MEBU EXAMINATIONS CONSULT

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UCE MATHEMATICS SEMINAR HELD ON 29TH MARCH 2025 AT NTUNGAMO B HIGH SCHOOL ORGANIZED BY MEBU EXAMINATIONS CONSULT

FORMAT OF MATHEMATICS (456/1)

Section A comprises of two compulsory items and Section B comprises of Part I and Part II each having two questions and a learner answers one question from part

COSSTRUCT: Appreciates and uses computational skills, analysis, spatial and logical reasoning in making decisions to solve problems in real-life situations.

Item	Area of construct	Topics covered
you	SECTION A: compulsory	
Iten one	NUMBERS	Number bases
dow		Working with integers
nloa	Learner appreciates and uses	Fractions, percentages and decimals
ā	computational skills to solve problems in	Numerical concepts 1 and 2
ore p	real-life situations.	Ratios and proportions
Iten Two	PATTERNS AND ALGEBRA	Sequences and patterns
aper		Equations of lines and curves
Ś	Learner appreciates and uses analysis to	Algebra 1 and 2
	solve problems in	Mapping and relations
	real-life situations	Inequalities and regions
		Equation of a straight line
		Rectangular Cartesian plane
		Simultaneous equations

		Linear programming							
	SECTION B								
	Γ I (choose one question)								
Items 3 and 4	DATA AND PROBABILITY	Data collection and presentation							
		Graphs							
		Set theory							
D		Data collection and display							
	Learner appreciates and uses logic	cal Matrices							
oade	reasoning to solve problems in real li	fe Probability							
ă fr	situations								
B A	Γ II (choose one question)								
Items 5 and 6	GEOMETRY AND MEASURES	Geometric construction skills							
mut		Bearings							
oon		General and angle properties of							
ine.c		geometric figures							
ÖĦ,		Reflection							
you	Learner appreciates and uses spatial	Business arithmetic							
can	reasoning to solve real-life situations	Time and time tables							
dow		Similarities and enlargement							
nloa		Circles							
Bo		Rotation							
re p		Length and area properties of two-							
astpa		dimensional geometrical figures							
aper		Nets, areas, and volumes of solids							
		Trigonometry 1 and 2							
		Vectors							
		Business mathematics							
		Matrix transformation							
		Circle properties							
		Lines and planes in three dimensions							

ITEM 1 (ST KAGWA HIGH SCHOOL-BUSHENYI)

1. You are the **CEO** of a certain construction company that has been contracted to construct a bridge in a swamp. The map of the area covered by the swamp has a scale reading 1:250,000. On this map, the swamp of the area is7.36cm². According to the work plan, you will use either a bull dozer vehicle if the actual area of the swamp is less than 40km² or an excavator vehicle if the actual area of the swamp is greater than If you are to use a bull dozer, 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 shallings to do the work in only two weeks. After paying the operators' expenses, the balance is togbe used in: 40% as your pay, 18% to go to maintenance and repair of the vehicles and the remaining amount to the director.

Task

can do

(a) (i) Calculate the actual area of the swamp.

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

(by How much money will be paid to the operators for the duration you will construct the bidge?

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

ITEM 2 (RWENTOBO HIGH SCHOOL)

²²Joram is a businessman who deals in purchase and sales of mattresses. He is constructing a ware house where he is to store the mattresses. The floor of the ware house has its width shorter than its length by 20m and the whole floor occupies an area of 800m². According to the plan, the ware house has a ceiling whose height from the floor is a quarter the length of the floor.

Joram is going to use this ware house to store two types of mattresses he is to purchase; type A and type B. He is going to purchase at most 200 mattresses of type A and less than 100matresses of type B. Each mattress of type A occupies a volume of 20m³ and each mattress of type B occupies a volume of 50m³. These mattresses are to occupy the total volume of the ware house.

Task

(a) (i) Help Joram to determine the dimensions of the ware house.

(ii) What will be the volume of the warehouse?

(b)(i) Write down the mathematical relationships representing the number of each type of

mattresses Joram is to purchase.

(ii) Represent the relationships in b(i) above on a rectangular Cartesian plane to show the feasible region

(iii) Help Joram to know the number of mattresses of each type that will be stored so that the ware house can have the highest capacity of the mattresses

ITEM 3 (NTUNGAMO GIRLS HIGH SCHOOL)

3 The school plans to hold a Parents meeting and it expects 1000 parents. It plans to hire tents of capacity 50 seaters, they are to serve soda, a boiled egg and a piece of chicken. A tent is highed at sh. 100,000, a crate of soda has 24 bottles and costs Sh.20,000, a tray of eggs consists of 30 eggs, each tray is at sh. 10,000, a chicken consists of 6 pieces, and each chicken costs Sh 10,000. As a senior four student, using knowledge of number bases, help the school come up with a budget flame work for the event.

ITEM 4 (ST.AUGUSTINE MINOR SEMINARY RWERA)

4 A couple wants to celebrate their anniversary. The wife promises to buy things worth 1.5 million. and the husband promises to buy things that will cost an amount that is two quarters more than that of the wife. One of the older children promises to buy all the drinks on the budget which were 3 crates of soda each containing 24 bottles and 6 cartons of water each containing 6 bottles. To reach the venue, the couple planned to move 20km east from their home and then 30km north. However, the son plans to take the direct route from the parent's home to the venue.

T<mark>Å</mark>SK:

Itoonli

a How much will the husband contribute?

by If the total amount on the budget was two million three hundred forty-six thousand, how much did the son contribute for soda and water?

c) How many guests would you advise the couple to invite and why?

d) What distance will the son travel?

