

THE MATHEMATICS DEPARTMENT 2022
Uganda Certificate of Lower Secondary Education

S.2 End of Cycle Assessment

Mathematics

Paper 1

2 hours

CANDIDATE NAME: _____

CANDIDATE NUMBER: _____

THIS PAGE IS FOR EXAMINER'S USE ONLY

Do not write in the boxes on this page. The examiner will use them to keep a record of your marks.

Question	1	2	3	4	5	6					Total
Marks scored											

INSTRUCTIONS

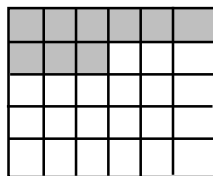
1. Answer all the questions in this paper.
2. Graph paper may be provided.
3. Pay attention to the number of marks available for each question.
4. This paper consists of 80 marks.
5. Show all the working and explanation on the answer sheets provided.

final copy

Turn Over

1. (a). (i) Solve the equation. $a + 7 = 15$ (02 marks)
- (ii). In the equation $5(3x + 8) = 10$, Sasha said that x has a **coefficient** of x is 15. Give reason for Sasha statement and the value of x in the equation. (03 marks)
- (b). A School club is arranging transport for its members. Speedy Coaches charge Ugshs. 2,250,000 plus Ugshs. 54, 000 per member.
- The total cost, in Ugshs, for x members is given by the expression $15x + 2,250,000$.
- (i). Sporty Coaches charge Ugshs. 421,200 plus 68,400 per member. Write an expression for the total cost, in Ugshs, for x members. (02 marks)
- (ii). The total cost is the same for both Speedy Coaches and Sporty Coaches. Write down an equation and solve it to find x . (03 marks)
2. (a). In a Geography lesson, Alex learnt about the following places; Mount Longonot, Mount Elgon, Mount Meru, Mount Kilimanjaro, Mount Rwenzori, Kenya, Tanzania and Uganda.
- (i). Draw an arrow diagram to show the relation amongst the places listed.
- (ii). What is the domain and the range from your relation? (04 marks)
- (b). At the class assembly, Senior 2 learners lined up according to their age from the youngest. the first six learners were {Joan, Michael, Regan, Samantha, Peter, Catherine}. Its found that Samantha is 17 years old, Peter is 2 years young than Samantha but one year older than Regan. Joan is 5 year older than Peter and Catherine is 18 years old.
- (i). Show how these learners were standing on the assembly. (02 marks)
- (ii). Represent the set of these learners on a papygram. (03 marks)
- (c). Given the mapping $x \rightarrow 2x - 4$, for which $x \in \{-3, 0, 2, 4\}$,
- (i). Represent the relation on an arrow diagram. (04 marks)
- (ii). State the type of mapping and whether the mapping is a function. Give reason. (02 marks)

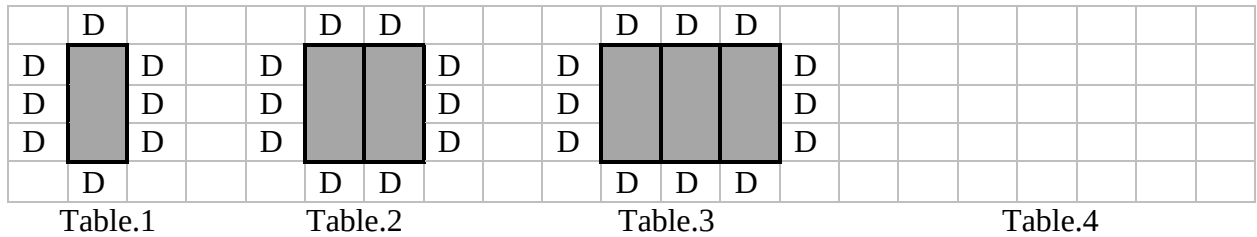
3. (a)



- (i). Write down the fraction of the rectangle that is shaded. Give your answer in its simplest form.
- (ii). Seven s.2 boy were selected from the 12 boys in the class. Write down any two fraction that are equivalent to the fraction of the selected boys in class. (04 marks)
- (b). On the Candidates leaver's party at Allhim S.S with a car parking space of 880, At 09:00am, $\frac{1}{40}$ of the 880 spaces was filled. By 09:30am, no cars left the car park but another

$\frac{1}{5}$ of the 880 spaces was filled. Work out the fraction of the 880 spaces that was empty at 09: 30am. (04 marks)

4. Mrs Mary has a restaurant. In the restaurant each table has 8 chairs. Sometimes she puts tables together. The diagrams show how the tables are put together and the position of each chair (D).



