

Name: _____ Index No: _____

2011/1
P1 MATHEMATICS
Paper 1
P.T.E
July/August 2013
Time: $2\frac{1}{4}$ hours

Candidate's Signature: _____

Date: _____



THE KENYA NATIONAL EXAMINATIONS COUNCIL

PRIMARY TEACHER EXAMINATION

MATHEMATICS

Paper 1

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

INSTRUCTIONS TO CANDIDATES

Write your name and index number in the spaces provided above.

Sign and write the date of examination in the spaces provided above.

This paper consists of **TWO** sections; **A** and **B**.

Answer **ALL** the questions in section **A**.

Answer any **FIVE** questions from section **B**.

Answers and working in both sections must be written on the question paper in the spaces provided.

Candidates should answer all 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.

4. A plane reached its destination on Wednesday at 03 55 h. If the journey had taken $4\frac{1}{4}$ hours, on what day and time in 24-hour system did the plane depart? (2 marks)

5. Evaluate $5\frac{1}{4} + \frac{5}{9} \div 3\frac{1}{3}$ of $\frac{5}{6}$. (2 marks)

6. Find the difference between the L.C.M and H.C.F of the number 24, 32 and 40 and give your answer in prime factors. (3 marks)

7. Solve for x and y in the simultaneous equations:

$$2x - 3y = 13 \text{ and } 2y + 3x = 13 \quad (3 \text{ marks})$$

8. The table below shows postal charges for sending mails.

INTERNATIONAL AIRMAIL

Type of article and mass step	Countries within East Africa	Countries within the rest of African zone	Countries within Europe, Asia and Middle East	Australia, America, Far East zone
MAIL				
	sh	sh	sh	sh
Up to 20 g	50.00	60.00	65.00	85.00
Over 20 g up to 50 g	95.00	110.00	170.00	215.00
Over 50 g up to 100 g	180.00	215.00	330.00	426.00
Over 100 g up to 250 g	450.00	510.00	850.00	1050.00
Over 250 g up to 350 g	615.00	720.00	1170.00	1470.00
Over 350 g up to 500 g	820.00	950.00	1550.00	1940.00
Over 500 g up to 1 Kg	1220.00	1430.00	2330.00	2920.00
Over 1 Kg up to 2 Kg	1620.00	1910.00	3100.00	3880.00

Njoki posted the following mails to her friends:

125 g to Zambia
900 g to Britain
1.5 kg Australia

How much money altogether did she pay for postage?

(3 marks)

9. A model of a hall was constructed on a scale of 1:300. The volume of the hall is 540 m^3 . Calculate the volume of the model. (2 marks)

10. Evaluate $\frac{5 \times 4 + 2(3 + 6)}{8 - 2}$.

(3 marks)

11. Solve the inequality $\frac{x+4}{2} < 2x - 1$.

(3 marks)

12. Simplify $\sqrt{\frac{(8a^2)^3 \times (4a^2)^3}{(8a^2)^6}}$.

(3 marks)

13. Construct a parallelogram QRST in which side $QR = 5\text{cm}$, angle $TQR = 60^\circ$ and diagonal $QS = 10\text{ cm}$. Drop a perpendicular from S to intersect QR extended at M. Measure the length of line SM. (4 marks)

14. A trader incurred a loss of 20% from the sale of a bag of maize and made a profit of 25% from the sale of a bag of beans. He sold the bag of maize for sh 1 600 and the bag of beans for sh 3 500. What was the percentage profit on the total sales? (4 marks)

15. A cylindrical tank of internal diameter 4.2 m and a height of 2.4 m contains 10 m^3 of water. How much more water, in litres, is required in order to make the level of water in the tank half full? (Take $\pi = \frac{22}{7}$). (4 marks)

16. Two quantities P and A are inversely proportional. When $P = 900$, $A = 10$. Find P when $A = 30$. (2 marks)

17. The cash price of an item sold in a shop is 50% of the hire purchase price. The hire purchase price of a radio in the shop is $\frac{2}{5}$ the hire purchase price of a T.V. set. Manita bought a radio on hire purchase price and a T.V. set on cash price. If she paid a deposit of sh 850 and 10 equal monthly instalments of sh 540 for the radio, calculate the amount she paid for the T.V. set. (4 marks)

18. The sides of a parallelogram measure 10 cm by 13 cm and the shorter diagonal measures 13 cm. Calculate the area of the parallelogram. (2 marks)

19. The table below shows the capacity of milk, in litres, produced by each cow.

Capacity of milk in litres	3 - 5	6 - 8	9 - 11	12 - 14	15 - 17
Number of cows	7	9	12	8	4

Calculate the median capacity.

(4 marks)

20. Find the next number in the pattern:

$$10\frac{7}{8}, 20\frac{1}{2}, 31\frac{3}{4}, 45\frac{5}{8}, 63\frac{1}{8}, \dots$$

(4 marks)

SECTION B (40 marks)

