SMZ

ZANZIBAR EXAMINATIONS COUNCIL

FORM ONE ENTRANCE EXAMINATION

130 **MATHEMATICS**

TIME: 2.00 HOURS **SOLUTIONS** **SUNDAY 20TH NOVEMBER, 2020 A.M**

INSTRUCTIONS TO CANDIDATES

1. **This paper consists of FOUR (4) sections A, B, C and D.**
2. **Answer ALL questions in section A and B. Choose ONE (1) question from section C and ONE (1) question from section D.**
3. **Write your examination number on each page.**
4. **Write all answers in the space provided.**
5. **Use a blue or black pen in writing.**
6. **Cellular phones and unauthorized materials are not allowed in the examination room.**

FOR EXAMINER'S USE ONLY

QUESTION NUMBER	MARKS	SIGNATURE
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
JUMLA		

SECTION A (Answer ALL questions)

1. Subtract sixty seven thousand, four hundred and fifty five from three hundred and sixty seven thousand, two hundred and sixty five.

   367,265
   − 67,455
   = 299,810

2. Express 132 as the product of prime factors.

   132
   = 2 × 66
   = 2 × 2 × 33
   = 2 × 2 × 3 × 11

   = 2^2 × 3 × 11

3. Find the value of
   (2/7 ÷ 1/7) × (1/4 ÷ 3/2) + 5/84 − 15/84

   2/7 ÷ 1/7
   = 2/7 × 7/1
   = 2

   1/4 ÷ 3/2
   = 1/4 × 2/3
   = 1/6

   (2 × 1/6) = 1/3

   5/84 − 15/84
   = −10/84
   = −5/42

   1/3 = 14/42

   14/42 − 5/42
   = 9/42
   = 3/14

4. Convert 28110 to base 4.

   281 ÷ 4 = 70 r 1
   70 ÷ 4 = 17 r 2
   17 ÷ 4 = 4 r 1
   4 ÷ 4 = 1 r 0
   1 ÷ 4 = 0 r 1

   $281_{10} = 10121_4$

5. A man from Zanzibar has 3000 US dollar and intended to convert them into Tanzania shillings. If 1 US dollar is equal to sh. 2150 TZS. How much does he get in Tanzania shillings?

   3000 × 2150
   = 6,450,000

6. The volume of the cube is 216 cm³. Find the area of its base.

   Volume = a^3

   $a^3 = 216$
   $a = 6$ cm

   Area of base
   = a × a
   = 6 × 6
   = 36 cm²

7. Simplify
   $(x + 2)/6 + (2x - 3)/4$

   KPK ya 6 na 4 = 12

   $= 2(x + 2)/12 + 3(2x - 3)/12$
   $= (2x + 4 + 6x - 9)/12$
   $= (8x - 5)/12$

8. Find the value of (+10) × (−12) + (+7) × (+4).

   10 × (−12) = −120
   7 × 4 = 28

   −120 + 28
   = −92

9. Convert 19.75% into fraction.

   19.75%
   = 19.75/100
   = 1975/10000

   ÷25

   = 79/400

10. Find the value of angles a and b in the figure below.

    a + 130° + b = 360°

    a + b = 230°

    Straight line:
    b + 130° = 180°

b = 50°

a = 180° −130°
= 50°

SECTION B (Answer ANY FOUR)

11.(a) Was 2014 an ordinary year or a leap year? Why?

2014 ÷ 4 ≠ integer
= Ordinary year

(b) How many months have 30 days? List them.

April, June, September, November
= 4 months

(c) From 14 October to 8 December 2014.

October: 31 − 14 = 17
November: 30
December: 8

Total
= 17 + 30 + 8
= 55 days

(d) Which month has least number of days?

February

12.(a) Ali deposited shs. 300,000 at 7½% p.a. After how many years will interest be shs. 45,000?

I = PRT

45,000 = 300,000 × 7.5/100 × t

45,000 = 22,500t

t = 2 years

(b) A car was bought at sh. 4,000,000 and got a loss of sh. 3,000,000. Find the percentage loss.

Loss %
= 3,000,000 / 4,000,000 × 100
= 75%

13. Table of patients

160 + 20 + 180 + m = 400

m = 40

Angle for others
= 40/400 × 360
= 36°

14. Given numbers: 39, 24, 13, 15, 81, 28, 40, 11, 5

(a) Two numbers that add to give 64
24 + 40 = 64

(b) Two numbers that differ by 15

39 − 24 = 15

(c) Perfect square
81

(d) Prime numbers
13, 11, 5

(e) Even numbers
24, 28, 40

15. Find the area of the shaded portion.

Shaded area = (area of outer L-shape) − (area of inner rectangle)

Break the outer shape into two rectangles.

