Candidate's Examination Number _____

SMZ

ZANZIBAR EXAMINATIONS COUNCIL

FORM THREE ENTRANCE EXAMINATION

041 MATHEMATICS

TIME: 2:30 HOURS THURSDAY 4TH NOVEMBER, 2021 A.M

INSTRUCTIONS TO CANDIDATES

1. **This paper consists of TWO (2) sections A and B.**
2. **Answer ALL questions in section A and any FOUR (4) questions in section B.**
3. **Write your examination number on each page.**
4. **Write your answers in the spaces provided.**
5. **Use a blue or black pen in writing.**
6. **Cellular phones, calculators and unauthorized materials are not allowed in the examination room.**
7. **Mathematics tables are allowed in the examination room.**

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	**MARKS**	**SIGNATURE**
1.		
2.		
3.		
4.		
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6.		
7.		
8.		
9		
10		
11.		
12.		
13.		
14.		
TOTAL		

This paper consists of 17 printed pages

Candidate's Examination Number _____

SECTION A: (60 Marks)
Answer ALL questions in this section.

For examiners only

1. a) Find the LCM and GCF of the following set of numbers.

$8,\ 16,\ 30$

b) Write the next three (3) numbers in the following sequences.

$20, 21, 23, 26,$ _____, _____, _____,.

2. Evaluate the following

   i) $34564 - 27898$

   ii) 64.23×23

   iii) $(25 \times 8) \div 50 \div 2$

3. a) Convert $\mathbf{0.\dot{3}\dot{6}}$ to exact fraction.

b) A plant of height $80cm$ increase in height by 12% after watering. Calculate its height after watering?

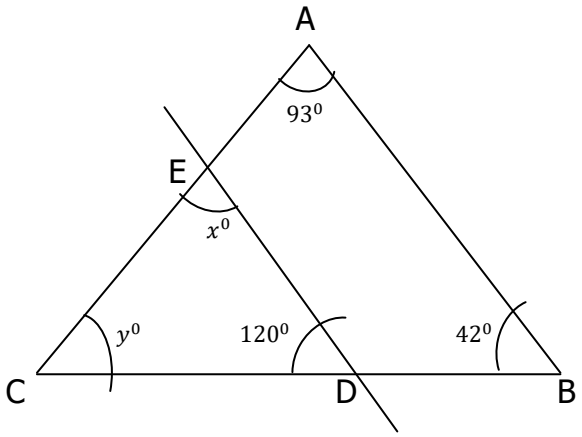
4. a) Juma deposited $\text{sh.}\,3000$ in a bank that paid interest at the rate of 8% per Annum. How much money was in his account at the end of the two years?

b) Convert the following units

i) $0.45\ \text{kilograms}$ into grams.

ii) $0.006\ m^3$ into litres.

5. Find the value of the angles x^0 and y^0 in the diagram below.



6. a) Simplify $\frac{4m^2n^3}{2m^{-3}n^4}$

b) Calculate the value of x in the equation $\frac{x+4}{3} + \frac{2x-1}{2} = \frac{1}{6}$

7. a) Evaluate $\frac{1}{7} \div \left(\frac{3}{7} \div \frac{9}{14}\right)$.

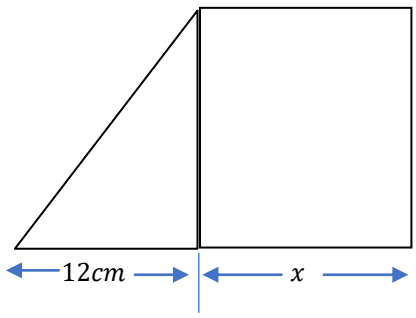
b) Juma is climbing a slope rock face. Every 5 minutes he goes 6 meters forward and slide 2 meters backward. How far does he climb in 30 minutes?

8. a) The area of trapezium is 90cm^2. Its height is 6cm and one of the parallel side is twice the other. Calculate the parallel sides.

b) Rationalize the denominator $\frac{\sqrt{2}+1}{5+\sqrt{6}}$

SECTION B: (40 Marks)
Answer ANY four (4) questions in this section.

9. a) The following figure is a square of side x cm with a triangle at one end. If the total area is 40cm^2, calculate the value of the length x in the figure below.



b) If $\mathrm{L} = 2\pi\mathrm{rh}$, write r as subject of the formula.

10. a) If $x * y$ is given by the formular $3x + y$. Calculate the value of

    i) $3 * 4$

    ii) a , if $2 * a = 12$

    b) Calculate the values of a, b and c such that $2x^2 - 8x + 15 = a(x + b)^2 + c$.

