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MATHEMATICS
PAPER 1
July/August 2026
2 $\frac{1}{4}$ 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**. Respond to **one** item from each part.*

*Respond to **four** items in all.*

*Any additional item(s) responded to will **not** be scored.*

*All responses **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.



SECTION A

Respond to all items in this section.

Item 1

Your uncle in Mpigi district would like to set up a farm in your village. However he has no land, but you have identified the land that he can buy. This land you got occupies an area of 8.5 cm^2 on a map of scale 1:1500 but he has told you that if this land is less than 2000 m^2 , he will plant on maize and beans and if it is more than 2000 m^2 , he will plant on coffee and cocoa in the ratio 4:5 and for maize : beans = 3:4

Your uncle has instructed you to withdraw shillings one million six hundred eighty thousand from his bank account using a four digit pin in base three but he saved it as $213_{\text{base-3}}$. $\frac{1}{4}$ of this money will be used on your transport and lunch and 40% of the remainder will be used to buy metallic poles to fence the land.

He expects a total of shillings 2,800,000 from maize and beans, Shs. 3,600,000 from coffee and cocoa.

Task

- Help your uncle to determine which type of crops to plant on the land.
- Determine the actual pin you will use to withdraw the money.
- How much money will be used to buy the metallic poles?
- What is the expected amount from maize?

Item 2

Anisha has organized a family meeting and she expects to have 50 family members attending. She will only start the meeting at 2:00 pm if at least 45 members have arrived. She arrived at the venue at 7:00 am and at 8:00 am one member had arrived. At 9:00 am four members had arrived. At 10:00 am, 9 members had arrived and at 11:00 am, 16 members had arrived. She is wondering if by 2:00 pm the meeting will start if the members keep on arriving the same way.

Matovu deals in mobile phones. He wants to order, for twelve mobile phones but he does not know how much it will cost him. His assistant has informed him that when they ordered for five phones they paid Shs. 618,000 transport inclusive, when they ordered for eight phones, they paid Shs. 978,000 transport inclusive and unit prices being constant.

The supplier charges a constant fee on transport irrespective of the number of phones bought. Matovu wants to know the cost on transport and the total cost of ordering for twelve phones.

National forest Authority has realised that people are increasingly cutting down trees from Mabira forest. The officials studied the rate at which this was happening and recorded it as a function $f(x) = -x^2 + 5x + 6$ where x is the number of days of the week from Monday to Saturday. The officials had to write a report including a graphical representation of the number of trees cut during the above selected days of the week.

Task:

- Determine whether the meeting will start by 2:00 pm
- Help Matovu to determine;
 - the constant transport costs.
 - the amount to be charged for 12 phones.
- Help the officials to;
 - draw the graph showing the number of trees that were cut during the selected number of days.
 - obtain the day(s) on which many trees were cut.

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

Respond to only *one* item from this part.

Item 5

On a farm, a man ties a bull and a cow to two fixed tree stamps opposite each other. The bull is tied to a point A using a rope of length 10 m. The cow is tied to another point B using a rope of length 8 m. Each of these animals grazes in a circular region centred at its tying point. Where $AB = 12$ m. The worker had to collect water from the well to give to the bull. He moved from the bull a distance of 15 m on a bearing of 060° to collect the jerry can and after he moved on a bearing of 150° for 25 m to the well. On coming back, he used a direct route so as to give water to the bull.

Task

- Determine the area of the region common to both grazing animals.
- Find the direct distance the worker will walk from the well to the bull.

Item 6

Bob want to start a business worth Shs. 7,000,000. His friend in USA sent him Us dollars 1,400. He has been informed that current exchange rate is $\$1 = \text{UGX } 3,800$. He wants to borrow the remaining amount from the cheapest of the two banks.

Bank A has accepted, to give him a loan of the remaining amount at a simple interest rate of 20% for a period of twenty four months.

Bank B has accepted to give him a loan of the remaining amount at a compound interest rate of 14% for a period of 24 months. However, he does not know which bank to use.

Alex wanted to buy a car whose market price is Ugx. 32,000,000 on hire purchase since he does not have enough money to pay cash.

He has been given two alternatives;

- Pay 25% of the cash value and monthly instalments of 1,125,000 shillings monthly for 2 years.
- Pay $\frac{1}{8}$ of the cash value and shillings 315,000 weekly for 104 weeks.

He does not know which arrangement to undertake.

Task

- Advice Bob on the cheapest bank to acquire the loan from.
- Help Alex to determine the less costly hire purchase alternative.

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END