PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

LINDI MUNICIPAL COUNCIL

FORM FOUR UMEKTA EXAMINATION

MOTIZA PEZS FORM FOUR UMEKTA EXAMINATIONS 2023 FORM

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INSTRUCTIONS

- 1. This paper consists of fourteen (14) compulsory questions.
- 2. This paper consists of sections **A** and **B**.
- 3. Mathematical table and non-programmable calculators may be used.
- 4. Cellular phones are not allowed.
- 5. The following constants may be used
 - (a) Radius of the Earth R = 6370 km

(b)
$$\Pi = \frac{22}{7}$$

SECTION A (60 marks)

- 1. (a) Arrange the order of the digits in 289414 to make
 - (i) The largest possible number

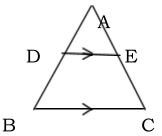
(1.5 marks)

(ii) The smallest possible number

- (1.5 marks)
- (b) Use a number line to get a solution; $(+)^{(+)}7 (+)^{(+)}4$ (3 *marks*)
- 2. (a) Find the value of X; $log_3(x + 16) log_3x = 2$ (3 marks)
 - (b) Find the value of P, If $\left(\frac{1}{64}\right)^{2+p} = 2^6$ (3 marks)
- 3. (a) In a group of 240 tourists, 80 speak English, 120 speak French and 60 speak both English and French. How many speak neither English nor French. (Use Venn Diagram) (2 *marks*)
 - (b) A fair die and coin are tossed; show all possible results in a table and a tree diagram. (4 marks)
- 4. (a) Find the equations of these lines
 - (i) Gradient 4 and y-intercept -2
- (1.5 marks)

(ii) Through (4,7) and (-2,10)

- (1.5 marks)
- (b) Let a = 4i + 2j and b = 6i + 2j. Find |a 2b|
- (3 *marks*)
- 5. (a) Determine the length of one side of regular polygon of interior angle of 144° when inscribed to the circle of a radius of 10cm. (3 *marks*)
 - (b) In a figure below DE// BC



(3 marks)

Given that, AE=4dm, AB= 8dm, DE= 10dm. Find the value of BC.

- 6. (a) How many grams are there in 0.00912 tones (t) (3 marks)
 - (b) Solo, Theresia, Msuku and Mwanaidi can eat 2 bags of rice in 12 days. Each bag weghs 10kg. How many people

can eat 6 bags of the same weight in 18 days. (3 marks)

7. Kichan started business on 1st June 2011 with a capital of 100,000/= and made the following transactions:

June 2: Bought office furniture 40,000/=

7: Bought goods 70,000/=

Sold goods 65,000/= 11:

16: Paid Sundry Expenses 30,000/=

19: Cash sales 80,000/=

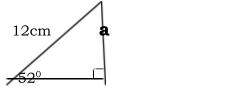
Paid wages 50,000/=

Required: Prepare Cash Account and Purchases Account at the end of the month. (6 marks)

Find the sum of the first 10 terms of the series, 8. (a)

$$-1 + 2 - 4 + \dots$$
 (4 marks)

- If 2, \mathbf{x} , 20 are terms of A.P. Find the value of \mathbf{x} . (b) (2 marks)
- 9. (a) Find the value of a



(2 marks)

- In a triangle LMN, LM=6m,LN=5m and <MLN = 66° . Find (b)
 - (i) the length MN(Use Cosine Rule)
 - (2 marks)(ii) the angle <N(Use Sine Rule) (2 marks)
- (a) Solve the equation $x^2 + 6x + 2 = 0$ by completing the 10. (3 marks)square.
 - (b) Expand and simplify (2x + 5)(2x - 5)(3 marks)

SECTION B: (Marks 40%)

(a) The examination results of Form Three students at Loyola 11. Secondary School are recorded for a group of students:

Marks (%)	30 – 39	40 - 49	50 - 59	60 - 69	70 – 79
Frequency	5	3	20	2	10

Draw a histogram (4 marks) (i)

State the modal class (ii) (1 marks)

Estimate the mode from 2(a) (1 marks)(iii)

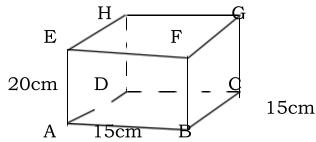
- (b) Find the probability of choosing (i) a face card (1.5 marks)
 - (ii) an ace card (1.5 marks)
- 12. (a) The figure below represents a regular cuboids

ABCDEFGH with AB=15cm, AE=20cm and AD= 15cm. Find the

(i) the length AG

(3 marks)

- (ii) the angle between AG and the plane ABCD(1.5 marks)
- (iii) the volume of the cuboids. (1.5 marks)



- (b) Calculate the distance from Changwe (5°S,39°E) to Mangwe(2°S,39°E) in kilometers. Write the answer correct to one decimal place. (4 marks)
- 13. (a) Find the value of y given that

(2x 5 10 x) is non – singular matrix

(3 marks)

 $(4 \gamma$

(b) Use Crammer's rule to solve for X and Y

$$\{4x + 3y = 6 \dots (i) 2x + 5y = 12 \dots (ii)\}$$
 (c) Find the matrix which rotates by 45° about the origin. (2 marks)

14. A firm makes curtains which are either ordinary or de luxe. Each ordinary curtain takes **3**hours to produce and uses **6**m of material and each de luxe curtain takes **6**hours to produce and uses **7**m of material. The workers of the firm can work for a total of **60** hours and there is **90**m of material available. If the profit on ordinary and de luxe curtains is **4,000**/= TSH and **6,000**/= TSH respectively, find how many of each should be made to maximize profit. (10 marks)