11. a) Asha stands 40m from the base of Michenzani mall building with height of 12m. The distance from her feet to the top of the building is $44m$, if a is the angle of the elevation of the top of the building from her feet.

Calculate i) $\sin a$ ii) $\cos a$ iii) $\tan a$

b) Given that $\log_5 2 = 0.4307$ and $\log_5 3 = 0.6826$. Calculate the value of the $\log_5(8 \div 3)$.

12. a) Let translation T_1 and T_2have points $(4,1)$ and $(3,-4)$ respectively. T_1 take $\mathrm{B}(3,4)$ to B' and T_2 take B' to B''.

i) Calculate the coordinate of B'.

ii) Calculate the coordinate of B''.

b) Find the gradient of line passing through the points $(4\,,6)and\ (6\,,8)$.

13. a) Define the following terms on set theorem.

    i) Union of two sets.

    ii) Intersection of two sets.

b) There are 50 men at a meeting of whom 24 are teachers, 34 are parents, and 16 are both teachers and parents. By using Venn diagrams, find the number of men who are neither teachers nor parents.

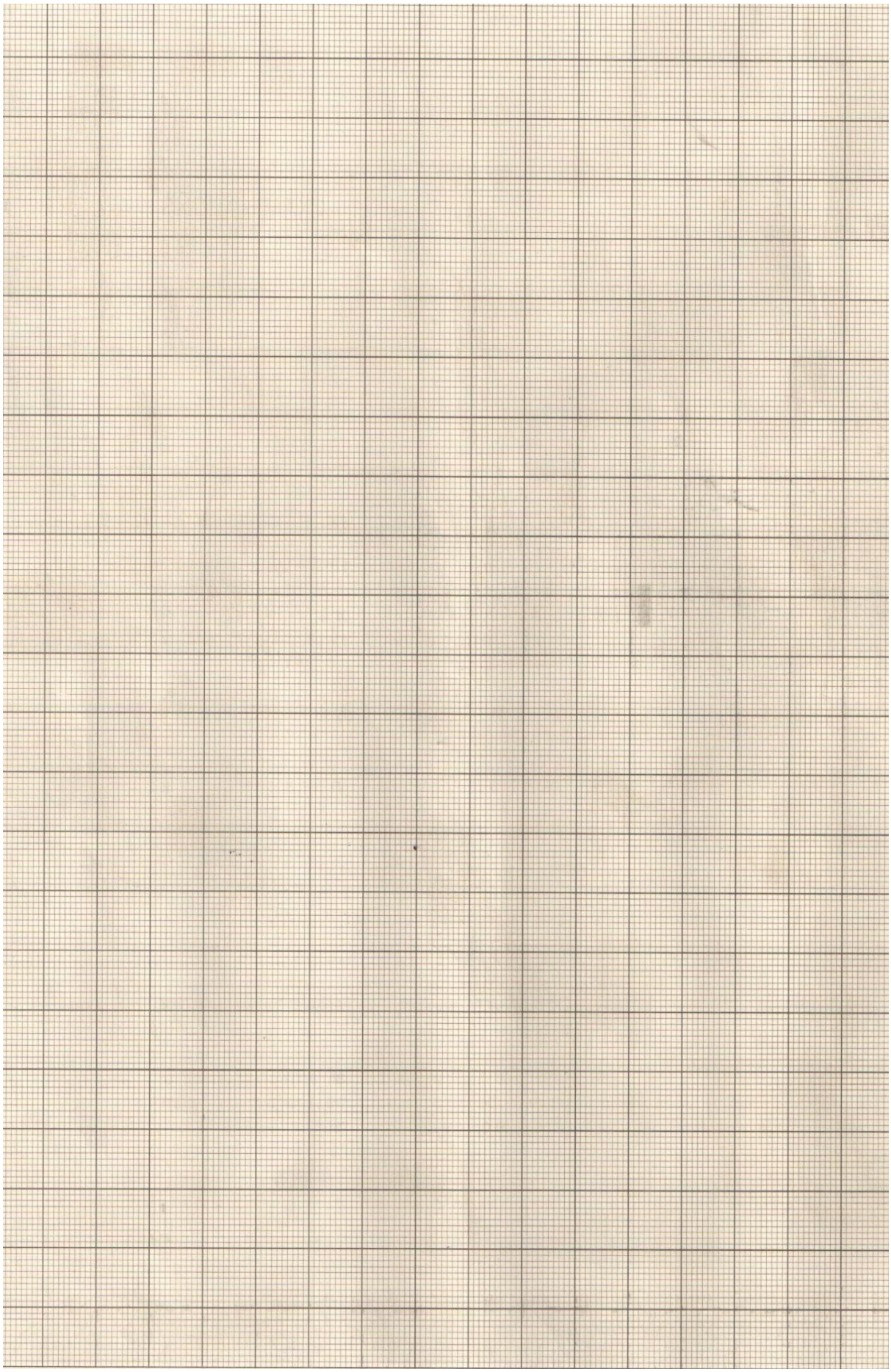
14. a) Define the term Histogram.