Rectangle A (left vertical):

width = 8 cm

height = 13 cm

Area A = 8 × 13 = 104 cm²

Rectangle B (bottom horizontal):

length = 16 cm

height = 5 cm

Area B = 16 × 5 = 80 cm²

Overlap counted twice (bottom-left block):

width = 8 cm

height = 5 cm

Overlap area = 8 × 5 = 40 cm²

Outer L-shape area:

= Area A + Area B − Overlap

= 104 + 80 − 40

= 144 cm²

Inner rectangle:

width = 4 cm

height = 9 cm

Inner area = 4 × 9 = 36 cm²

Shaded area:

= 144 − 36

= 108 cm²

16. The following table shows the masses in kilogram of packets of beans sold by Juma.

Mass of beans in (kg): 20, 25, 30, 35, 40, 45

Number of packets of beans: 3, 8, 14, 8, 4, 2

Draw the histogram on the graph paper to display the data.

Class width = 5 kg

Form the class intervals using the given masses:

20–25 : 3

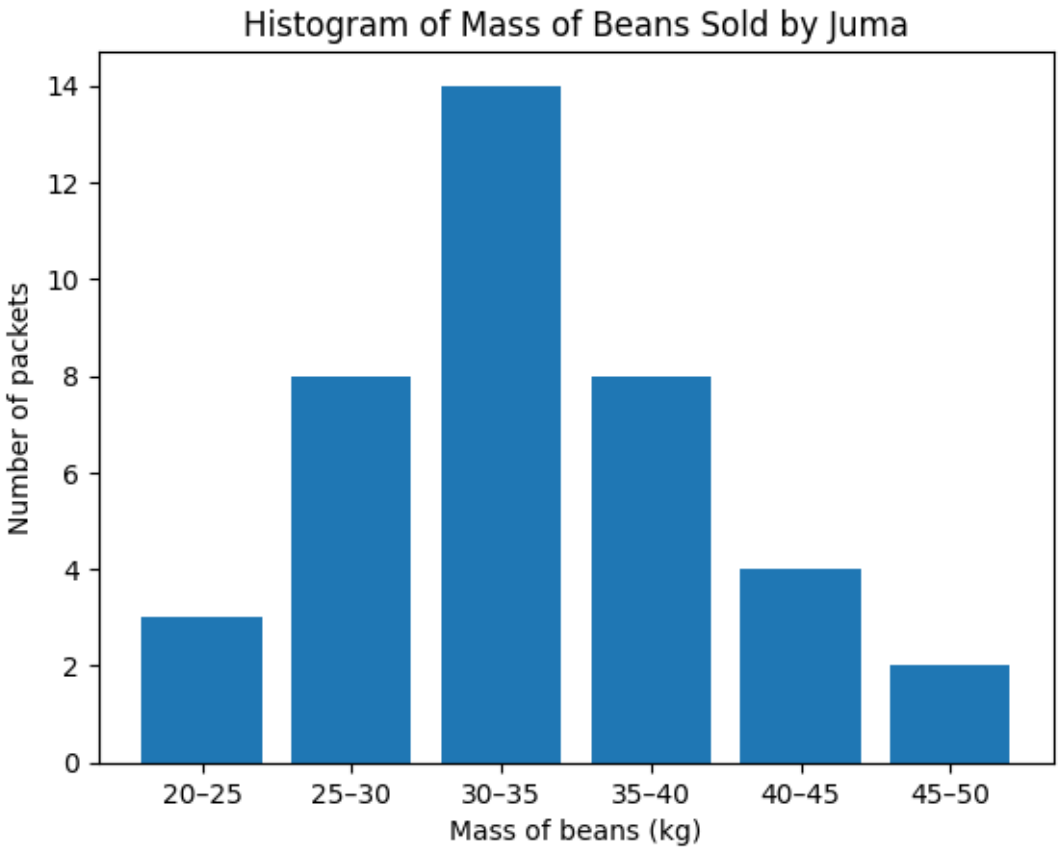
25–30 : 8

30–35 : 14

35–40 : 8

40–45 : 4

45–50 : 2


Histogram of Mass of Beans Sold by Juma
Number of packets
0
2
4
6
8
10
12
14
20–25
25–30
30–35
35–40
40–45
45–50
Mass of beans (kg)