ITEM 5 (PUBLIC TRUST HIGH SCHOOL NYAMUKANA)

5. Three schools from a Gayaza region want to participate in the National Schools Football Sports Gala to be held in Lyantonde district playground. Unfortunately none of the schools has a school bus and they want to hire a bus for the one day for the activity. The bus charges UGX 25,000 per km moved. The three schools through their Sports master agreed to share the cost of the bus equally amongst themselves. On that day, they hired a bus from your school in Gayaza and they set off at 4:30am and increased the speed gradually to 90km/h reaching Mpigi at 655am. From there the bus driver maintained this same speed for hours reaching Masaka. From Masaka then he reduced slowly in speed reaching Lyantonde at 9:30am.

The games started at 10:00am sharp and each team played six games.

School A won 3 games, drew 2 and lost 1 game. School B won 4 games and lost 2 games.

School C won 2 games and drew 4 games. The organizers award three points for a win, one point for a draw and no point for a loss. They declared these schools the first three schools in order of their points they obtained from the games. They were to receive the price money of sixteen millions five hundred thousand shillings.

TASKS:

down

(a) Find how much each school paid for the bus.

(b) Decide the cash prize for each school.

ITEM 6 (KYEMPISI SEC SCH SHEEMA)

6. Sky Electronics Manufacturing Company produces two different products: Smartphones and Tablets. Each product requires a specific number of Labour hours, machine hours, and raw materials to manufacture. The company has the following production requirements per unit of each product:

Smartphone:

- 3 labor hours
- 4 machine hours
- 5 units of raw materials

Tablets:

- 4 labor hours
- 5 machine hours

- 6 units of raw materials

The company has 144 labor hours, 186 machine hours, and 228 units of raw materials available for production this month.

The profit per unit for each product is as follows:

- Smartphone: UGX 114,000

- Tablet: UGX 95,000

On a certain day, a batch of 20 tablets and 30 smartphones were produced by the company and and ong them, there are a few defective tablets and smartphones. The probability of a tablet being defective is 0.2 and for a smartphone being defective is 0.12.

TÅSK

a) if Arrange the production requirements for the products in a rectangular grid of numbers in a way that preserves the data relationships.

ii Represent the available resources in rows and columns in a way that preserves the original information.

ii Carry out an operation on the corresponding elements of the data arrangements involved to determine the number of each product that can be produced using the available resources.

ive Using rectangular array of numbers arranged in rows and columns find the total profit based on the production quantities and the given profit per unit.

- b) If a product is picked at random from the batch, what is likelihood of picking a perfect product from this batch?
 c) ITEM 7 (BRAINSTORM HIGH SCHOOL KAHUNGA)
 76 In Uganda, many are worried about the fire problem in schools which is becoming a

the eatening hazard. Research experts have carried out a survey to investigate the likely cause of the rampant fires in Education institutions. Findings showed that, three categories of stake holders were found to be responsible for the fire outbreaks in Education institutions. 50 respondents said they are learners, 50 respondents said they are parents and 40 respondents said they are school administrators. 10 respondents attributed it to all categories. 15 attributed it to learners and parents, 20 attributed it to parents and school administrators and 15 attributed it to learners and school administrators.

TASK:

a) Help the expert researchers to summarize their report and be able to establish number of respondents who attributed it to;

- i. Learners only
- ii. Parents only

ownload

- iii. School Administrators only
- b) Find the total number of the respondents in the survey.

c) What is the probability that the fire problem in schools is attributed to learners?

ITEM 8 (ST JEROME SEC SCH)

8. **Double M Companies'** limited" is a company that deals in imports of vehicles from three countries Japan, Germany and Italy. The company wants to know the most liked vehicles so that it increases the number of vehicles imported from that country. The company also wants to start importing vehicles from China if the probability of customers who like vehicles from not there of the three countries they import from is greater than 0.35. The company decided to collect data from the customers who came to buy vehicles in a particular week and the following is the data collected. Out of the 58 customers interrogated;7 like vehicles from all the three countries,24 like vehicles from Germany and 5 like vehicles from Italy, Only 13 like vehicles from Japan only,38 customers did not like vehicles from Japan

T<mark>a</mark>sk

(a) Basing on mathematical calculations, help the company to know the country from which it must increase the number of vehicles imported.

(Will the company start importing vehicles from China or not?

(How many customers liked vehicles from each of the countries Japan, Germany and Italy?

(d) What is the probability of selecting a customer who did not like a vehicle from Italy?

ITEM 9 (KASHENYI SEC SCH RUKUNGIRI)

9.In preparation for the sports day, Margie and Jesca went to the market to buy some items. Margie went with Shs. 35,000 while Jesca went with Shs.25,000. Margie bought 2 loaves of bread, 3kg of sugar and 4 pencils. Jesca bought 3 loaves of bread, 4kg of sugar and 2pencils. A loaf of bread, a kg of sugar and a pencil was sold at shs.5500, 3700 and 350 respectively. Margie and Jesca remember that one of them went with less money but they cannot tell who it Page 7 of 27 was since during buying, they combined all the money they had On the sports day, Maria, Tracy and Molly participated in a game where each of them picked 2 identical sweets from a box, one after the other without replacement. The box contained 4 green, 3 red and 6 yellow sweets. Maria picked sweets of the same colour, Tracy picked sweets of different colours and Molly picked the second sweet as red. The prizes were distributed to them according to the probability of picking. First, second and third prize were given out.

Task

led from

(ag Help Margie and Jesca to know who could have gone with less money?

(b) Who of Maria, Tracy and Molly won the first prize?