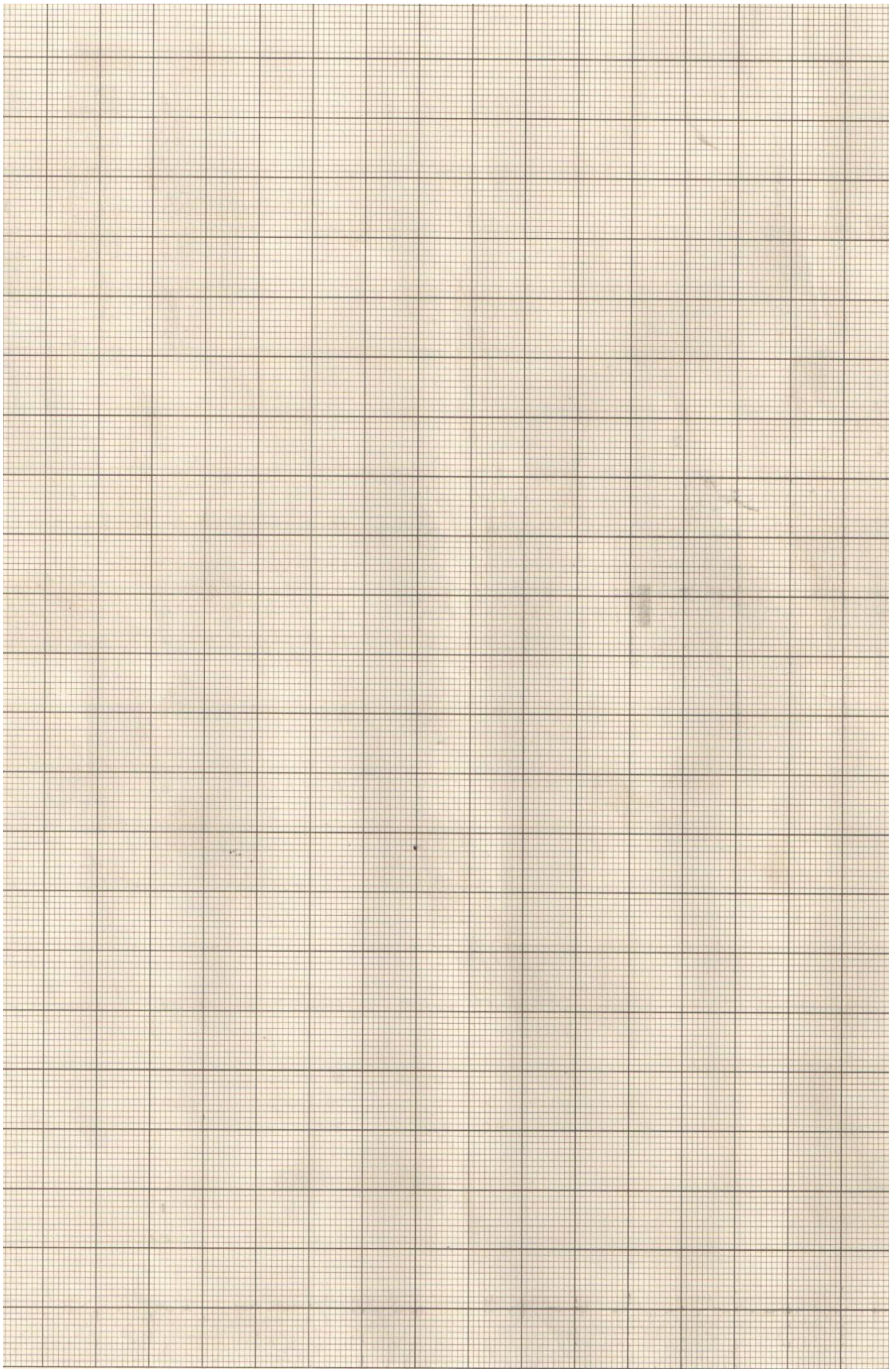
b) The following frequency distribution table shows the marks of 100 students in the end of term mathematic examination.

MARKS (%)	$41 - 50$	$51 - 60$	$61 - 70$	$71 - 80$	$81 - 90$	$91 - 100$
Frequency	11	23	20	17	18	11

i) Write an extra row for the cumulative frequency.

ii) Draw cumulative frequency curve on the graph paper.





ROUGH WORK