

RWENZORI REGION SESEMAT
END OF YEAR ASSESSMENT 2024
SUBJECT: MATHEMATICS
CLASS: S1
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

Shirlif, Christine, Dorcus, Adrine and Evelynne being the youngest are five sisters. Who are employed by a different Organization. They are planning a surprise birthday party for their father. They are working in different places and generate a proposal to contribute as follows:

Shirlif contributes one hundred thirty three thousand two hundred fifty Uganda shillings. Christine contributes $1\frac{1}{2}$ times as much as Shirlif, Dorcus contributes 20% more than Shirlif. Adrine contributes sh 39,975 less than what Shirlif is contributing. Evelynne is to contribute the remaining balance. The amount needed is UGX 800,000.

Task

- a) Determine the amount to be contributed by each sister
- b) How the percentage contributed by Evelyne affected the father.

Item2

Irene has established a new restaurant in town. Its compound has flower garden where flowers are planted in a specific pattern. The flowers are carefully planted on weekly basis. In the first week 2 flowers are planted, the flowers were doubled in the second week. Those planted in the third week were double the number planted in second week and so on. For every flower planted the worker earns UGX 500.

In the restaurant Irene serves dry tea to her customers. Overtime she observed that the time taken to boil the water for preparing tea depends on the number of cups of water. One day she observed that one cup takes 1 minute, two cups took three minutes, three cups took 6 minutes and 4 cups 10 minutes to boil.

Irene has employed two workers, one to plant the flowers and the other to serve in the restaurant. She has tasked the gardener to come up with an expression to enable her know the number of flowers to be planted each week and also tasked the restaurant attendant to know how much time customers will wait before their tea is served. The employees are stuck.

Task

- a) Help the gardener to find the general expression for finding the number of flowers to be planted after n weeks
- b) In which week will the gardener earn UGX 1,600?
- c) Help the restaurant attendant to determine how long it will take to serve tea to 7 customers

SECTION B

This section has two parts I and II

Part I

Attempt **one** item from this part

Item 3

Your school has recently held a PTA annual general meeting. In the meeting it was agreed that the school budget should focus on four areas namely; students' welfare, staff welfare, renovation and academics. The head teacher has presented so many challenges but constrained by the budget. The meeting advised the Headteacher to focus on 4 areas namely; students' welfare, staff welfare, renovation and academics.

The total budget presented was is UGX 400 million and was allocated as follows; students welfare 40%, staff welfare 20%, renovation takes $\frac{1}{20}$ of the total budget and the remaining amount is for academics.

The head master wishes to have this information in form of a chart for better analysis and presentation to staff and his annual operation and management.

Task

Help the headmaster to come up with a suitable chart and give a reason for your answer.

Item 4

The school neighbouring a meteorological station realized that there are no people working in the station for a whole year and the community is facing challenges in planting seasons experiencing low crop yields. The school leaders mobilized to go the weather station and establish what was happening. They found that the last data collected was only for the previous year which is shown below.

Months	J	F	M	A	M	J	J	A	S	O	N	D
Rainfall (mm)	35	31	41	45	51	46	48	50	51	52	53	54

The school leaders are faced with a challenge of analyzing this data so that they can educate the community about the rainfall trends for the whole year in order to plan well for planting crops.

Task

- i) Help the school leaders to come up with a suitable graph showing the monthly rainfall.
- ii) Which months will the school leaders tell the community to plan for their next planting season (give any limitation for your answer).

PART II**Answer one item from this part****Item 5**

Your elder sister has built a new home on a limited space. The only space available can be used to design a triangular compound shape with sides 8m, 6m, and 7m.

Your sister intends to plant grass in the middle in a circular design touching all the sides of the triangular compound. The remaining part of the compound are to be paved.

The pavers are carefully laid such that in the dry season when she is watering the grass using a fixed pump, the water covers only the circular green part.

Your sister has failed to locate the point where she can fix the pump to water only the circular green part.

Task

- a) Help your sister to draw an accurate layout of her compound
- b) What will be the radius of the circular green part
- c) Help your sister to know the size of the compound that will be covered by grass

Item 6

The Uganda peoples' Defense Force (UPDF) is to carry out routine security operation and doesn't know accurate plan to follow. It is planning to use an attack helicopter stationed at Entebbe air port. The pilot is thinking to start flying from Entebe to Kasese, a distance of 380km on a bearing of 294^0 . He then flies from Kasese to Arua covering 560km on a bearing of 317^0 . From Arua he is to continue to Kisoro which is 740km away on a bearing of 203^0 .

After the mission he has to go back to Entebbe using direct route. The helicopter is to fly at a constant speed of 650 km/hr

The pilot needs to have accurate plan of flight.

Task

Help the pilot to

- a) Draw an accurate diagram showing how he will fly
- b) Determine the distance and bearing of Entebbe from Kisoro.

END