

NAME.....ADM NO..... CL.....

MATHEMATICS
FORM ONE
END OF TERM I EXAM 2019
TIME: 2½ HOURS

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INSTRUCTIONS TO STUDENTS

- Write your name and Admission number in the spaces provided.
- This paper consists of 2 sections: Section I and II.
- Answer **ALL** questions in section I and II.
- All answers and working **MUST BE** written on the question paper in the spaces below.
- Show all the steps in your calculations.
- Marks may be given for correct working even if the answer is wrong.
- Non programmable silent electronic calculators and KNEC mathematical tables may be used.

FOR EXAMINER'S USE ONLY

SECTION I

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

SECTION II

QUESTION	17	18	19	20	21
MARKS					

GRAND TOTAL

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1. Evaluate

(3marks)

$$\frac{1}{3} \text{ of } \left(2\frac{3}{4} - 5\frac{1}{2} \right) \times 3\frac{6}{7} \div \frac{9}{4}$$

2. Write

(i) 5478.6 in standard form

(1mark)

(ii) 0.478 to 2 d.p

(1mark)

(iii) 98998 to 4 s.f

(1mark)

3. Use table to evaluate

(3marks)

$$\sqrt{1.894} + \sqrt{7234}$$

4. A farmer has a rectangular piece of land measuring 840m by 396m. He divided it into square plots of equal size. Find the maximum area of each plot.

(3marks)

5. If $x = -2$, $y = -6$ and $f = -2x$. Find
 $2y - 3x + f$

(3marks)

6. A rectangle which measured 18cm and 8cm has the same area as a square. Find the perimeter of the square. (3marks)

7. Find the LCM and GCD of the numbers below and leave your answer in an expanded power form.
 $2^3 \times 5^2 \times 7^2$, and $22 \times 5 \times 5^2 \times 13 \times 7$ (2marks)

8. Find the value of

$$\frac{2}{3} - 0.2\dot{3}$$

(4marks)

9. 5 men working 6 hours a day can dig a trench 180m long in 4 days. How many days would 8 men working 3 hours a day take to dig a trench 220m long. (3marks)

10. (a) Evaluate $540396 \cdot 726450 \div 3$ (2marks)

(b) Write the total value of the digit in the thousands place of the results obtained in (a) above. (1mark)

11. A rectangular block is 50cm long and 15cm wide. If its mass is 18kg and its density 2.4g/cm^3 , find its height. (3marks)

12. Simplify (3marks)

$$\frac{ay-ax}{bx-by}$$

13. The sum of three consecutive odd numbers is 165. Find the numbers. (3marks)

14. A goat was tied at a corner inside a rectangular fenced plot with a rope of 7m long. Find the maximum grazing field. (3marks)

15. Find the area of the triangle PRS given that $PR=13\text{cm}$, $QR=5\text{cm}$ and $RS=15\text{cm}$ and PS is a straight line. (Give your answer correct to 1dpl.) (4marks)

16. A water tank is $\frac{3}{7}$ full, and after adding 52 litres of water, it is $\frac{4}{5}$ full. Find the capacity of the tank. (4marks)

SECTION II (50 MARKS)

ANSWER ALL THE QUESTIONS IN THIS SECTION

17. A Christmas tree has four coloured bulbs white, red, yellow and blue ; which flash after 15 sec, 20 sec and 14 sec respectively. They flash together at 1105 hrs.

Determine when,

(a) White and yellow bulbs will flash together again (2marks)

(b) Red and blue bulbs will flash together again (2marks)

(c) Red, yellow and white bulbs will flash together again (2marks)

(d) By 1320 hrs, how many times will all the four bulbs have flashed together since being switched on. (4marks)

18. (a) Work out

$$\frac{\frac{2}{3} \div \frac{1}{2} \text{ of } \frac{4}{9} - 1\frac{1}{10}}{\frac{1}{8} - \frac{1}{6} \times \frac{3}{8}}$$

Giving your answer as a mixed number in its simplest.

(4marks)

(b) A rectangular tank whose length is 1.7m with 1.4m and height 2.2m is three Quarters full of milk. Calculate;

(i) The volume of the tank

(2marks)

(ii) The volume of milk in the tank.

(2marks)

(iii) The volume of the tank without milk.

(2marks)

19. (a) A group of six girls have a mean height of 150cm. Their heights are 130, 165, $2x$, 145, 160 and x . Find x .

(4marks)

(b) Two examiners can mark 6000 scripts in 3 weeks when marking 8 hours a day. How long will it take 200 markers to mark 15000 scripts working 6hrs a day. (3marks)

(c) A rectangle has a length twice as long as its width. If its area is 132cm^2 , find its perimeter. (3marks)

20. You are given that the area of the triangle ABC given below can be obtained by the formula.

$$\sqrt{S(s-a)(s-b)(s-c)}$$

AB=12cm, BC= 10cm and AC=8cm

S = half perimeter of the triangle.

(a) Find the area of the triangle.

(5marks)

(b) Express as a single fraction.

(3marks)

$$\frac{3x-4}{4} - \frac{2x+3}{5}$$

(c) Round off

8279.34 (2 sf)

(2marks)

4.00387 (2dpl.)

21. In the year 2001, the price of a sofa set in a shop was sh 12,000

(a) Calculate the amount of money received from the sales of 240 sofa sets that year. (2marks)

(b) (i) In the year 2002 the price of each sofa set increased by 25% while the number of set, sold decreased by 10%. Calculate the percentage increase in the amount received from the sales. (3marks)

(ii) At the end of year 2002, the price of each sofa set changed in the ratio 16:15. Calculate the prize of each sofa set in the year 2003. (2marks)