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

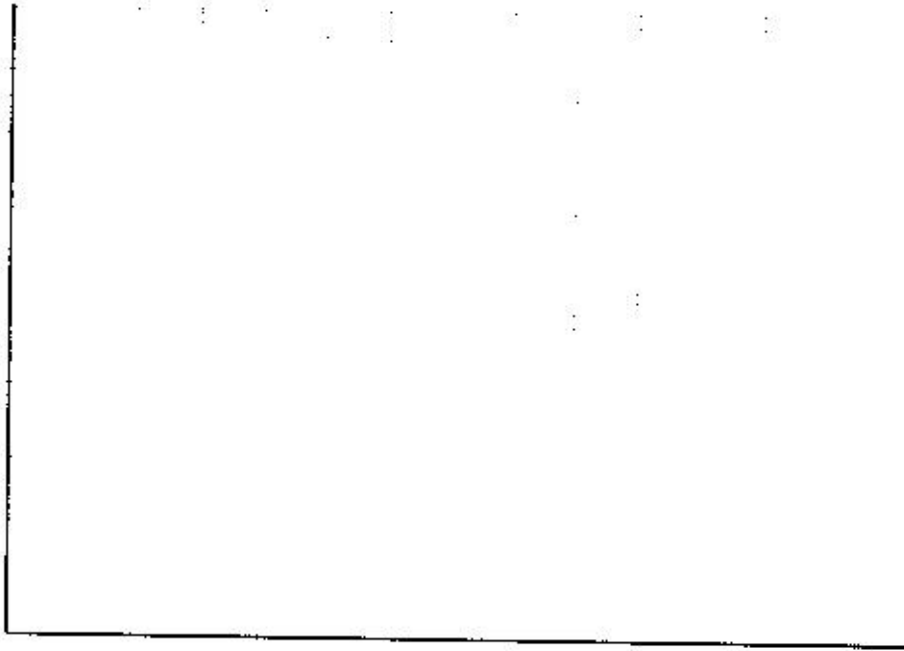
21. In a certain district there were 400 primary schools. Each school had an average number of 50 pupils per class from class 1 to class 8. Each pupil in class 1 to class 4 was provided with 6 exercise books. The number of books provided to the pupils in classes 1 to 4 and those provided to the pupils in classes 5 to 8 were in the ratio of 3:5. The cost of an exercise book for classes 5 to 8 was sh 12 while that of an exercise book for classes 1 to 4 was $\frac{3}{4}$ of the cost of classes 5 to 8 books.

(a) Work out the total number of books provided. (4 marks)

(b) What was the total cost of exercise books provided? (4 marks)

22. Two motorists Abdi and Seth travelled between towns P and Q. Abdi started from town P at 7.00 am travelling at an average speed of 80 km/h for two hours and then rested for a half an hour. He then continued with the journey at 70 km/h and reached town Q at 12.00 noon. Seth left town Q at 9.00 a.m and reached town P at 11.30 am.

- (a) On the grid provided draw graphs to represent the journey of the two motorists. Use the same axes and the same scales. (6 marks)



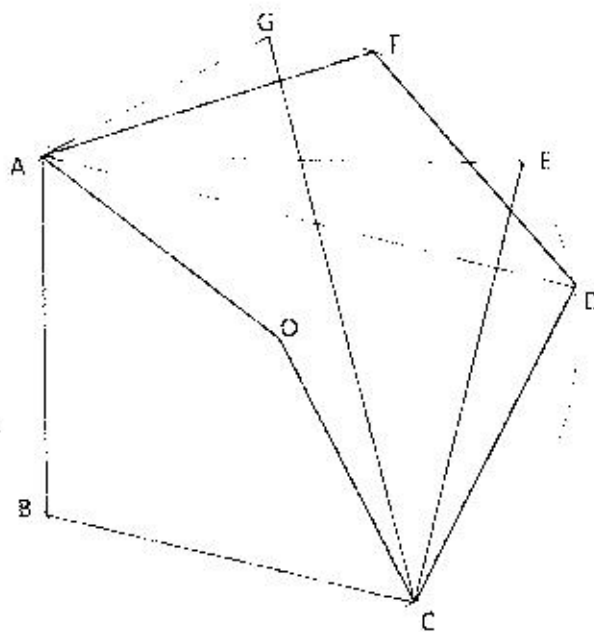
- (b) Using the graphs find the:
- (i) time when the two motorists met; (1 mark)
 - (ii) distance from town Q to where they met. (1 mark)

(4 marks)

23. (a) Solve the equation: $2r = \frac{r+1}{2r-1}$.

- (b) At a fund raising meeting Haifa contributed sh $4x + 2$ while Baraka contributed one and half times the amount Haifa contributed. Hussein contributed one fifth of the total amount contributed by both Haifa and Baraka. The total amount contributed by the three was sh 60 054.
Calculate Hussein's contribution. (4 marks)

24. In the figure below, ABCDF is a regular polygon. Point O is the centre of the circle. Points E and G lie on the circumference of the circle.



Giving reasons, determine the size of the following:

- (a) $\angle ABC$ (2 marks)
- (b) Reflex $\angle AOC$ (2 marks)
- (c) $\angle BGC$ (2 marks)
- (d) $\angle BAO$ (2 marks)

25. Nduku, Kawira and Maina contributed 5 million shillings, 3 million shillings and 2 million shillings respectively for capital to start a business. After one year, the business got a profit equivalent to 60% of the capital. They paid a 16% tax on the profit and the balance was deposited for 6 months in a bank account that paid interest at the rate of 7% per annum.

(a) Calculate the profit after taxation. (3 marks)

(b) How much money was in the bank after the six months? (3 marks)

(c) If they were to share the money in the bank according to their contributions, how much would Kawira get? (2 marks)

26. A lorry can take a maximum load equivalent to 150 bags of rice each weighing 50 kilograms. A trader intends to ferry 800 bags of rice, and fat in cartons of 20 kilograms each.

(a) How many lorries will be filled completely with bags of rice? (4 marks)

(b) Find the number of cartons of fat required to completely fill the lorry which is partially filled with rice. (4 marks)