Candidate's Examination Number_____

SMZ

ZANZIBAR EXAMINATIONS COUNCIL

FORM THREE ENTRANCE EXAMINATION

041 MATHEMATICS

TIME: 2:30 HOURS TUESDAY 4th DECEMBER, 2018 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 answers in the spaces provided.**
4. **Write your examination number on each page.**
5. **Cellular phones and calculators are not allowed in the examination room.**
6. **Mathematics tables are allowed in the examination room.**

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	**MARKS**	**SIGNATURE**
1.		
2.		
3.		
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14.		
TOTAL		

This paper consists of 19 printed pages

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Section A: (60 Marks)

Answer ALL questions in this section

1. a) Convert $0.\dot{3}\dot{6}$ to a fraction in its simplest form.

b) Without using mathematic table evaluate the value of $\frac{9.5\times8.2}{10.3+9.7}$

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2. a) Evaluate $\sqrt{\frac{35-(-17)}{2}-\frac{15-(-2)\times(-6)}{3}}$

b) Simplify $\left(\sqrt{5}-\sqrt{3}\right)^2$

3. a) Two pair of jeans and three T shirts cost shs 1,750. Five such pairs of jeans and two T shirts cost shs. 3,000. Find the unit price of a pair of jeans and a T shirt.

b) Every morning Ali walks $70\ km$ to and from school. How far does hewalk in $130\ days$?

4. a) Remove brackets and simplify:

$$(2x - y + 4z) - (2x + 5y - 4z)$$

b) Find the value of $\left(\frac{2}{7} + \frac{3}{14}\right) \div \frac{3}{8}$

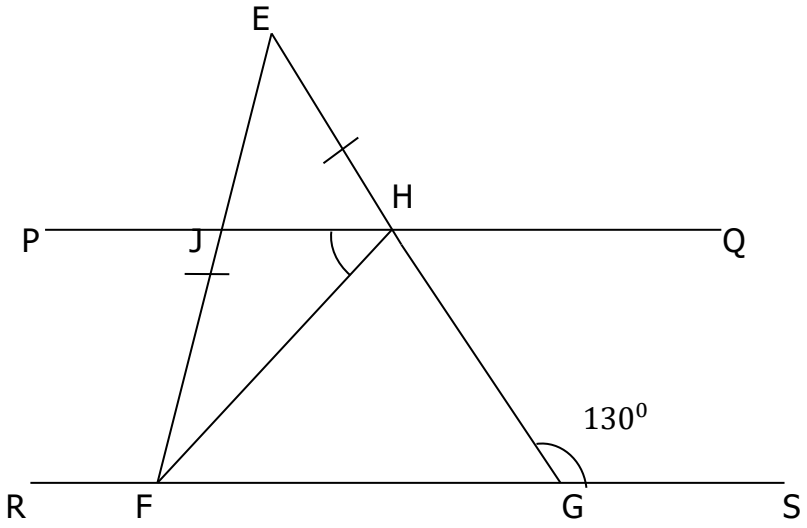
5. a) i) Write all prime numbers between $40\ and\ 50$

ii) Write three factors of 12

iii) Write three multiple of 9

b) A block of copper has a volume of $160\ cm^3$. On heating this amount increase by 6%. What is its volume after heating?

6. a) In the figure below line $PQ\ and\ RS$ are parallel. line $EJF\ and\ EHG$ are straight .lines EF and EH are equal. Angle $F\hat{H}J = 35^0$and angle $H\hat{G}S = 130^0$. Find the size of the angle $E\hat{F}H$.



b) If $x^y = 4$, find the value of $6x^{4y} + 1$

7. a) The equation of the line $y = 4x + m$ passes through the point $(1,2)$ and $(n, 4)$. Find the value of $m\ and\ n$?

b) Juma uses 4 liters of fuel for trip of $80\ km$. What is the amount of fuel can be used in trip of $320\ km$? Give your answer in cm^3.

8. a) Find the of$x$ in $\log(x^2 + 5x + 7) = 0$

b) Make x as the subject of the formula

$$z = \frac{m}{x^2 y}$$

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SECTION B: (40 Marks)

Answer any FOUR (4) questions in this section

9. a) Define the following terms on set theory

i) Set ii) Union of two sets

iii) Intersection of two sets iv) Compliment of a set

b) In certain office, every man owns either a car a lorry or both. 23 own lorries, 14 own cars, and 5 own both lorries and cars. How many men are there in the office?

10. a) Without using mathematical table find the value of

$$\frac{1}{sin^2 45^0} + \frac{2}{cos^2 45^0} + \frac{3}{tan^2 45^0}$$

b) A man on the top of cliff $8\,m$ high observes that the angle of depression of a boats at the sea is 12^0. How far is the boat from the cliff?

