Candidate's Examination Number_____

041

SMZ

ZANZIBAR EXAMINATIONS COUNCIL

FORM THREE ENTRANCE EXAMINATION

MATHEMATICS

TIME: 3.00 HOURS TUESDAY 29TH NOVEMBER 2016 AM.

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.

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	MARKS	SIGNATURE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9		
10		
11.		
12.		
13.		
14.		
TOTAL		

This paper consitsts of 18 printed pages

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SECTION A: (60 Marks)

Answer ALL questions in this section

1. a) Write 624.3278 correct to

   i. Five significant figures

   ii. Three decimal places

   b) Express 1.86 as improper fraction in its simplest form.

2. a) Evaluate without using mathematical table.

$$2log3 + log36 - log\ 9$$

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b) Simplify $\frac{6x^{-4}\times 2x^{3}}{3x^{-3}}$

3 a) Rationalize the denominator.

$$\frac{\sqrt{3}+\sqrt{2}}{\sqrt{5}+\sqrt{2}}$$

b) Solve for x if $\sqrt{3^{x+2}} + 17 = 8$

4. a) Given $a\sqrt{\frac{x^2-n}{m}} = \frac{a^2}{b}$. Make x as the subject of the formula.

b) Given $x = 4.5\times10^{-7}$ *and* $z = 7.2\times10^{5}$. Find y in standard form, if $z = xy$.

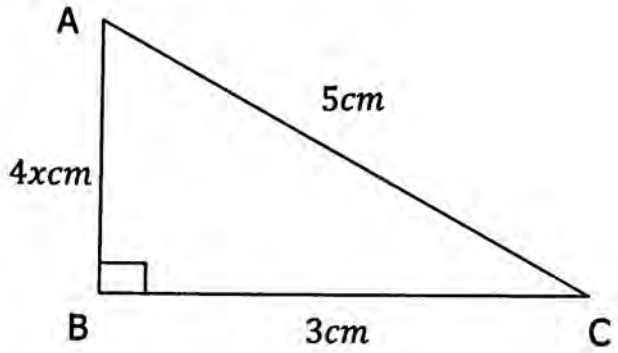
5. a) i. The price of one kilogram of sugar is 1500/=, while the price of one kilogram of beans is 1600/=. A person buy x kg of sugar and y kg of beans. Express this as an algebraic expression.

ii. From the given price above (i), a person buys 3kg of sugar and 2kg of beans. What is the total amount of money should the person pay?

b) i. Simplify $x - (5 - (2x + 6) - 10)$

ii. Solve for x: $16 - 2(2x + 3) = x - 11$

6. i. The right angled triangle ABC in the diagram below has sides of length of $4xcm, 3cm$ *and* $5cm$.



i. Find the value of x.

ii. Calculate the area of the triangle ABC.

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7. a) An observer on the top of a cliff 25 m above the sea level, views a boat on the sea at angle of depression of 75^0. How far is the boat from the foot of the cliff?

b) Without using table simplify

$$\frac{sin30^0 cos30^0}{tan30^0}$$

8. a) Find the distance between a point A (2, 7) and B (5.3)

b) The gradient of line joining (2, 1) and (k, 3) is 4. Find the value of k.

SECTION B: (40 marks)

Answer ANY four (4) questions in this section

9. a) The frequency table below gives the marks obtained in an Examination from 200 candidates.

Mark	0 - 19	20 - 39	40 - 59	60 - 79	80 - 100
Frequency	7	24	83	52	34

i. Write out an extra raw for cumulative frequencies

ii. Draw a cumulative frequency curve.(On the graph paper)

c) The number of goals scored by Mazengo's football team in each match last season are given in the following table.

Goals	0	1	2	3	4	5
Frequency	2	8	12	4	1	1

Draw a bar chart to represent this information. (On the graph paper)

10. a) Define the following terms

i. Intersection of two sets

_____

_____

_____

_____

ii. Union of two sets

_____

_____

_____

b) If $\mu = \{a, b, c, d, e,\}$, $A = \{a, b, c\}$ and $B = \{e, d\}$

Find: i. $A' \cap B'$

_____

_____

_____

_____

ii. $(A \cap B)'$

c) In a class of 42 students, 31 students study History and 26 students study Physics. Using Venn diagram and other wise. Find the number of students who study Physics only.

11. a) If $x^2 + ax + 4 = 0$ is perfect square. Find the value of a.

b) The length of a field is 10m, and its area is 7,200m^2.

What is the width of the field?

12. a) State Pythagoras theorem.

b) A rope of length 18m is tied to the top of a flagpole. The other end of the rope is fixed to a point 13 m from the base of the flagpole.

