THE KENYA NATIONAL EXAMINATIONS COUNCIL

PRIMARY TEACHER EDUCATION

MATHEMATICS

Paper 1

$2\frac{1}{4}$ hours

INSTRUCTIONS TO CANDIDATES

Write your name and index number in the spaces provided at the top of this page.
Sign and write the date of the examination in the spaces provided above.
This question paper consists of TWO sections; A and B.
Answer ALL the questions in section A.
Answer any FIVE questions from section B.
ALL working and answers MUST be written in the spaces provided below each question in the question paper.
Do NOT remove any pages from this booklet.
Candidates should answer the questions in English.

For Examiner's Use Only

Section	Question	Maximum Score	Candidate's Score
A	1 - 20	60	
B	21	8	
	22	8	
	23	8	
	24	8	
	25	8	
	26	8	
	TOTAL SCORE		

This paper consists of 15 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

Turn over

SECTION A (60 marks)

*Answer **ALL** the questions in this section in the spaces provided.*

1. The prime numbers between 1 and 10 form the digits of a number.

    (a) Write the number formed when the digits are written in descending order. (1 mark)

    (b) Express the number as a product of prime factors. (2 marks)

2. Construct a rhombus of side 4 cm and 45° being the smaller angle, using a pair of compasses and a ruler only. What is the length of the longer diagonal? (4 marks)

3. A cylindrical tank has a diameter of 112 cm and a height of 95 cm. Find the capacity of the tank in litres. $\left(\text{Take } \pi = \frac{22}{7} \right)$ (3 marks)

4. The table below shows the scores obtained by 30 pupils in a mathematics quiz.

Score (x)	Frequency (f)
1	2
2	3
3	7
4	3
5	4
6	4
7	4
8	2
9	1

Determine the mean score. (3 marks)

5. The length of a rectangle is 4 cm greater than the width and its area is 165 cm². Taking x to represent the length of the rectangle, write a quadratic equation to represent the situation and hence determine the length of the rectangle. (3 marks)

6. Evaluate $\dfrac{300^2 - 200^2 + 5075 \div 25 - 3}{\sqrt{625} \times 4}$ (3 marks)

7. Evaluate $\dfrac{3}{4} + \dfrac{7}{8} - \dfrac{1}{2}$ of $\dfrac{2}{3}\left(\dfrac{9}{10} \div \dfrac{3}{5}\right)$. (3 marks)

8. A matatu left Kisumu at 8.30 a.m and travelled to Voi, a distance of 320 km, at a speed of 80 km/h. At 9.15 a.m a car left Kisumu for Voi at a speed of 120 km/h. What is the difference between the arrival times of the matatu and the car? (3 marks)

9. Kamau, Rono and Sera contributed money for a project. Kamau contributed sh 8000, Rono contributed sh 10000 and Sera contributed sh 12000. At the end of the month the project had earned a profit of sh 3000. The profit was shared in the ratio of their contributions. How much more money did Kamau and Rono altogether receive than Sera? (3 marks)

10. Evaluate $\dfrac{36 \div 4 + 3 \times 5 - 8 \div 2 \times 4}{6 - 3 + 17}$. (3 marks)

11. Evaluate $\dfrac{0.015 \div 0.48 \div 1.6}{4.9 \times 0.2 + 0.07}$. (3 marks)

12. Simplify $\dfrac{x^2 - 6x + 5}{x - 1}$. (2 marks)

13.   Below is a prize list of items from a shop.

ITEM	PRICE (sh)
A crate of soda	520
A crate of loaves of bread	1680
A crate of eggs	300
A 50-kg bag of sugar	6000

A customer bought the following items from the shop:

Three 50-kg bags of sugar, 6 crates of eggs, 5 crates of soda and 4 crates of loaves of bread.

If he was allowed a discount of 8%, how much money did he pay altogether for the items?

(3 marks)

14.   The table below shows part of the money transfer tariff by the Post Office.

FROM	TO	COMMISSION (Ksh)		
(Ksh)	(Ksh)	Posta Pay	Express Money Order	Ordinary Money Order
5001	10000	300	220	200
10001	25000	650	600	550
25001	50000	1200	900	800
50001	75000	1500	1200	1100
75001	100000	2500	1500	1400

Muga sent sh 8600 and sh 16500 for school fees using separate Posta Pay Orders. He also sent sh 34800 using Express Money Order. How much money would he have saved had he bought one Ordinary Money Order?
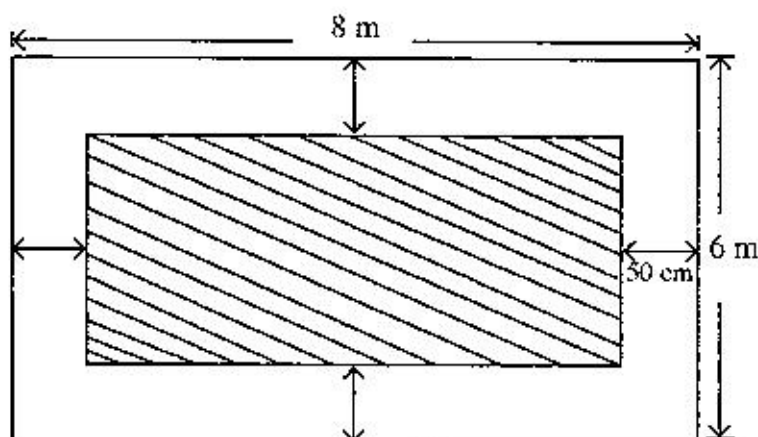
(3 marks)