11.a) Juma invested a certain amount of money in a business that paid simple interest at the rate of 15% per annum. At the end of nine month he with drew sh $1{,}125$ which was the interestof the money had earned.How much money had he invested?

b) A trader made a profit of 25% after selling a car for $6{,}500{,}000$. Find the buying price.

12. a) Factorize

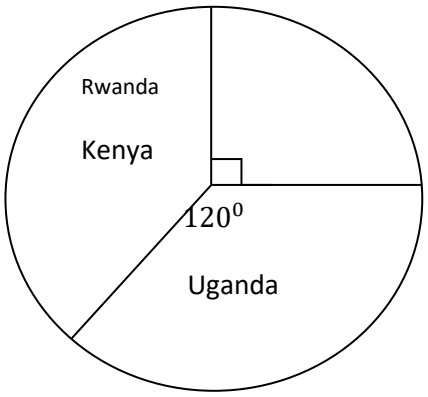
i) $7a + 14 + ax + 2x$

ii) $16x^2 - 4p^2$

b) Solve for x by completing the square.

$x^2 + 3x - 10 = 0$

13. The total of 60 people were surveyed and asked for their favourite holiday destination. The results are shown in the pie chart.



a) How many people went to Rwanda?

b) How many people went to Uganda on holiday?

c) How many more people went to Kenya than Rwanda?

