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MATHEMATICS
PAPER 1
July/August 2026
2¼ hours



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** 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

An organization in a particular community owns 4cm^2 of land on a 1:250,000 scale map. They do not know the exact size of the plot of land on ground in km^2 . The organization gave some plots to a certain group in that community.

The group wants to hire two tractors to plough the land; however, it is revealed that tractor A takes 45 minutes to plough an acre of land and tractor B takes 20 minutes to plough an acre of land while they both work at the same speed. The group is challenged on how long it takes to plough 10 acres of land after starting at 7:00 a.m.

The ploughing budget will be supported by clergy, area Members of Parliament (Mps), and group members. The clergy will contribute $\frac{3}{4}$ of the budget, $\frac{1}{8}$ by the Area Mps and half of the remainder by the group members. Each of the 48 members was required to contribute UGX 50,000.

Task;

Help the youth group to determine;

- (a) the actual area of the piece of the land in km^2 .
- (b) The time the tractors shall plough the 10 acres
- (c) Find the total budget for ploughing.

Item 2

Two men at their work place were asked about their children's age during a survey. They could only remember that Peter is the father to John, Mary and Monica. Rashid is the father to Muhamood, Sumini and Bakari. Peter is twice as old as Rashid and the sum of their ages is 90 years. Mary is three times as old as Sumini and the sum of their ages is 30 years.

The termly cost of a child's school requirements is partially constant and partly inversely proportional to the number of children in the household. A family of 10 children needs shs 350,000, whereas a family of 20 requires shs 400,000. Peter has three children and is challenged on how much to spend on requirements for the upcoming school term.

Task :

- a) Help the researcher ,
 - (i) to illustrate the relationship among the men with their children
 - (ii) determine the age of Peter, Rashid, Mary and Sumini
- (b) Help peter to find out how much he is likely to spend on his children's requirements for next school term.

SECTION B

This section has two parts; I and II

Part I

Answer one item from this part

ITEM 3

Company Y produces and sells plastics. To increase their sales, they tried a new method of selling products. This involved hiring sales personals who moved on foot selling products mainly in remote areas.

This method is to be maintained if within the trial period, the average products sold by the hired personals exceeds 45.

The company is to terminate the percentage of personals that sold at most 45 products within the trial period.

Below are the numbers of products sold by different sales personals in the trial month:

55	38	54	58	52	71	40	50	62	23
48	50	42	67	37	51	40	67	65	40
39	59	47	60	26	47	51	46	58	53
45	40	68	69	73	32	46	39	51	59
74	44	51	43	60	48	59	61	36	70

Task

- Summarize the products sold above on a frequency distribution table using a class interval of 10 and starting with the smallest product sold.
- Is the company to maintain the new method of selling products or not? (Justify your answer)
- What percentage of sales personals is to be terminated?

ITEM 4

The class teacher of class X had three students A, B and C that he wanted to select a class monitor from.

He provided the remaining 116 students with papers. They were to tick against whoever they would prefer to be the class monitor.

On collecting and counting the papers, he noticed that 20 had ticked on A and C. 18 had ticked on A and B. 9 had ticked B and C only. Those who ticked on B only were half of those who ticked on A only. 42 had ticked on B. 20 had ticked on C but not the other two. Those who ticked A and C exclusive of B were equal to those who ticked on none of the names.

The teacher needs help to determine the total number of those who ticked on A and C respectively. He is later to compare all the totals of A, B and C to select one who was preferred by the majority to be the class monitor.

It will be easy for the one selected to manage the class well if the percentage of those opposing him is less than 50%

Task

- Help the teacher to determine the total number of those who ticked on A and C respectively and hence help him conclude on who to select as the class monitor.
- Will it be easy for the one selected to manage the class? (Justify your answer)

Turnover

PART II

Answer only one item from this part.

Item 5.

Hassan is a builder who has been contracted by his boss to build a house with a balcony at its top. According to the plan, the boss wants that if he sits at the balcony, he views the top of a hotel building, 21.4 m away at an angle of elevation of 25° . The height of hotel building is 45 m. Hassan wants to know the height from the ground at which he should build the balcony to meet his boss' plan.

Hassan is also going to design the compound of the house with a triangular garden that will be surrounded by circular fence. The garden will have two sides measuring 36 m and 42 m and the angle between these sides will be 60° . Hassan wants to know the perimeter of the fence he will use.

Task:

- (a) Help Hassan to determine the height at which he is to build the balcony.
- (b) Draw an accurate diagram to show how the triangular garden will be like.
- (c) Determine the perimeter of the fence he will use.

Item 6

Phionah has just been employed by an organization that gives a gross monthly income of Shs. 517,000. The organization gives the following non taxable allowances.

Housing – Shs. 70,000, electricity – Shs. 45,000, annual insurance – Shs. 744,000, medical – Shs. 30,000, married person – Shs. 50,000 and unmarried person – Shs. 180,000 per year. The employees' income taxed according to the structure below

Income (Shs.)	Rate (%)
First 100,000	5
Next 100,000	10
Next 120,000	15
Next 180,000	20
Next 250,000	30s

Phionah is not married and she wants a total of Shs. 900,000 that she wants to invest in a business at the end of the month. Her target is to use her net income of the first month to raise part of the money she wants and then, she borrows the balance from her friend. The friend will borrow her the money at a compound interest rate of 8% per annum for 3 years. Phionah wants to know the amount she will borrow and the interest she will return in this period

Task

- (a) Determine Phionah's net income.
- (b) Help Phionah to know how much she will;
 - (i) borrow from the friend.
 - (ii) return as interest in the 3 years.

END