The pattern of tables and chairs forms a sequence.

- (a) Draw the diagram for 4 tables. (02 marks)

- (b) Copy and complete the table

Number of Tables (t)	1	2	3	4	5	6
Number of Chairs (c)	8	10	12			

(03 marks)

- (c) Find a formula for the number of chairs, c , in terms of the number of tables, t . (02 marks)

- (d) 18 tables are put together in this way. Work out the number of chairs needed. (02 marks)

- (e) Work out the number of tables, put together in this way, when 80 chairs are needed.

(02 marks)

5. The scale drawing in figure.3 shows a map of Old taxi Park. There are two straight paths and one circular path.

The scale is 1 cm represents 200 m.

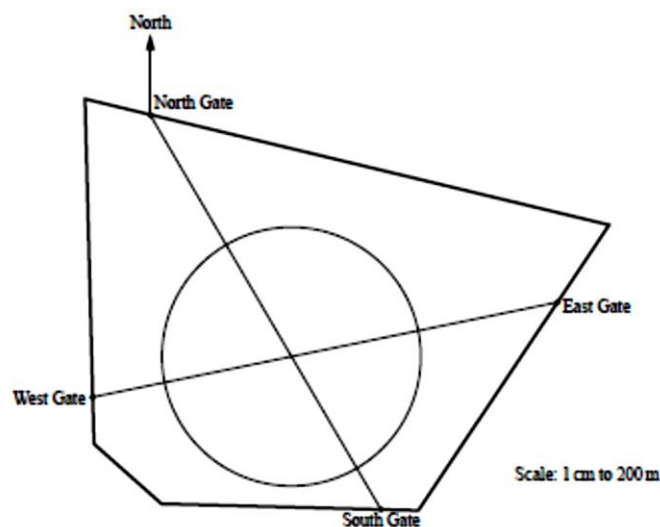
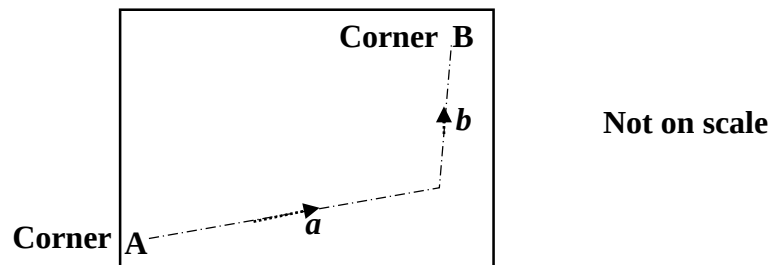


fig.3

- (a) Joshua walks along the straight path from East Gate to West Gate. Work out the distance he walks. Give your answer in kilometres. (02 marks)

- (b) Measure the bearing of South Gate from North Gate. (01 marks)

- (c) The entrance, Q, to a market area is 500 metres from North Gate on a bearing of 195° . Mark the position of Q on the map. (03 marks)
- (d) Ivan runs once around the circular path. Calculate the distance Ivan runs. (04 marks)
- (e) Omal walks straight from the North Gate to South Gate, and then takes a straight path to the West Gate.
- Draw an accurate path walked Omal on a graph paper. (06 marks)
 - Determine the shortest distance from the West Gate to the North Gate. (02 marks)
6. The shape **A** has corners at the points with coordinates (4, 2), (4, -1), (6, -3) and (6, 0).
- Plot the shape on a graph and name the shape. (04 marks)
 - The shape is translated along the vector $\begin{pmatrix} 4 \\ -2 \end{pmatrix}$ to give shape **B**.
 - Draw shape **B** on these plane and state the coordinates of B.
 - Muwomge drew a reflecting on the x – axis, on your graph, show the reflection line and the image of B with the line.
 - From your graph, indicate a congruent point as Q (06 marks)
 - Simeo walked from corner A to corner B of the class taking two directions, **a** then **b** to reach B as shown.



- Simeo said in order to move direction **AB**, he moved direction vector **a + b**. Is Simeo, and Why is he call **a** and **b** a vector. (02 marks)
- If $\mathbf{a} = \begin{pmatrix} 3 \\ -5 \end{pmatrix}$, and $\mathbf{b} = \begin{pmatrix} 0 \\ 4 \end{pmatrix}$, represent **a + b** and **a – b** on same graph paper. (04 marks)
- Determine the length **AB** moved be Simeo. (02 marks)

END