

NAME: ADM NO:

SCHOOL: DATE :

CANDIDATE'S SIGNATURE:.....

121

MATHEMATICS

JULY / AUGUST 2016

TIME: 2½ HOURS

2016 FORM 1

Kenya Certificate of Secondary Education (KCSE)

MATHEMATICS

TIME: 2½ HOURS

INSTRUCTIONS TO CANDIDATES

- a) Write your **Name**, **Admission Number** and **School** in the spaces provided at the top of this page.
- b) **Sign** and write the **date** of examination in the spaces provided above.
- c) This paper contains **TWO** sections: section I and section II
- d) Answer **all** the questions in section I and any **FIVE** questions from section II.
- e) All answers and working **must** be written on the question paper in the spaces provided below each question.
- f) Show **all** the steps in your calculations, giving your answers at each stage in the spaces provided below each question.
- g) Marks may be given for **correct working** even if the answer is **wrong**.
- h) Non-programmable silent electronic calculators and KNEC mathematical tables may be used except where stated otherwise.

FOR EXAMINER'S USE ONLY:

Section I

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TOTAL

Section II

GRAND TOTAL

17	18	19	20	21	22	23	24	TOTAL

SECTION 1: (50 MARKS)

Answer ALL Questions in this section

1. Evaluate:

(3mks)

$$16 - \frac{10 - (-3)}{-3 - (-3)2}$$

2. The greatest number which divides 364, 404 and 244 leaving a remainder of 4 in each case is?

(3mks)

3. (a) State the place value of the underlined digit. 2 3 0 89 44 5567

(1mk)

(b) Round to the nearest ten million the value in (a) above. .

(1mk)

4. Use a number line to show all the numbers greater than x in the equation:

(4mks)

$$\frac{1}{4}(3x-2) = x+1$$

5. Arrange in ascending order:- (2mks)

$$\frac{2}{3}, 0.75, \frac{8}{9}, 83\%, 3.5$$

6. In a form one class the ratio of boys to girls is 4:5. One day $\frac{1}{4}$ of the girls were absent and $\frac{1}{5}$ of the boys were absent. If 5 more students had been absent then $\frac{1}{3}$ of the class would have been absent. How many students were there in form 1? (4mks)

7. A man walked 18km on Monday, 18km on Tuesday and walked Pkm on each subsequent day. How far did he walk for seven in all? (3mks)

8. Use tables to evaluate:

$$\sqrt{1.137^2 + 470.3 \times 10^3}$$

(3mks)

9. A sum of money was divided among A, B and C such that A gets 30% of the whole. B gets 60% of the remainder and C the rest. If C got sh. 10,000, find the amount divided. (3mks)

10. Use divisibility test to prove which numbers are divisible by 9 and 11. (4mks)

9 1 8 0 9 1 7
3 0 2 1 1 2

11. Solve the equation: (3mks)

$$\frac{2y+6}{2} - \frac{y-2}{3} = 7$$

12. Expand and simplify: (3mks)

$$9m^2n^3 - (3m^2 - 2n^3)^2$$

13. Express the following in terms of their prime factors, hence evaluate.

(3mks)

(i) 11025

(ii) 1575

14. A farmer has 56 goats and 25 times as many sheep. If the number of sheep he has is four times the number of chicken, find the total number of legs of the animals.

(3mks)

15. Dorris, Pauline and Joan share the number of sweets in the ratio:

$3\frac{1}{2} : 1\frac{5}{6} : 1\frac{1}{3}$. Calculate the percentage of sweets each one gets.

(3mks)

6. Write in standard form:

0.0000000000000000000000603

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SECTION II (50 MARKS)

Answer any five questions in this section

17.(a) If $x = 4$ and $a = 2$ $x=b+a$, find c in the expression:

$$y = x + b + c$$

(5mks)

(b) Given that $a=2$, $b = -1$ and $c = 3$, find:

$$\frac{3a^2 - 2bc + 4b}{2ac + 2b^3 - 3c}$$

- 18.(a) A mango vendor bought 3896 mangoes on Monday and sold 1500 of them on same day. On Tuesday he sold 120 mangoes more than Monday. On Wednesday he bought 1120 more mangoes. Later that day, he sold all mangoes he had at a price of sh. 16 each. Calculate the amount of mangoes the vendor obtained from the sale on Wednesday. (5mks)

- (b) Find 3 consecutive integers whose sum is 120.

(5mks)

19.(a) The dimensions of a rectangle are given as 81cm and 16cm. calculate the area of the rectangle giving your answer in factor form. (5mks)

(b) Find the difference between the GCD and LCM of the following numbers:
45, 125 and 225

20. The density of water and alcohol are 1g/cm^3 and 0.8g/cm^3 respectively. If 4 litres of water is added to 6 litres of alcohol, calculate the density of the mixture. (10mks)

21. A watch which loses a half minute every hour was set to read the correct time at 0615 hours on Monday. Determine the time in 12-hour clock system the watch will show on the following Sunday at 1815hrs. (10mks)

22. (a) Four men decided to start a business. The ratio of A's to B's contribution was 3:2 and that of C's and D's contribution was 5:4. C contributed Sh. 3000 more than A. If the total amount was sh. 47,000, find how much each of them contributed. (5mks)

- (b) Kamau is 68 years old. In three years time he will be 5 times as old as Kimotho. How old is Kimotho? (5mks)

23.(a) Convert 0.0025mm^3 to m^3 .

(5mks)

(b) A circular metal sheet of radius 4.9cm was cut out from a regular metal sheet measuring 10cm by 12cm. Find the area of the metal left.

(5mks)

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24. (a) Seven people can build five huts in 30 days. Find the number of people working at the same rate that will build 9 similar huts in 27 days. (5mks)

- (b) Without using mathematical table or calculator, evaluate:-

$$\frac{0.0025 \times 64}{0.0064 \times 625}$$