How high is the flagpole?

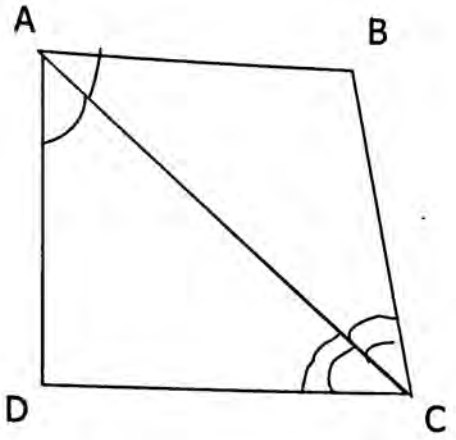
13. a) A car is bought for 4,000,000 /- and sold for 4,500,000/-. Find

i. Profit

ii. Percentage profit

b) A loan was made at the rate of 8% for 6 months. If the interest charged was 40,000/=. Find the amount borrowed.

14. a) In the diagram below AC bisect $\angle DAB$ and $\angle DCB$. Show that $\triangle ADC \equiv \triangle ABC$.



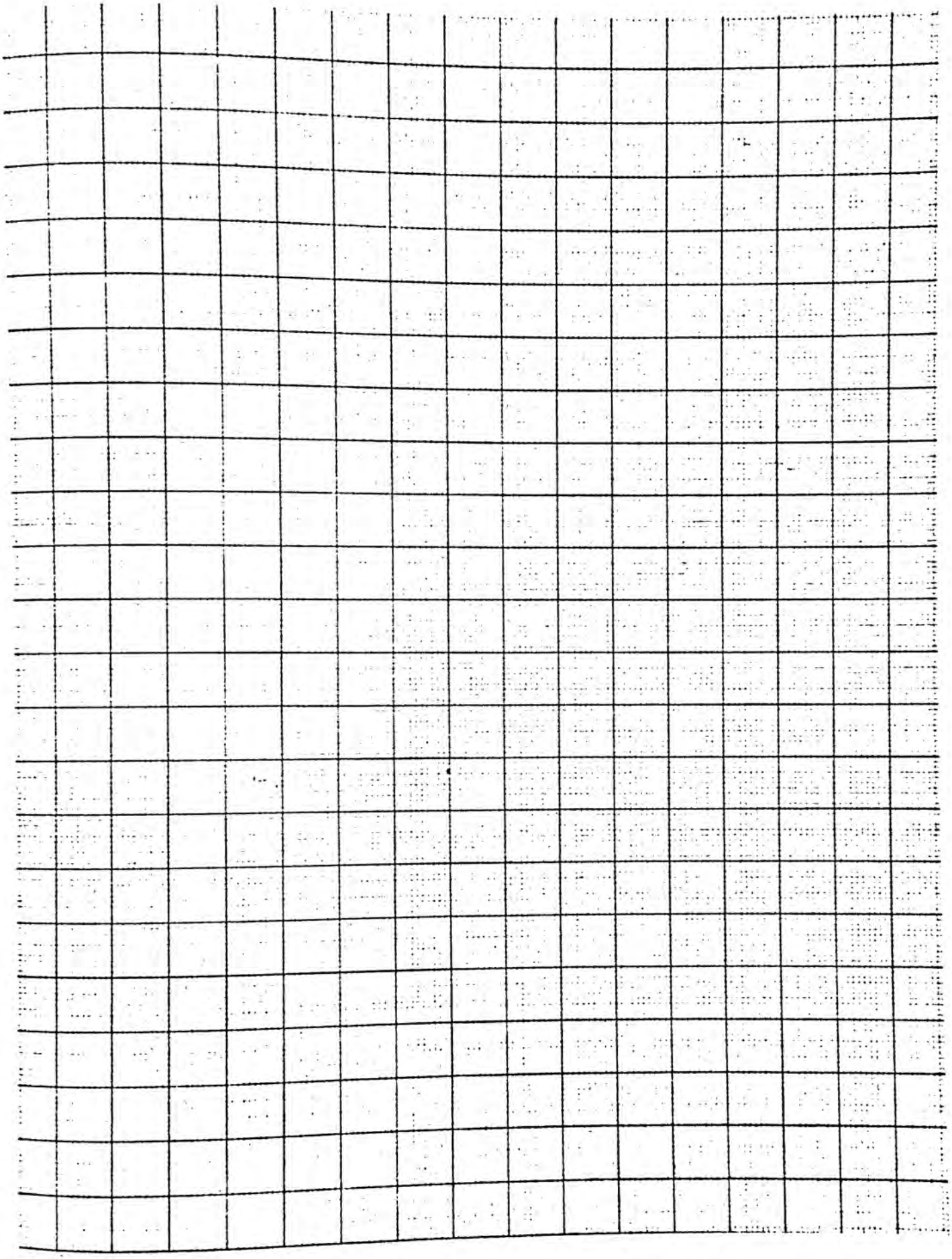
b) Solve the pair of simultaneous equation by elimination method