ITEM 10 (SHEEMA GIRLS HIGH SCHOOL)

16 Odong, a seasoned bus driver at the Kisenyi bus terminal, was hired to transport 377 stadents for a Geography trip from Ntungamo to Kampala. When the Geography teacher inquired about the best route, Odong expertly outlined two alternative routes, ensuring a smooth and informed journey from Ntungamo to Kampala. The shorter route takes 2 hours and 26 minutes to complete, with the driver maintaining an average speed of 54km/h for the first xkiometers and 37.5km/h for the last y kilometers. The longer route, which is 5km longer than the shorter route, takes the driver 2 hours and 12 minutes to complete at an average speed of 60km/h. The driver also charges a fare of Shs.1000 per student per kilometer.

Task

a) Create two mathematical models involving \mathbf{x} and \mathbf{y} which can be used to help in the analysis of the two routes.

b Help Odong by revealing the hidden values of x and y from the equations in (a) above.

c)⁶ Guide the geography teacher on the best route, highlighting the benefits of your proposed option.

ITEM 11 (RWOHO SEC SCH)

11, One time a father decided to take a tour to Kigali (Rwanda), however he got lost for some good years and later the family convened to settle his estate and read his will since they expected him to having died and you were invited. However, a surprise revelation emerged when the youngest child revealed a mysterious envelope left by their father, containing a

secretive message. The envelope contained a piece of paper with the number 31, which needed to be converted to a ternary numeral system (**base three**) to unlock the secret code to gain access to his office strongbox. But, to their dismay, **none** of the family members recalled how to perform the conversion, and they turned to you for assistance in generating the secret code to gain access to his office strongbox.

Upon opening the safe, they discovered a staggering **349 million** shillings and **a will** outlining the distribution of the wealth. The will stipulated that the wife was to receive 40% of the total, the eldest son was to receive one-third of the remaining amount, and the two younger children were to share the balance in a 2:3 ratio according to their birth order. To ensure a fair and impartial distribution, your expertise was sought once again to calculate the exact share for each beneficiary, preventing any potential disputes or biases.

TASK;

n, you

a) Show how you helped your cousins unlock the safe, showing each step clearly

by Show, with step-by-step calculations, how you helped the family allocate the funds among its members, and share your thoughts on the distribution's fairness.

ITEM 12 (ST JOHN BAPTIST RUHOKO)

12. The BRAC foundation Uganda has arranged a group outing for its members, using two vehicles; a bus and a van. With 171 participants having paid the required fees, a total of UGX 400,000 has been allocated for transportation costs. Your sister, who is responsible for managing the transportation, needs your mathematical knowledge to optimize the vehicle hire strategy. She wants to minimize transportation costs while ensuring the van, which is faster and carry 19 people at UGX 50,000 per trip makes more trips than the bus, which can carry 57 people at UGX 80,000 per trip.

TASK;

(a) Express the information as mathematical statements

(b) Help your sister **minimize** transportation expenses by determining the number of trips each vehicle should make, using the mathematical statements in (a) above.

ITEM 13 (PUBLIC TRUST HIGH SCHOOL NYAMUKANA)

13. To address concerns about battery durability, Uganda Batteries Limited (UBL), a trusted manufacturer since 1967, conducted a thorough test on a random sample of 50 batteries. Their experts carefully selected and examined these batteries, yielding the following results (rounded to the nearest minute):

	423	369	387	411	393	394	405	369	372	410
Down	371	377	389	409	392	408	409	396	431	391
Noade	431	401	363	391	405	382	396	381	438	422
id fro	400	381	399	415	428	422	397	399	401	398
E Service Serv	396	372	410	419	386	390	362	373	391	402

The CEO has decided to withdraw batteries with a life equal to or less than the average light span of the tested samples and has directed the experts to manufacture only batteries that achieve at least 99% of the median life of the 50 tested batteries.

T<mark>Å</mark>SK.

a) (i) Organize the data into intervals of 10 using a statistical table and analyze the trends to recommend the most effective battery replacement strategy to the director

(i) Elaborate on the reasoning that led to your conclusion in a) i)

b) (i) Develop a graphical display to illustrate the data, allowing the director and their team to estimate the median, visualize and analyze the information

(i] Identify the target battery lifespan for manufacturing, as recommended by the director.

(i) Analyze the graph and explain the situation, backing your argument with data and logical reasoning.

d) Aid the manager in recognizing the chance of selecting a battery with a lifespan greater than or equal to the median value.

ITEM 14 (KYEMPISI SEC SCH SHEEMA)

14. The recently concluded Uganda Secondary Schools Sports Association (USSSA) tournament in the district championships in the western region was largely dominated by four

schools; this however, prompted head teachers of participating schools to request detailed reports from their games' teachers on transportation and prize monies received during the football competition.

The four schools that dominated include; Fort Porto SS, Ntungamo HS, Nyakasura HS, and Kyogera HS. Due to limited funds, the four schools decided to use two buses; Fort Portal ss and Ntungamo HS used the Marcopolo bus which charges UGX. 24,000 per Km while Kyogera HS and Nyakasura HS used Global coaches that charge UGX.28,000 per Km.On the tomrnament day, Marcopolo Bus embarked on its journey from Mbarara to Kampala at 4:30 a.m., cruising at a steady 80 Km/hr and arriving in Kampala at 9:00 a.m. Simultaneously, Grobal Bus set off from Sanga town, 50 Km from Mbarara, at 4:30 a.m. and traveled at a constant 50 Km/hr. for 3 hours and 30 minutes before pausing for 30 minutes. It then resumed it journey at a steady 67.5 Km/hr until it reached Kampala, with the bus fare being equally distributed among the participating schools that used the bus. Upon arrival in Kampala, the four schools competed in a two-round football tournament.

