II

(Attempt one question from this part)

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Item 5

Kaviri a poultry farmer in Kigezi village was running after his cock which escaped from the poultry house. He chased it from point A(2,4) and caught it at point B(6,9) in a straight line.
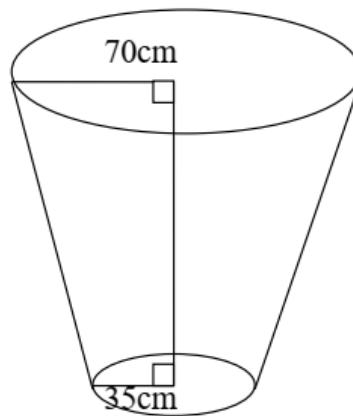
Support material

Task.

   a) Calculate the length of the journey Kaviri ran before he caught the cock.
   b) Find the modulus of the journey Kaviri ran before he caught the cock.
   c) Find the equation of the line of the path taken by the cock. **(20 scores)**

Item 6

Brenda a student at Cleverland High School-Maya uses a bucket for bathing every morning as she is going to school and in the evening after classes and uses this water in the ratio of 2:3 in the morning and evening respectively. The bucket has the top radius of 70cm and bottom radius of 35cm as shown below.

70cm

35cm

Task.

a) Help gift to calculate the amount of water she usually fetches from the borehole.

b) How much water does she use for bathing in the morning. (20 scores)

END