



**FORM 1 MATHEMATICS  
END YEAR EXAM 2016  
TIME: 2<sup>1</sup>/<sub>2</sub> HOURS**

<i>Date done</i>	
<i>Invigilator</i>	
<i>Date returned</i>	
<i>Date revised</i>	

**INSTRUCTIONS**

- Write your name, stream and class number in the spaces provided at the top of this page.
- The paper contains two sections i.e. **I** and **II**.
- Answer **ALL** the questions in both sections.
- All answers and working must be written on the question paper in the spaces provided below each question.
- Marks may be awarded for correct workings even if the answer is wrong.

**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**

17	18	19	20	21	TOTAL

**GRAND TOTAL**

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**SECTION 1 (50 MARKS)**  
**Answer all questions in this section.**

1. If  $a:b = 2:3$  and  $b:c = 4:5$ , find the ratio  $a:b:c$ . (3mks)

2. Solve the simultaneous equations. (4mks)

$$2x + y = 8$$

$$x - y = 1$$

3. All prime numbers less than ten are arranged in descending order to form a number.

(a) Write down the number formed (1mk)

(b) State the total value of the first digit in the number formed in (a) above. (1mk)

4. 14 people take 24 hours to pack 560 cartons. How many hours will 20 people take to pack 750 such cartons if they work at the same rate? (3mks)

5. Solve the equation.

(3mks)

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

6. Evaluate

(3mks)

$$\frac{\frac{1}{2} \text{ of } 3\frac{1}{2} + 1\frac{1}{2} (2\frac{1}{2} - \frac{2}{3})}{\frac{3}{4} \text{ of } 2\frac{1}{2} \div \frac{1}{2}}$$

7. Muya had a  $6\frac{2}{3}$  ha piece of land. He donated  $\frac{7}{8}$  ha to a school and  $1\frac{1}{2}$  ha to a children's home. The rest of the land was shared equally between his son and daughter. Find the size of that land each child got. (3mks)

8. The density of a substance A is given as  $13.6 \text{ g/cm}^3$  and that of substance B as  $11.3 \text{ g/cm}^3$ . Determine, correct to one decimal place, the volume of B that would have the same mass as  $50\text{cm}^3$  of A. (3mks)

9. A salesman is paid a salary of Ksh. 15,375 per month. He also gets a commission of  $4\frac{1}{2}\%$  on the amount of money he makes from his sales. In a certain month he earned a total of Kshs. 28,875. Calculate the value of his sales that month. (3mks)

10. Factorise and simplify the algebraic expression. (4mks)

$$\frac{xy - mp + xp - my}{km - rx - kx + rm}$$

11. Use the prime factors of 1764 and 2744 to evaluate;

$$\frac{\sqrt{1764}}{\sqrt[3]{2744}}$$

12. Find the total area of the four walls and the area of the floor of a room 6.5m long, 4m wide and 3m high. (3mks)

13. Evaluate :

(a)  $\sqrt{0.00065}$

(b)  $\sqrt{84967}$

14. The size of an interior angle of a regular polygon is  $5x^\circ$  while its exterior angle is  $(2x-30)^\circ$ . Find the number of sides of the polygon. (4mks)

15. Convert  $0.\dot{3}2\dot{5}$  to a fraction. (3mks)

16. A shopkeeper wishes to increase a price of a commodity in the ratio 7:6. What will be the new price of the commodity if he had a marked price of Kshs. 1800? (3mks)

17. (a) using a ruler and a pair of compasses only,

(i) Construct triangle P Q R, where RQ = 8cm, PQ = 7cm and RP = 6.2cm, and measure angle RQP. (4mks)

(ii) Drop a perpendicular from R to PQ to meet PQ at N and measure it. (3mks)

(iii) Find the area of triangle PQR. (3mks)

18. (a) What is the capacity in litres of a school tank whose radius is 2.5cm and height 3.5m high? (Take  $\pi = \frac{22}{7}$ ) (3mks)

(b) Find the amount of water left in a day from a tank after 1200 people use 20 litres daily each. (2mks)

(c) What is the height of the water left? (3mks)

(d) What is the surface area of the tank in contact with the water left? (2mks)

19. (a) Three business people John, Ali and Jack wanted to contribute money towards a business. The ratio of contribution of John:Ali is 2:3 and ratio of Ali:Jack is 5:1. If they wanted to contribute all together sh. 112,000, how much did each contribute? (4mks)

(b) They decided to invest for 2 years the sh. 112,000 after they contributed to a commercial bank, which gave simple interest of 10% per annum. Find the amount earned at the end of the period. (3mks)

- (c) If they decided to share the interest earned above in the ratio of contribution above in  
(b) how much did each get? Give the answer to the nearest shilling. (3mks)

20. Use the exchange rate table below to answer the following questions.

Currency	Buying	Selling
1 US Dollar\$	78.4	78.60
1 Euro	73.42	73.52

- (a) A businessman wanted US Dollar 7000 in order to use it in U.S.A. How much Kenyan money does he require to get the amount? (3mks)
- (b) While in U.S.A he used US Dollars 4250 and the balance he came back with to Kenya. How much Kenyan shillings did he get from the bank? (3mks)



(c) After getting the Kenya shs. From (b); above he converted the money into Euro. How much Euros did he get? Give the answer to the nearest Euro. (4mks)

21. Three towns A, B and C are such that, A is in a bearing of  $120^{\circ}$  and 20km from B. Town C is in a bearing of  $220^{\circ}$  and 12km from B.  
(a) Using a suitable scale, draw the positions of A, B and C. (4mks)

(b) Find;

(i) The distance between A and C in Km. (2mks)

(ii) The bearing of A from C (2 mks)

(iii) The bearing of B from C (2mks)