15. Evaluate $2(9^x) \div 3^{2x} - 27$. (3 marks)

16. Angela paid sh 1050 for a pair of shoes after the price was decreased by $12\frac{1}{2}\%$. What was the price of the shoes before the decrease? (3 marks)

17. The figure below represents a rectangular flower garden surrounded by a path 50 cm wide.

What is the area of the path? (3 marks)

18. The cash price of a refrigerator was sh 38400. The hire purchase price was 25% higher than the cash price. Anita bought the refrigerator on hire purchase terms. She first paid a deposit of sh 4800 followed by twelve equal monthly instalments. How much did she pay per instalment?

(4 marks)

19. On the map whose scale is 1:2000, the area of a square field is $1 \frac{9}{16}$ cm^2. Calculate the actual area of the field in square metres.

(3 marks)

20. Calculate the height of an isosceles triangle whose base measures 48 cm and each of the two equal sides measures 26 cm.

(2 marks)

Answer any FIVE questions in this section in the spaces provided.

21.   A cereals shop sells maize and beans. Atieno bought 6 kg of maize and 4 kg of beans for a total amount of sh 282, while Mueni bought 9 kg of maize and 5 kg of beans for a total amount of sh 384.

    (a)   Determine the price per kilogram of maize and that of beans.   (6 marks)

    (b)   A school bought three 90-kg bags of maize and two 90-kg of beans from the same cereals shop. How much money did the school spend?   (2 marks)

22. A container with a rectangular base 3 m long, 2 m wide and a height of 1.5 m was full of water. The water was to be poured into cylindrical containers with a base radius of 0.3 m and a height of 0.5 m. $\left(\text{Take } \pi = \frac{22}{7} \right)$

(a) Find the volume in litres of water in the tank. (3 marks)

(b) Determine the number of containers which were completely filled with water.

(5 marks)

23. (a) A farmer vaccinated 1020 chicken out of 1200 chicken. After a certain period 5% of the vaccinated and 60% of the unvaccinated chicken contracted a disease. What percentage of the chicken contracted the disease?

(5 marks)

(b) In a certain season, the farmer collected 27 trays of eggs on the first day. On the second day, the number of trays of eggs decreased by 4. On the third day, 5 more trays of eggs were collected than on the first day. Each tray holds 30 eggs. Calculate the average number of eggs collected daily.

(3 marks)

24. The following were marks recorded for a certain test in a class.

10	25	15	12	21	31	40	15	38	24
14	27	16	32	37	32	25	28	44	16
25	24	11	40	38	27	36	16	40	42
21	16	10	14	12	21	11	33	43	19

(a) Prepare a grouped frequency distribution table for the above data by starting with 10 and a class interval of 5. (3 marks)

(b) State the modal class. (1 mark)

(c) Determine the mean mark. (4 marks)

25.   The diagram below represents a triangular prism.
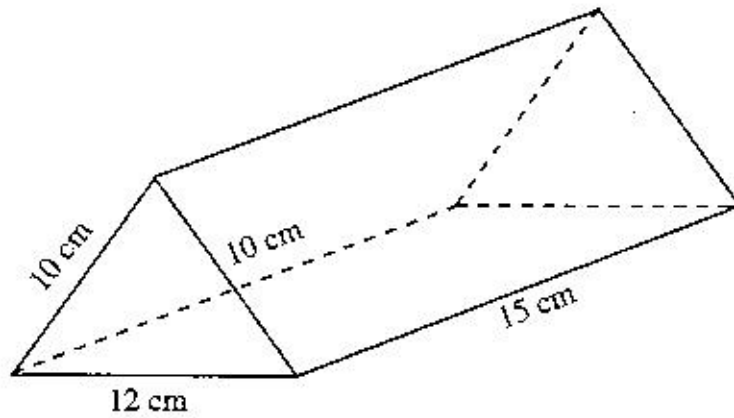
(a)   Calculate:

(i)   the area of the triangular faces;   (3 marks)

(ii)   the area of the rectangular faces;   (2 marks)

(iii)   the total surface area of the prism.   (1 mark)

(b)   Determine the volume of the prism.   (2 marks)

26. Wanza deposited sh 375000 in a financial institution that offered simple interest at the rate of 12% p.a for 3 years. Omondi also deposited the same amount of money in the same institution on compound interest at the rate of 12% p.a for 3 years.

   (a)   Calculate the simple interest for the 3 years.   (2 marks)

   (b)   Calculate the compound interest for the 3 years.   (4 marks)

   (c)   How much more interest would Omondi receive than Wanza?   (2 marks)

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