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MATHEMATICS
PAPER 1
February, 2024
2 hours

DEPARTMENTAL ASSESSMENTS TERM ONE-2024

SENIOR FOUR

MATHEMATICS

PAPER ONE

2 HOURS

INSTRUCTIONS TO CANDIDATES:

- Attempt all items in this paper
- All items carry equal marks

ITEM ONE:

Herman and his father Lutaaya have an age difference of 25 years and the product of their ages is 150 years. One day during a mathematics lesson Herman 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 Herman and his elder brother Tom were visited by their uncle and were each given **UGX42,000** and **UGX 53,500** respectively. Herman used all his money to buy 4 shirts and 3 vests while Tom used all his money to buy 5 shirts and 4 vests.

Tasks:

(a) How old do you think is Herman and his father Lutaaya.

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

(c) Help the two brothers explain to their father how much he would spend if he wanted to buy three vests and five shirts for their cousin brother Isaac.

(25 scores)

ITEM TWO:

Lwasa a prominent business man in Kiwenda Town wants to start Hardware in the town that is valued at UGX 12.5 mililions. He has saved 45% of the required amount with his local SACCO and wants to top up the balance. However he has been approached by two money lenders Juma and Saidi who lend there money according to the following conditions.

JUMA	**SAIDI**
He lends at a simple interest rate of **8**% per annum payable in 24 equal monthly installments	He lends at a compound interest rate of **8**% per annum payable in 24 equal monthly installments

Mr Lwasa wants to decide on which of the two money lenders to opt for.

TASKS:

(a) Help Mr lwasa find how much money he intends to borrow.

(b) Which of the two money lenders would you recommend Mr lwasa to opt for.

(c) Having selected for Mr Lwasa the right money lender how much does he pay per installment?

(d) What will be the saving Mr lwasa would make if he had all the money at the start than going for the loan from this money lender. *(25 scores)*

ITEM THREE:

Four members of Gayaza Market order for produce from Namisindwa Village and the items are as given below.

Allan bought one bag of posho, 5 bags of millet, 2 bags of sorghum and 2 bags of rice.

Bella bought 5 bags of posho, 3 bags of millet and 4 bags of rice.

Cate bought 4 bags of posho and 8 bags of rice.

Dorcus bought 3 bags of rice, 4 bags of sorghum, 3 bags of millet and 2 bags of posho.

The cost per bag of the items bought was: Rice at $\mathbf{UGX\ 200,000}$, sorghum at $\mathbf{UGX\ 60,000}$, millet at $\mathbf{UGX\ 75,000}$, posho at $\mathbf{UGX\ 100,000}$.

TASK:

(a) Assist the market members to summarize the above in matrix form for the:

(b) Using your knowledge of matrix multiplication help the members to know how each shall spend on their purchases, and hence find the total cost for all the four venders.

(c) If the sales for the four market Venders was $\mathbf{UGX\ 14.3\ millions}$ and agreed to share the money amongst Allan, Cate, Bella and Dorcus in the ratio the ratio $\mathbf{2:4:6:1}$ respectively. Help the members to determine how each take and represent the information on a pie chart. *(25 scores)*

ITEM FOUR:

In survey to determine the average weight of a new born baby, the medical class of St. Julian collected weights of 40babies from Kabubbu Health Centre(IV). The weights in kg are given in the table below.

2.0	2.1	2.0	2.2	6.4	2.6	3.0	3.5
3.1	3.2	2.3	2.7	2.8	3.4	4.0	3.2
3.7	4.5	5.0	5.4	4.9	6.0	6.4	6.3
5.4	4.7	4.6	4.9	6.2	6.2	6.7	2.5
2.6	2.9	4.4	5.3	3.6	4.8	6.3	5.0

TASKS:

(a) Form frequency distribution table with intervals of **0**. **5kg** starting with the lowest weight of **2kg**.

(b) What is the mean weight?

(c) Help the class obtain the median weight.

(d) Represent the information on a statistical graph to obtain the modal weight.

(25 scores)

END