

MBARARA REGION SESEMAT 2023

SARB EXAMINATIONS

SENIOR ONE (S.1) MATHEMATICS

TIME: 2 HOURS

INSTRUCTIONS:

- Attempt all the questions in **section A** and choose only **FOUR** from **section B**
- Only non-programmable calculators should be used.
- All working should be done in the answer script.

SECTION A (20 MARKS)

1. A parent in our village had two sick children John and Isaac. The doctor gave them different interval times for their treatment. John takes his treatment after 3hours, while Isaac takes his treatment after 5hours. They all started their treatment at 6.00am. Find the time when John and Isaac would have treatment together.
(04marks)
2. On a map, the distance by road from town A to town B is $1\frac{1}{2}$ km East, from town B to town C is $\frac{3}{4}$ km South and from town C to town D is $2\frac{1}{3}$ km South West. Using an alternative route, the distance from town A directly to town D is $3\frac{1}{4}$ km. Which one is the shortest route from town A to town D. What is the difference in kilometers between the two routes?
(04marks)
3. A parent gave his son Ushs.650,000/= while going back to school. The son used Ushs.13,000/= as transport to school. Of the remainder, he spent 25% on shopping and 60% on school fees. What did he remain with as pocket money after all the expenditure?
(04marks)
4. The games teacher at a certain secondary school collected the data about weights of S.1 students in preparation to order for their sportswear Uniform. The following data was collected from 40 students of S. 1 as shown below;

55	61	56	57	61	60	61	57
55	62	59	58	59	61	62	59
58	61	61	58	58	60	61	55
58	60	58	57	60	56	55	63
60	59	56	58	61	61	59	60

- a) Summarize the data using tally chart
- b) Which size was most frequent?

(04marks)

5. A ship sails 20km from Port A due North to Port B, and then 35km due East from Port B to Port C.

- a) How far is the Ship from port A to Port C?
- b) State the bearing of Port A from Port C.

(04marks)

SECTION B (60 marks)

6. A small scale trader bought 10 heaps of 8 oranges costing UGX2000 per heap. The trader wants to resale the oranges in heaps of three (3) each heap at Ushs.1000. He sells one orange at UGX 400.

- a) By using the Abacus, regroup the oranges into threes.
- b) What is the value of each value on the Abacus?
- c) How many heaps of the threes (3 oranges) are in each place value in (b) above?
- d) How much money will the trader get if he sold all the heaps?
- e) How much money will he get from selling the remaining oranges?
- f) As a senior one student who has studied integers, help the trader to know his/her profit?

(15 marks)

7. The old man in Butaara village has a triangular flower garden with corners PQR. The garden has lengths PQ = 11m, PR = 10m and QR = 9m. Animals from neighborhood always come to destroy his flowers. He is looking for someone to help him construct a circular fence that can protect his flower garden.

- a) Help the old man to find out the length of the circular fence.
- b) Calculate the area that is to be fenced off. (Give your answers to three Significant figures, where applicable, use $\pi = 3.14$).

(15 marks)

8. A piggery farmer required to find out the relationship between age of piglets and their mass in kilograms. The masses (Kgs) of newborn piglets were taken every end of two weeks by the farm manager as shown in the table below;

Age (weeks)	0	2	4	6	8	10
Mass (Kgs)	2	4	6	8	10	12

- a) Using the information from the table, explain to the piggery farmer the relationship between age (weeks) of the piglets and mass(Kgs)
- b) Plot a scatter graph for the above data by putting age (weeks) on the horizontal axis and mass (Kgs) on the vertical axis.
- c) Join the plotted points with a straight line.
- d) From your graph in (c) above determine;
 - i) Mass (Kg) of the piglets at the end of the 5th week
 - ii) Age (weeks) of the piglets weighing 11kg.
- e) Form a linear equation for the line in (c) above.

(15 marks)

9. Mr. Kizito operates a hardware shop in a small trading centre in his village. He discovered that every week, the number of customers increased by 3 from previous weeks. If this trend continues;
- Generate the sequence showing the number of customers in the first eight weeks if in the first week only 4 customers visited his shop.
 - How many customers will visit the shop in the 10th week?
 - Obtain a formula for getting the number of customers for any week and use it to get the number of customers Kizito will have in the 19th week if the trend continues.
- (15 marks)**
10. Mr. Apeku Elias is an agent for three companies of soda: Coca cola, Pepsi and Riham beverages. He earns 10% commission on every carton of soda sold. He sells each carton of Coca cola at UGX 11,000, Pepsi at UGX 11,000 and Riham at UGX 10,000. On a good day, he sells 30 cartons of coca cola, 20 cartons of Pepsi and 10 cartons of Riham.
- Find the commission earned by Apeku on a good day from all the sales.
 - Find the total commission he earns weekly, monthly and annually (assume a month has 4 weeks and all are good days).
- (15 marks)**
11. A professor from United Kingdom is in Hoima, and wants to travel to Kasese. He wishes to travel by a plane from Hoima to Mubende, Mubende to Mbarara and finally Mbarara to Kasese. The plane flies to Mubende which is 500km on a bearing of 050° away from Hoima. It then flies to Mbarara 600km away on a bearing of 140°. From Mbarara, it flies west directly to Kasese which is due south of Hoima.
- Using a scale of 1cm: 100km, draw an accurate diagram showing the relative positions of the four towns.
 - Using the scale diagram, help this tourist to know the;
 - Bearing of Mbarara from Hoima
 - Bearing of Mubende from Kasese
 - Distance between Mbarara and Kasese.
- (15 marks)**

END