$5x + 2y = 14$

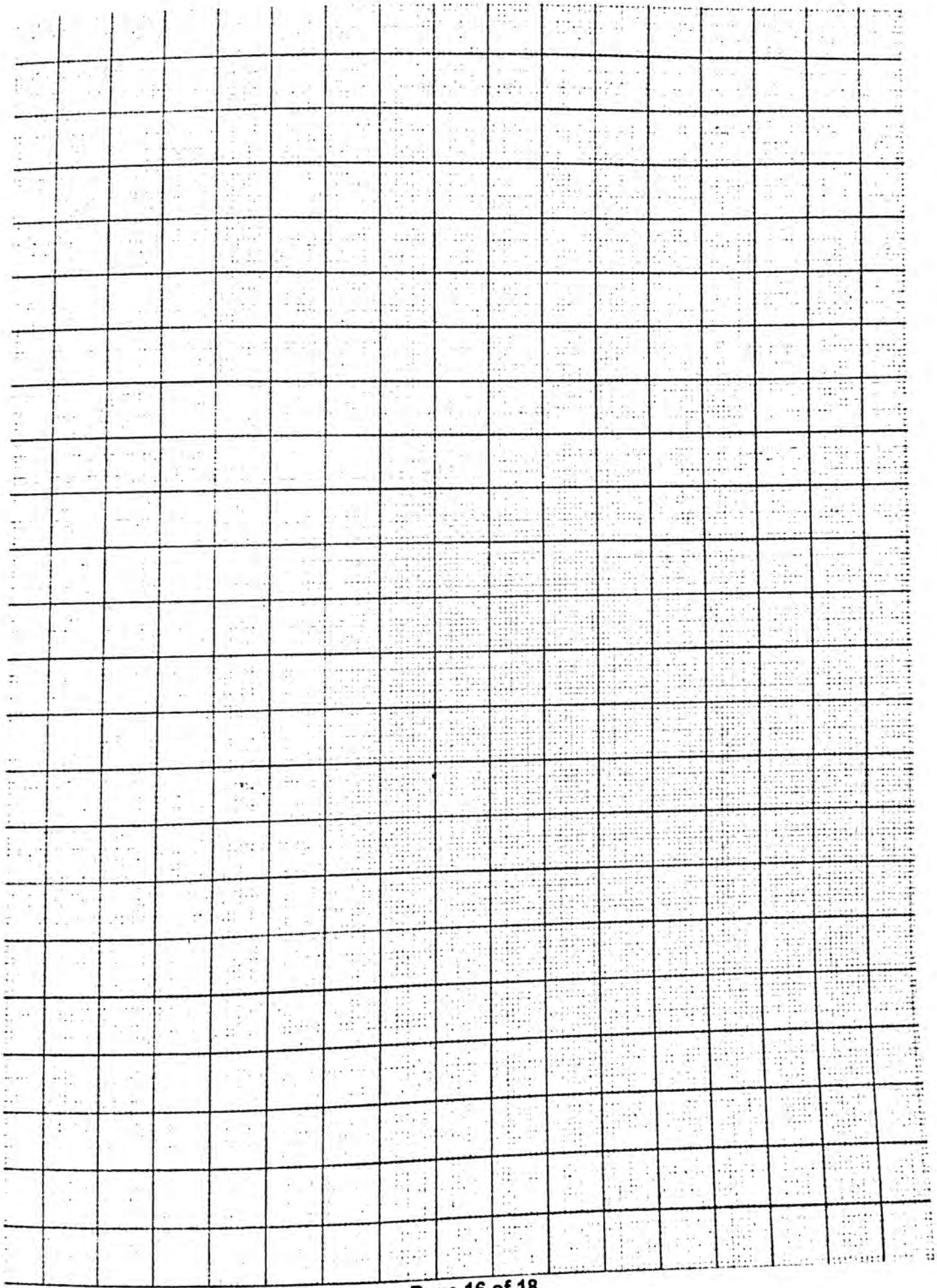
$3x - 4y = 24$

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FOR ROUGH WORK