1 Round

<u>õ</u>	Win	Draw	Loss
Fort Portal	1	3	2
Ntungamo Hs	2	2	2
Nyakasura	3	2	1
K yogera	0	2	4

2nd round

	Win	Draw	Loss
Fort Portal	1	2	3
Ntungamo Hs	2	1	3
Nyakasura	2	3	1
Kyogera	1	4	1

The tournament followed a standard points system: three points for a victory, one point for a diaw, and zero points for a defeat. Additionally, the four teams shared a prize pot of UGX 24,000,000, allocated proportionally to their points tally.

TASK

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a) (i) Assist the games teachers in plotting the buses' routes on a graph, enabling a more height evaluation of their journey.

(ii) Provide the games teachers with the information needed to determine each school's transportation expenditure.

(iii) Ascertain the first bus to arrive in Kampala and the time gap between its arrival and the subsequent bus.

b) Ascertain the winning and last teams and amount given to each team that participated in the tournament.

ITEM 15. (ST.AUGUSTINE MINOR SEMINARY RWERA)

15. A non-governmental organization aims to teach French, German, and English to lower primary school children in its community schools.

The organization intends to offer language instruction in French, German, and English to students in their schools. They plan to offer permanent positions to candidates who can teach all three languages, while those who can teach one or two languages will be hired on a contract basis. To fill these positions, they are soliciting applications from qualified teachers. Out of the applications received, 29 candidates can teach French, with 7 able to teach French only and 22 also to teach French plus one or both of the other languages. 27 candidates can teach German, with 9 able to teach German only and 18 able to teach German plus one or both of the other languages. 30 candidates can teach English, with 11 able to teach English only and 19 able to teach English plus one or both of the other languages. The organization will only consider candidates who are proficient in at least two languages for oral interviews. Your friend has been tasked with identifying the eligible candidate. And needs your assistance in analyzing the data to determine the number of candidates who meet the criteria.

TĂSK

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(a) Apply your mathematical expertise to help your friend know the number of candidates eligible for an oral interview.

(by The organization has a program for teachers who can teach all three languages (French, German, and English). They'll be rotated among schools and paid more. What's the likelihood of a random applicant being in this program?

ITEM 16. (RWENTOBO HIGH SCHOOL)

16. Ngambo, a surveyor, embarks on a journey from Ntungamo to a Kampala construction site to perform crucial soil testing, as the soil's sand content plays a critical role in ensuring foundation stability and preventing potential settlement or foundation failure due to excessive sand. Ngambo's journey begins with a 30 Km stretch on a bearing of 080° to Mbarara, followed by a 330° turn and a 40 Km drive to Masaka. Finally, he heads on a bearing of 30° to reach the construction site in Kampala which is on a bearing of 020° from her starting point in

Ntungamo. Upon arrival, she collects soil samples at various depths and records the sand content percentage in the table below:

Soil depth (x)	35	65	55	25	45	75	20	90	51	60
Percentage of sand	86	70	84	92	79	68	96	58	86	77

Ngambo needs to create an appropriate graph to visualize the relationship between depth and sand content and calculate the total cost of surveying materials; including 50 meters of measuring tape at UGX.10,000, 20 soil sampling bags at UGX. 5,000 each and fuel at UGX. 6,000 per Km that he traveled. He will submit the calculations to apply for funding from her company.

T<mark>Å</mark>SK

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a) Help Ngambo draw a precise diagram illustrating his journey, including bearings and distances.

b) (i) Develop a scatter plot to illustrate the relationship between depth and sand content, aiking Ngambo in his data analysis.

(i] Describe the relationship between soil depth and sand percentage, including any trends or patterns you observe.

 $(i\vec{\beta})$ Plot a line of best fit through the scatter diagram data, and use it to:

- Eredict the sand percentage at a depth of 31 cm

- Estimate the depth at which the sand percentage is 54%.

c) Assist Ngambo in preparing a budget proposal to fund his project activities, including his resurn trip to Ntungamo via the same route.

ITEM 17 (NYAKYERA SECONDARY SCHOOL)

Post bank, a prominent African financial institution, seeks to revamp its logo to align with its values and appeal to a newer, younger demographic generation. The current logo, a triangle with coordinates A (2, 3), B (4, 1), and C (1, 2) on a white rectangular background, is due for a refresh. The bank's graphic designer has suggested the following design modifications to enhance the logo;

Keep the original triangle in place, but turn it 90 degrees counterclockwise around the origin. Then, mirror the resulting triangle across the horizontal axis. Next, scale up the new triangle by a factor of 3 about the center (-5, -2), creating a logo with four triangles. Paint only the enlarged triangle with a red-to-white ratio of 3:5, using red paint that costs UGX 20,000 per square centimeter and white paint that costs UGX 15,000 per square unit. The bank has set a budget limit of UGX 205,000 per logo for painting.

TASK

a) (i) Assist the designer in creating a precise layout of the logo, showcasing the exact placement of the four triangles on the same material.

(i) Specify the exact vertices of the new triangles.

by Using data-driven insights, recommend to the bank owners whether to adjust their allocation for logo painting expenses.

ITEM 18 (NTUNGAMO HIGH SCHOOL)

15 The Uganda mathematical Society is one of the organizers of a marathon. They want to daw the map of the route that the participants will use during the race.

