ANNUAL MATHEMATICS CONTEST 2ND JUNE 2018
WRITTEN EXAM FORM 1

NAME:..... SCHOOL CODE.....

TIME 1 HR 30 MIN

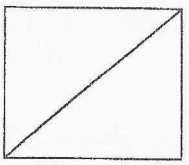
Instructions to candidates

1. Write your name and the school code in the spaces provided above.
2. The paper consists of 7 printed pages.
3. Answer all questions in the spaces provided below each question.
4. Show all the steps in your calculations.
5. Non programmable silent calculators should not be used but KNEC Mathematical tables may be used.

FOR EXAMINERS USE ONLY

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

GRAND TOTAL



Attempt all the questions without using calculators.

1. a) Round off the numbers 86589, 998 and 34, to the nearest thousands, hundreds and tens respectively. (I mark)

b) Use the approximations in 1a) above, to estimate the value of; (2 marks)

$$\frac{86589 \times 998}{34}$$

2. Evaluate without using Mathematical tables; (3 marks)

$$\sqrt{\frac{384.16 \times 0.0625}{96.04}}$$

3. A $\frac{1}{2}$ kg packet of soap costs Ksh. 15.40 and $1\frac{1}{4}$ kg packet costs Kshs. 35.70. A school bought 15kg of soap powder. Calculate the saving if $\frac{1}{2}$ kg packets were bought instead of $1\frac{1}{4}$ kg packets. (3 marks)

4. a) Express each of the following numbers as a product of its prime factors; (3 marks)

i) 1008

ii) 48

iii) 72

b) The G.C.D and L.C.M of three numbers are 3 and 1008 respectively. If two of the numbers are 48 and 72, find the third number. (2 marks)

5. When a quarter of a certain number is added to $4\frac{1}{3}$, the result is the same as when a third of the same number is subtracted from $20\frac{2}{3}$ (3 marks)

6. Evaluate; (3 marks)

$$\frac{4 \times 6 + \frac{1}{25} \div 0.05 + \frac{1}{5}}{-3 \div -6 + 23 - 6 \text{ of } 3}$$

7. Electricity bill comprises of a meter rent charge of Kshs. 250, a fixed charge of Ksh. 130and a cgarge of Kshs. 1.50 per unit. If Mr Chirchir consumed 898 units in a certain month, find;
   i) the total charge in Kshs. (2 marks)

   ii) the total monthly bill if there is a fuel charge of 5% of the total charge. (2 marks)

8. Given that a = 2, b = -1 and c = 3, find the value of, (3 marks)

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

9. A square room is covered by a number of whole rectangular slabs of 60cm by 42cm.. Calculate the least possible area of the room in square metres. (3 marks)

10. a) Convert the following recurring decimals in to a fraction, (2 marks)

i) $0.2\dot{7}$

ii) $0.\dot{1}2\dot{3}$

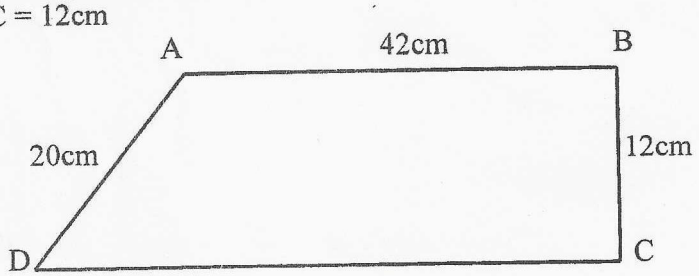
b) Hence, evaluate $0.\dot{1}2\dot{3} - 0.2\dot{7}$ (2 marks)

11. Simplify, $\frac{x-1}{x} - \frac{2x+1}{3x}$ (2 marks)

12. a) Express 21000 in terms of its prime factors. (1 mark)

b) Determine the smallest possible number P such that 21000P is a perfect square. (2 marks)

13. In the figure below, angle ABC = angle BCD = 90. AB = 42cm, AD = 20cm and BC = 12cm



Find:

a) the length of the DC (2 marks)

b) the area of the trapezium (2 marks)

14. Mr. Kajembe uses Kshs. 10 000 to prepare his 20 hectares piece of land for planting. He planted 5 hectares with potatoes, 8 hectares with beans, 4 hectares with maize and the rest with fresh beans. One hectare requires 2 bags of potatoes, each costing Kshs. 900, 2 tins of beans each costing Kshs. 120, 2.5 tins of maize each costing Kshs. 90 and 2 tins of fresh beans each costing Kshs. 300. Other expenses on pesticides, cultivation and harvesting were Kshs. 50 000.

i) Find the total expenditure (3 marks)

ii) If the product of the land was as follows;

- 20 bags of potatoes per hectare, each bag sold at Kshs. 1200.
- 40 tins of beans per hectare ,each tin sold at Kshs. 200.
- 50 tins of maize per hectares, each tin sold at Kshs. 150.
- 70 tins of French beans per hectare, each tin sold at Kshs. 300.

Calculate the total amount he got after selling all the products. (3 marks)

iii) Calculate his profit. (1 marks)