14. a) Define the following terms on statistics

i) Histogram

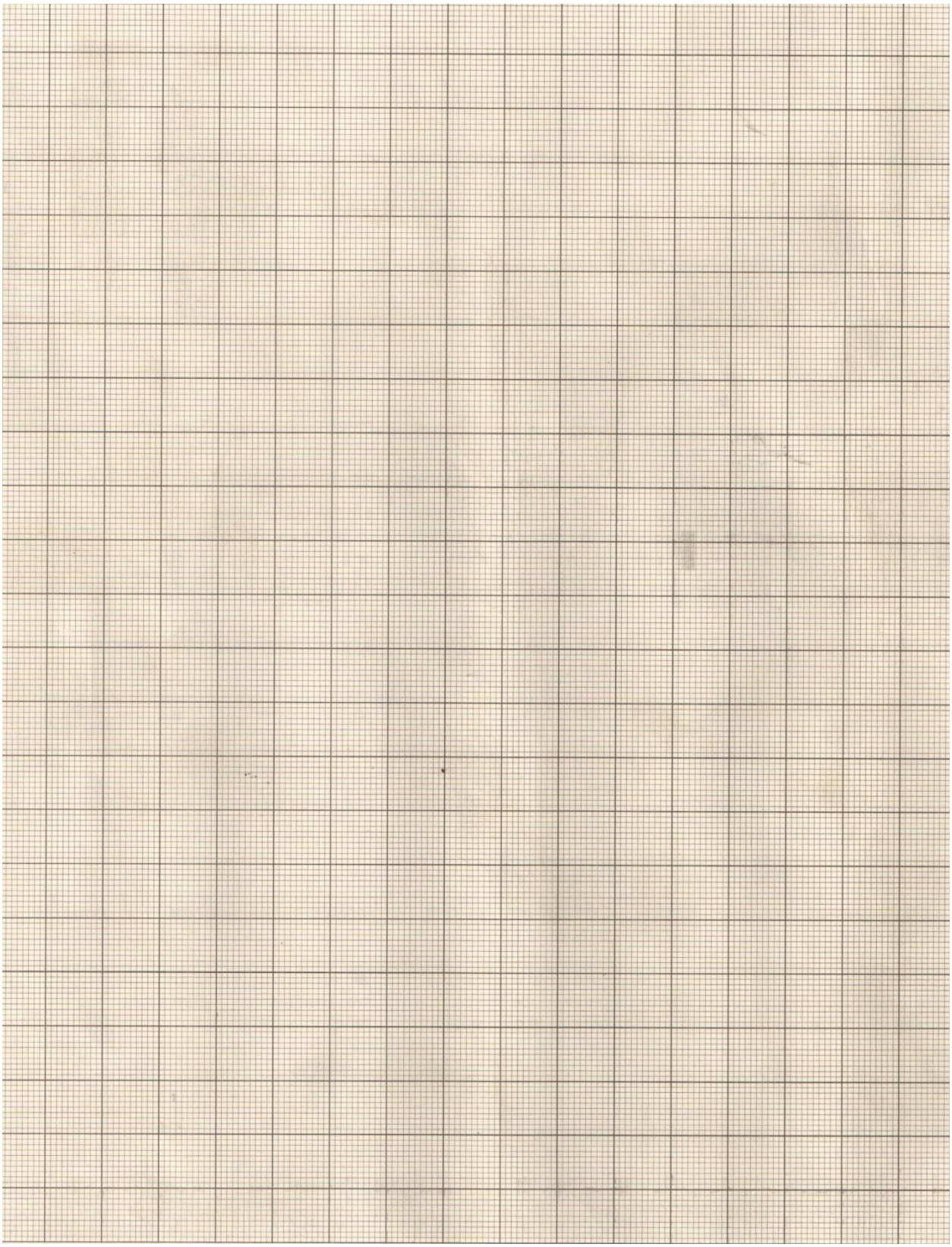
ii) Frequency of polygon

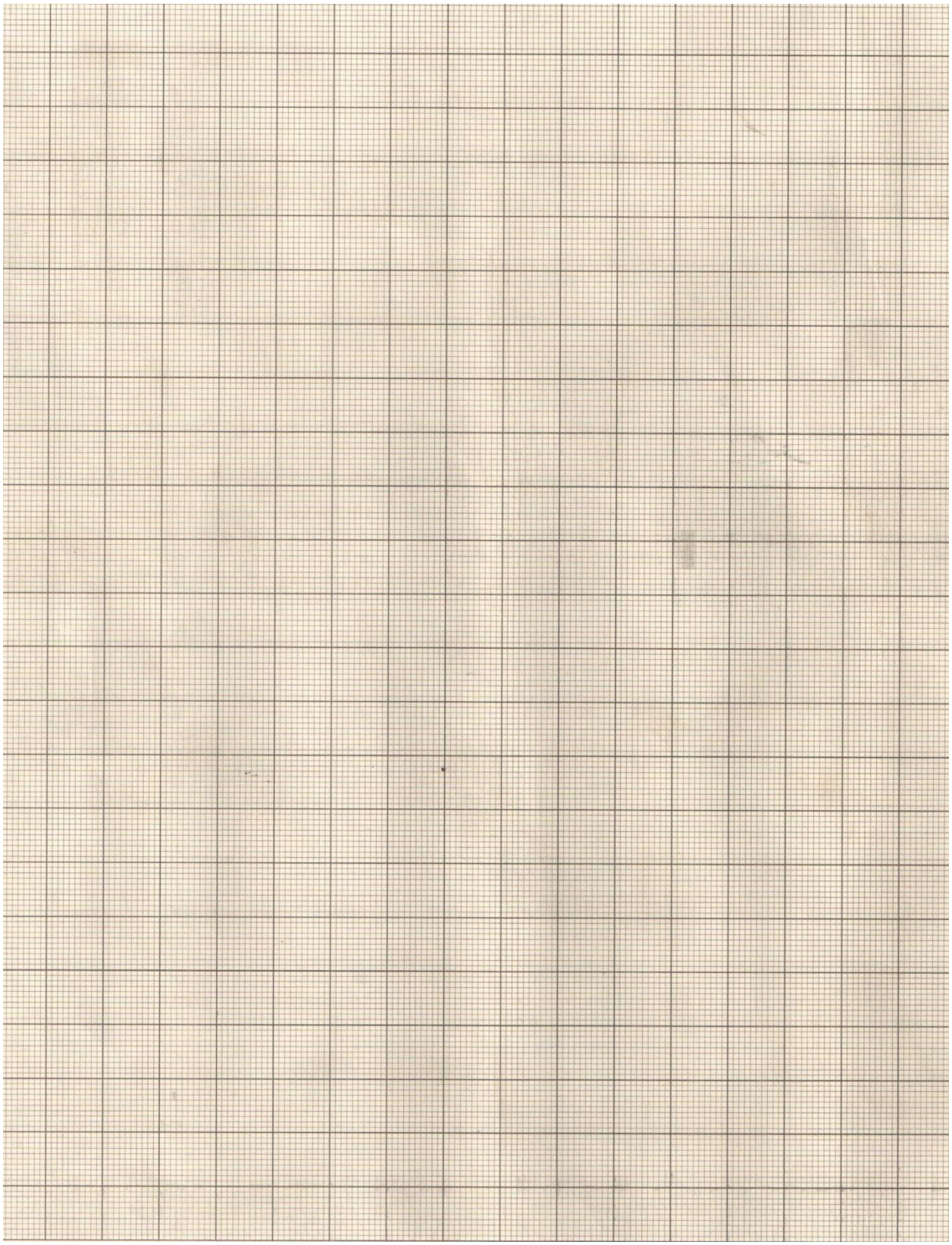
b) The frequency distribution table below shows the marks of 40 students in certain test:

Marks in classinterval	1 - 10	11 - 20	21 -30	31 - 40	41 -50	51 -60
Number of the students	6	10	14	3	4	3

i) Draw the histogram to represent the data

ii) Draw the frequency polygon





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FOR ROUGH WORK