At their chosen starting point they chose to take a road that turned E30^oS and they moved for 5km where they set up point **B** which will be used as a checkpoint, they then turned through 25° moving a distance of 9km to point **C** which will be the finishing point, however on returning to the office they decided that the finishing point should be put at point **A** to cut costs of organizing the two places but they were not sure of the details of that route from **C** to A that had to be included on the map.

They want to hire a vehicle that will be used to film the racers, the vehicle available consumes 2 ditres per km and a litre costs UGX.5500, the owner of the vehicle has asked for UGX.500,000 plus fueling the vehicle for the total distance to be covered but the vehicle owner plans to buy fuel from the fuel station where he is given a discount of 5% for every 100,000 worth of fuel he buys since he is a regular customer.

TASK;

(a) Help your father determine the direction from point C to the new finishing point A that will be shown on the map to be drawn.

(b) (i) You are required to determine the total cost of hiring the vehicle.

(ii) Do you think the vehicle owner will save some money on fuel if so how much?

ITEM 19 (ST JOHN BAPTIST RUHOKO)

19. Tumwijukye and his father have an age difference of 20 years and the product of their ages is 800 years. One day during a mathematics lesson Tumwijukye borrows a calculator from his neighbor and on the screen he finds a number 840 which made him wonder which two numbers he could have entered to get the as a product of the figure. Later on during the festive season Tumwijukye and his elder brother Tumwine were visited by their uncle and were each given shs.42000 and shs.53500 respectively. Tamwijukye used all his money to buy 4 shirts and 3 vests while Tumwine used all his money to buy 5 shirts and 4 vests.

Task

E (a) How old do you think is Tumwijukye and his father?

ې (b) Help Tumwijukye figure out all the possible values that his neighbor could have typed in the in the calculator to get the number on the screen.

Help the Help the two brothers explain to their father how much he would spend if he

ITEM 20 (KASHENYI SEC SCH RUKUNGIRI)

26 Esther, a S.3 student in your school has her father and mother working overseas. Her father visits her after every two terms, while her mother visits her every after four terms. Both parents last visited her in third term of her S.2. This term the school fees was increased to one million figy thousand shillings. Because she is part of the school dance spot team, the school pays sixty percent of the school fees. The rest of the fees are paid by her father and mother in the ratio of 52 respectively. Her father has spared Ugsh. 35000 to cater for her school fees and her pocket meney.

Task:

(a) Help Esther know when she will be visited by both her father and mother.

Assist Esther find how much she will receive from her father as pocket Money. (b)

ITEM 21 (NYAKYERA SECONDARY SCHOOL)

21.The headteacher of Jinja Modern SS is thinking of how he can boost the mathematics department of your school. He can either add another teacher or buy more books or both. He has decided that he will do both if the average performance of this year's performance for the 50 students is lower than that of the previous which was 64. He asked the department to give a test and these were the student's marks.

86	30	26	64	87	47	49	26	43	25
45	38	44	56	59	52	76	27	89	46
90	57	73	48	58	89	51	32	56	88
66	62	52	67	69	68	49	92	66	95
5 <mark>4</mark>	74	32	39	35	36	69	50	71	92

He also visited the library and found out that previous candidates used three books for their reversion; Longhorn, Baroque or Math Clinic. From the Librarian's records it is clear that those who did not use any books failed the subjects greatly. Out of the 50 candidates this year 13 used Longhorn, 20 used Baroque and 17 used Math Clinic. 9 used Longhorn and Math Clinic, 3 used Longhorn and Baroque while 8 used Baroque and Math Clinic only. The records show that 2 used all the three books. He observed that he should replace one book type of the three with Fountain Publisher since no student read it only alone.

Tasks

Downloaded from www.mu

a) (i) Help the headteacher group the marks to make an informed decision on the fate of the department and defend it.

 $\overline{\mathbf{a}}$ (ii) Display the students' marks in groups on a simple statistics diagram.

b) (i) Help the headteacher identify the book he should replace and explain why

(ii) Find the probability that a student selected from the class failed.

ITEM 22 (ST JEROME SEC SCH)

22. Binojo Supplies Limited, A company that supplies food stuffs supplied food items to three schools as follows;

First week;

Ntungamo Girls Ss; 3 bags of posho, 1 bag of rice and 3 bags of cassava

Ntungamo High Sch; 2 bags of posho and 2 bags of rice.

Trust Public Ss; 1 bag of posho, 2 bags of rice and 2 bags of cassava

Second week;

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Ntungamo Girls Ss; 3 bags of posho and 2 bags of cassava

Ntungamo High Sch; 1 bag of posho, 2 bags of rice and 1 bag of cassava

Trust Public Ss; 3 bags of posho and 1 bag of cassava

The price of posho, rice and cassava is Shs.20,000, Shs.30,000 and Shs.10,000 per bag respectively.

After the two weeks, he wanted to improve his mode of supply, that is to say, supplying what is preferred more by the students in the schools. Therefore, he decided to make a random survey anyong a selected number of students from all the three schools. All students sampled liked at least one of the foodstuffs. 47 liked cassava (C), 53 liked posho, 23 liked posho only, 10 liked cassava only and 15 liked all the three food stuffs. Forty-five liked rice and 5 liked only rice.

Tæsk

(a) Arrange the amount of foodstuffs bought for each week and the prices using suitable arrays of rows and columns and use them to determine which school spent most in the first two weeks.

(b) (Arrange the results of a survey using a suitable statistical diagram.

(ii) se it to determine the number of students that prefer at least two food stuffs.

(iii) How many students were randomly picked for this survey?

(iv) What is the chance that a student picked at random prefers rice? What conclusion can he draw from this value as per requirements of his survey?

