

RWENZORI REGION SESEMAT
END OF YEAR ASSESSMENT 2024
SUBJECT: MATHEMATICS (456/1)
CLASS: S3
TIME: 2 HOURS 15 MINUTES

Instructions

This paper has **two** sections; **A** and **B**.

It consist of **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** examination items in all

Any additional item(s) answered will not be scored

All answers must be written in the Answer sheet(s) provided

Graph paper is provided

SECTION A

Answer both items in this section

Item 1

Wisdom has four children namely, Beatrice, Bonny , Peter and Martha. He was earning UGX, 1,950,000 and his salary has been increased by 15%. He is to spend all his new salary to pay fees for his four children. Beatrice is to get 20% of the money, Bonny will get half of the remaining. The rest is to be shared equally between Peter and Martha

The father has been invited to attend a workshop and left the money in the Bank. At the time for going back to school he had not yet returned. He directed his wife to get the ATM card from the drawer wrapped in a paper with the secret number 43 in base ten. The actual PIN is to be obtained by converting this number to base three.

Task

Help the family to determine;

- a) How much money each child will get
- b) The actual PIN that the family will use to withdraw the money

Item 2

A carpenter has been contacted to make tables and chairs. At least 10 tables and over 35 chairs are needed. In total less than 50 items are to be made. A chair costs UGX 60,000 and a table costs UGX 180,000 to produce. The contractor has at least UGX 9,000,000 available for the purchases.

Task

- a) Express the conditions given to the carpenter as inequalities and equations
- b) Help the contractor to identify the feasible region with the possible number of chairs and tables on a Cartesian plane.

SECTION B

This section has two parts 1 and II

Part I

Answer one item from this part

Item 3

A researcher has carried out survey in the department of languages at a university. A student of languages has a 65% of getting an international job.

The research found out that 20 students spoke German, 10 spoke French and German, 9 spoke French and Kiswahili, 7 spoke Kiswahili and German only. Two could not speak any of the three languages, 22 could speak at least two of the languages, 11 could either speak German or Kiswahili but not French, 12 could speak only one language. The research report has been given to the Head of languages but he has failed to establish how many students were interviewed

Task

- a) Help the head of languages to determine the number of students who were interviewed by the researcher.
- b) Determine if a student who speaks at least two languages will get an International job. Give a reason for your answer.

Item 4

A teacher has given a test to his class and the scores are shown below

48 44 33 52 54 44
53 59 37 49 37 35
51 38 40 53 35 46
62 48 32 54 54 46
59 45 35 32 48 42

The teacher would like to;

- i) Present the data in a frequency distribution table using class interval of 5
- ii) Determine the score that is half- way the distribution
- iii) Determine the number of students who will pass the test with a score above 49.5

Task

Help the teacher to;

- a) Represent the data in a frequency distribution table
- b) Determine the score that is half –way the distribution
- c) Determine the number of students who passed the test

PART II

Answer one item from this part

Item 5

Rati is a village member who keeps cattle and rears chicken. He lacks feeding troughs for both cattle and chicken. He is planning to make them.

He bought a metallic sheet measuring 4 metres by 2 metres which he intends to use.

A teacher tells Rati that;

- i) The trough for feeding cattle is an open cuboid which is 1.2 metres long, 50 cm wide and 80 cm high.
- ii) The trough for feeding chicken is conical in shape whose base radius is 50 cm and slant height is 80 cm
 Rati is now wondering if the metal sheet he bought will be enough and how much feed can fill each of the two troughs.
 Given that 1 kg of feeds occupies 12000 cm^3

Task

Help Rati to determine

- a) If the sheet is going to be enough for both feeding troughs
- b) The amount of feed that can fill each feeding trough for cattle

Item 6

A compound designer is to beautify a compound with flower gardens. The flower gardens are rectangular in shape.

The design of the first garden is at A(1,1) B (4,1), C(4,2) and D(1,2). The second garden $A^1B^1C^1D^1$ is reflection of garden ABCD in the x-axis. Another garden $A^{11}B^{11}C^{11}D^{11}$ is obtained by transforming ABCD using the matrix $\begin{pmatrix} -2 & 0 \\ 0 & -2 \end{pmatrix}$

The designer wishes to draw the geometrical representation of the gardens before he begins the beautification. The actual dimensions of the first garden are 4 metres long by 3 metres wide.

Task

Help the designer to;

- a) Draw the complete design on a graph
- b) Determine the actual area of the largest garden in square centimetres.

END