ITEM 23 (BRAINSTORM HIGH SCHOOL KAHUNGA)

23.A ship leaves Mwanza port and sails on a bearing of 050° heading towards port bell. Two terrorist groups ADF and Al-Shabab sail from port Kisumu to intercept the ship. ADF terrorist group sails such that it covers the shortest distance possible.

Al-Shabab group sails on a bearing of 020° to port bell at a speed of 25km/hr. The bearing of Kisumu port from Mwanza port is 100° and the distance between these two ports is 300km. The UPDF was alerted in time and hid at port bell in a rectangular block building which had Length of 2cm more than the width and with a height of 1 cm more than two times the width and have a volume of 624cm³.

Task

- a) Determine the position of the three ports and hence describe the direction of Kisumu port from port bell.
- b) For how long would the UPDF had to wait and ambush the Al-Shabab group at port bell?
- c) With clear evidence based on mathematical calculation, what do you think was the total **T**arget area of the rectangular block building?

ITEM 24 (SHEEMA GIRLS HIGH SCHOOL)

24. Nor. Bakashaba Edgar is a very rich man in Ntungamo where he has constructed 36 houses. He wants to paint his houses by either Green, White or Black colors. Of these, 10 houses must have to be painted with Green colour and 6 houses must be painted by black colour. The 5 houses must be painted with green and white, 8 white and black and 4 houses must be painted with green and black.

All nouses which are painted white are three more than those which are painted black.

TASK

papers

a) Determine the number of houses that were pointed with all the three different colors.

- b) betermine the number of houses painted with at least one of each of the three colors.
- c) If the house is picked at random, what is the probability that it is a black or white only?

ITEM 25 (NTUNGAMO GIRLS HIGH SCHOOL)

25.Ntungamo High School bought 25 Mathematics textbooks and 35 English books for Ugsh 135,000 from Mbale General Bookshop. From the same bookshop, Mbale S.S bought 21 Mathematics textbooks and 38 English textbooks and spent Ugsh 13,000 less than Ntungamo High School. However, in Soroti cheap bookshop the cost of a Mathematics text book was 5% less and that of an English textbook was 5% more than in Mbale General Bookshop. Soroti S.S

bought the same number of Mathematics textbooks and English textbooks as Ntungamo High School in Soroti cheap bookshop.

TASK

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- a) As a senior four student, help Ntungamo High School and Mbale S.SS to find out the price of each item in Mbale general bookshop.
- b) What is the difference in the amount spent by Soroti S.S and Ntungamo High School?

ITEM 26 (ST KAGWA HIGH SCHOOL-BUSHENYI)

26. Three schools from a Kinyaanya region wanted to participate in the National Schools Football Sports Gala that was to be held in Kitwalo district playground. Unfortunately, none of the schools had a school bus and they wanted to hire a bus for one day of the gala. The bus charged sh. 27,000 per km moved. The three schools through their Sports master agreed to share the cost of the bus equally amongst themselves. On that day, they set off at 4:30 AM and increased the speed gadually to 90 Km/hr reaching Mpangira at 6:45 AM. From there, the bus driver maintained the some speed for $2\frac{1}{4}$ hours reaching Kikwate. From Kikwate, he reduced slowly in speed reaching Kitwalo at 9:30 AM. The games started at 10:00 AM and each team played six games and the results were as follows;

School A won 3 games, drew 2 and lost 1 game,

School B won 4 games and lost 2 games,

School C won 2 games and drew 4 games.

The organizers awarded **three** points for a win, **one** point for a draw and **No** point for a loss. They declared these schools the winner, 1st runner up, and 2nd runner up in the order of the points they obtained from the games and it was to be used as a way of distributing the money to the three schools. The total prize money was sh. 16,500,000.

Task:

(a) Find how much each school paid for the bus.

(b) Help the organizers decide on how to properly distribute the cash prize for each school

ITEM 27 (RWOHO SEC SCH)

27. Mr.Gulu Ronald is thinking of how he can boost the mathematics department of your school. He can either add another teacher or buy more books or both. He has decided that he will do both if the average performance for this year for the 40 students is lower than that of the previous which 47 was. He asked the department to give a test and these were the students' marks.

	50	71	40	48	61	70	30	62
Dowr	44	63	60	51	55	25	32	65
loade	54	45	65	50	45	40	25	45
d fro	48	45	30	38	30	28	24	48
E A A A A A A A A A A A A A A A A A A A	30	48	28	35	50	48	50	60

He also visited the library and found out that the previous candidates used three books for their revision. A, B or C. From the librarian's records, it is clear that all the candidates that did not use any of books failed the subject greatly. Out of the 35 candidates of this year, 13 used A, 20 used B and 17 used C. 9 used A and C, 3 used A and B while 8 used B and C only. The records show that students used all the three books. He observed that he should replace one book type of the three with D since no student read it only alone.

T<mark>P</mark>ASK:

(ag(i) Help Mr.Gulu Ronald group the marks to make an informed decision one the fate of the Edepartment and defend it.

 $\frac{\mathbf{P}}{\mathbf{P}}$ (ii) Display the students' marks in groups on a simple statistics diagram.

 $(\mathbf{b}_{\mathbf{A}}^{\mathbf{B}}(\mathbf{i})$ Help the head teacher identify the book he should replace and explain why?

 $\overline{\mathbf{a}}$ (ii) Find the probability that a student selected randomly from the class failed.

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ITEM 28 (NTUNGAMO HIGH SCHOOL)

28. Kakubi and Kasamba are new employees in a motor company. The company offers each of them a total monthly pay of Shs1.5 million. The monthly total payments for Kakubi include the benefits totaling to shs.300, 000 while that of Kasamba include the benefits like; Housing Shs. 100,000, daily transport shs.4000, break and Lunch shs.120, 000 and family shs.150, 000.At the

end of the month, they received less and different amounts of money in their accounts and they went to the finance office which is always busy. They were given a tax revenue document that they failed to understand and they came to you for help with the document below;

Taxable income (Shs)	Tax levied (%)
First 100,000	10
Next 100,000	15
Next 200,000	22
Next 300,000	28
Remainder of the money	30

Kapamba decided to buy a motorcycle priced Shs.7,000,000 from the same company. The company has two payment options. Cash payments which usually offer a deduction of 5% of the marked price or paying 10% of the price followed by monthly payments of Shs 500,000 each month for 14 months.

TASK:

Downloaded from www.

(a) Basing on the financial document, justify that the two employees received different amounts in their accounts and who received more.

(b) Which mode of purchasing the motorcycle favours Kasamba and why?

ITEM 29.

29²The geography department of Rwoho Secondary School is planning to transport its senior four students for a fieldwork in Kasenyi in Entebbe municipality on Mon 7th April.2025. Each trip of the bus costs shs 40,000 and that of a coaster costs shs 25,000. The bus has a capacity of 42 students and that of a coaster is 14 students. All the 126 registered students contributed a total of shs 200,000 and will go for the tour. The coaster is expected to make more trips than the bus.While in Kasenyi, their geography teacher Mr. Sempa visited the nearby shopping mall which happen to be the largest called Victoria shopping mall. While inside it, he found out that three shirts and two trousers costed shs.105,000. Also two shirts and five trousers costed shs.180,000 . TASK;

a) (i) As a mathematics student, help the geography department to formulate five inequalities from the information given above.

(ii) Determine the number of trips each vehicle should make so as to spend the least amount of money.

b) Find the cost;

- (i) Each shirt and each trouser.
- (ii) Three items of each type at the shopping mall?

ITEM 30

30 The teacher of physical education Mr. Rogers marked three different points during the practical lesson. He named the points OPQ to form a triangular shape. He labelled displacement OP as vector p, and displacement OQ as vector q. He further marked point T on OQ such that 4 OT=OQ and also marked point R on PQ such that the ratio of PR: RQ = 2:5. He stationed point X as the point of intersection such that lines OR and PT meet at X so that PX=n PT and RX= m RO, where m and n are constants. He also organized a raised table in form of a cliff 23m high above the ground and told one of the students Auma who is 1m high to stand on top and observe the movement of the ball that is going to be kicked by Joshua. Joshua kicked the ball and Auma observed it approaching her directly from Joshua. At first the angle of depression is 12 and later 412

Task:

(a) Express the following vectors in terms of p and q

(i) R

(ii)PT

(iii)TR

(b) Express RX in two different ways in terms of p, q, m and n. Hence find the values of m and n (c) How far did the ball advance between the first and second observation?

ITEM 31

31 Sarah and Rakib have been looking for a job to find a way of living in the city. Fortunately they were called to work in one of the factories in Jinja where they agreed to receive a total of USX.306,000 for the work done. Rakib is paid for 14 days while Sarah is paid for 15 days of work. Rakib's pay for 6 days is UGX.6000 more than what Sarah gets for 4 days.From what they always earn, Sarah and Rakib plan to spend some money for consumption in the restaurant to buy tilapia fish. A restaurant offers two kinds of fried tilapia; full and half. It costs UGX.3000 and UGX.5000 to have half and full tilapias ready for consumption, respectively. The quantity of half plus two times that of full tilapias does not exceed 20. At the same time, the quantity of full tilapia does not exceed twice that of half tilapia. The restaurant makes a profit of UGX.1000 and UGX.1,500 on half and full tilapias each, respectively.

Task:

(a) As one of the financial manager at the factory, help Sarah and Rakib to know how much each earns per day?

(b) Find the quantity of each kind of fried tilapia that should be made so as to obtain maximum profits, if the restaurant is ready to invest UGX.60,000.

ITEM 32

32.During a football training, the coach positions three cones at different points to form a triangular portion ABC. The points were marked correctly using coordinates A (1, -3), B(3, -4), and C(1, -5). Due to many players in the team, there is a change in the position of the cones to create space for the second lineup during the training session. The coach makes sure the points undergo a rotational transformation to form the new position A. The coordinates for the new position are (3, 1), (4, 3), and (5, 1) respectively.

Task:

can

(a) As a senior four student, help the coach to locate the original position of the cones and the new position of the cones on the same coordinate axes and find the angle between them. Use a scale of 1 c is to represent 1 unit on both the horizontal and vertical axes.

(b) The cones are further changed from A through a rotation of positive quarter turn about the origin to form new positions A and C for the last players of the team to train. Determine the coordinates of the new position AC and the angle between ABC and A.

(c) The school experiences a problem of scarcity of training materials, and plans to get a loan of UGX. 3,000,000 for buying the training materials. The loan is to be paid back in 3 years. One back offers the loan at a simple interest rate of 10% and the other offers the same loan at a compound interest rate of 5%. The school is finding it hard to decide which bank to get the loan from and why?

ITEM 33

33 In Mitooma District, a father has a rectangular piece of land and decided to give a triangular piece of land ABC with a myule tree planted at each of the corners. AB =80m, BC=100m and angle ABC=60°. He decided to construct a circular wall touching all the three straight edges for his residence and leave the other areas for growing vegetables. The last time he tried to determine this circular boundary; it was not touching one straight edge. This farther Identifies you as a student of mathematics and has given you a plane paper, pencil, ruler and a pair of compasses to kingly help him to; locate the distance of Centre of the circular wall from the trees at A and B respectively. Subsequently, find the size of the area for growing vegetables.

Task: Using a suitable scale, help the family determine the:

(a) Centre of the circular wall.

(b) Radius of the circular wall.

(c) Area for growing vegetables in square meters.

MEBU EXAMINATIONS CONSULT

Kampala-Uganda

"A Quality Assessment Center" Location: Nasser Road, Miracle House.

Office line:0709843314/0779849397/0761762094.

Date: 29th	March,2025
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Gur Ref: 005/MEBU/25

R:

THE HEADTEACHER/DIRECTOR OF STUDIES;

<u>د.</u>.....

Dear Sir/Madam

RE: INVITATION TO PARTICIPATE IN THE MEBU JOINT MOCK ASSESSMENTS FOR SECONDARY SCHOOLS 2025.

Greetings from MEBU Examinations Consults, Kampala-Uganda

We thank you for your continuous support rendered to us by participating in our joint mock examinations, end of cycle assessments and end of term for UCE & UACE. We appreciate the effort of all schools and teachers as well for your continued support to our assessments.

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The MEBU joint mock examinations committee requests all schools intending to participate in the 2025 exercise to provide the following information to the MEBU Executive Board by 11th/July/2025.

- 1. A soft copy of the candidates list(s) of names in alphabetical order with the school center number indicated for essy identification of candidates stray scripts.
- 2. Bank slips for full or part payment of the candidates' registration fee; please note that, full payment of the candidates registration fees should be done by 11th/July/2025.
- 3. A well filled form indicating the total number of candidates and subjects offered.

The **MEBU** joint mock examination are open to all schools national wide, we therefore request you to excourage more schools to join us.

All teachers from participating schools interested in marking should fill the application forms attached and roturn them to the **MEBU** head office or regional offices not later that **21st-july-2025** with all the indicated requirements.

Detailed manual for the conduct of the **MEBU** Joint Mock Examinations will be issued to participating schools 11th/July/2025.

For more information and inquiries, contact.

0709843314/0761762094/0779849397.

Yours faithfully

MEBU EXAMINATIONS CONSULT

MEBU EXAMINATIONS CONSULT KAMPALA-UGANDA

UCE JOINT MOCK EXAMINATIONS ENTRY SUMMARIES 2025

NAME OF SCHOOL:	
UNEB CENTRE NO:	DISTRICT:
TOTAL STUDENTS REGISTERED FOR MOCK	S· DATE·

SUSJECT	NO. OF STUDENTS	STUDENTS PER PAPER								
Mathematics		P1	P2	P3	P4	P4	P5	P6		
Engesh										
Biology										
Phygics			1	20						
Chemistry		/			<u>.</u>					
History & Political Educ.										
Geography										
Enterpreneurship										
Christian Religious Educ.										
Find Art (Art & Design)										
Pringiples & Practices Agriculture										
Luganda										
ICT										
Lugha ya Kiswahili										
Arabic Language										
Islanic Religious Educ.										
Literature		/								
Runyankore-Rukiga										
Lusega										
Lunrasaaba										
Leb		1								
LebeAcholi										
Physical Education										
Ateso										
French										
Performing Art										

The data entry has been compiled filled by:

Name:	Tittle:
Telephone:	Signature:
Email:	Official School Stamp:

MEBU EXAMINATIONS CONSULT KAMPALA-UGANDA

UACE JOINT MOCK EXAMINATIONS ENTRY SUMMARIES 2025

NAME OF SCHOOL:														
UNEB CENTRE NO:DISTRICT:														
TOTAL STUDENTS REGIST	FERED FOR MOCKS:													
			•••••											
SUBJECT	NO.OF STUDENT	'S	S	TUDE	NTS P	PER P	APER							
General Paper			P1	P2	P3	P4	P5	P6						
History														
Economics														
Entepreneurship Educ			/		1									
Islamic Religious Educ			1	1										
Chestian Religious Educ				1										
Georgraphy		7												
Literature In English			/											
Kisavahili														
Luganda														
Lusiga														
Luisasaaba														
Runyankore-Rukiga														
Mathematics	V													
Physics			1											
Agiculture		1		/										
SulaMath			1											
Arabic Language					1									
Fine Art				/	64									
Biogg														
SultICT			1											
Chemistry		1												
Letango		1												
Let ^P Acholi														

The data entry has been compiled filled by:

Name:	Tittle:
Telephone:	Signature:
Email:	Official School Stamp:

MEBU EXAMINATIONS CONSULT

KAMPALA-UGANDA

APPLICATION FORM TO SCORE MEBU MOCK EXAMINATIONS-2025

Names:	Tel:
Sephool:	Qualifications:
Year Qualified: Institutio	ns Qualified From:
Sears Of Teaching Experience:	
Mebu Area Coordinator Contacts:	
Teaching Subjects:	&
Interested level to mark:	
Marking experience years:	
Examining bodies marked for.	
Body	period
ָד ג	To
2g	То
⊐ 3 8	
	То
Gan you afford to stay at the marking center for at	least 10 days? Yes No $()$
Is ertify that the information given above is true	e and accurate.
sign:	Date:
NëB.	

Attach your academic testimonies.

The applicant must be a complement qualified teacher.

Recommendations by a Headteacher.

The above name person is a staff member at my school and is capable doing a commendable work once given a chance. The school will be able to release him/her to **MEBU** examinations consult for the marking process of 2025.

HEADTEACHER

Official School Stamp

•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•