Term 1 - 2024

MATHEMATICS (Alternative A)

FORM TWO (2)

Time: 2½ Hours

**Name**: …………………………………………………......…… **AdmNo**: ……….……

**School**: …………………………………………………………... **Class**: …………………

**Candidate’s Signature**: …….………...................................... **Date**: …...…………….

**INSTRUCTIONS TO CANDIDATES**

1. *Write your name, admission number, school and class in the spaces provided at the top of this page.*
2. *Sign and write the date of the examination in the spaces provided above.*
3. *This paper consists of* ***two*** *sections:* ***Section I*** *and* ***Section II.***
4. *Answer* ***ALL*** *questions in* ***Section I*** *and* ***any five*** *questions from* ***Section II.***
5. ***Show all the steps in your calculations, giving your answers at each stage in the spaces provided below each question.***
6. *Marks may be given for correct working even if the answer is wrong.*
7. ***Non-programmable*** *silent electronic calculators and KNEC Mathematical Tables may be used.*
8. ***Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.***

**For Examiners’ 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** | **22** | **23** | **24** | **Total** | **Grand Total** |  |
|  |  |  |  |  |  |  |  |  |

**SECTION I:**

***Answer all the questions in this section in the spaces provided for each***

1. Evaluate (3marks)
2. Use squares, cubes and reciprocal tables to evaluate, to 4 significant figures, the expression; (3marks)
3. Use substitution method to solve the simultaneous equations:

(3marks)

1. The interior angle of a regular polygon with 3x sides exceeds the interior angle of another regular polygon having x sides by 40 ̊. Determine the value of x. (3marks)
2. A man is now three times as old as his daughter. In twelve years’ time he will be twice as old as his daughter. Find their present ages. (3marks)
3. Two similar cylinders have diameters of 7cm and 21cm.If the larger has a volume of 6237cm3 . Find the height of the two cylinders () (3marks)

1. Simplify the following expression by reducing it to a single fraction.

(3marks)

1. A trader sold an article at 15% discount to a customer who paid sh 510 for it. What was the marked price of the article? (2marks)
2. A number y is such that, when divided by 32, when divided by 40 and when divided by 24, the reminder is 21. Find the number y. (4marks)

**10.** Use logarithms to evaluate: (4marks)

1. A line is drawn through point perpendicular to line . Find the equation of the line. (3marks)
2. Without using a calculator, evaluate. (3marks)
3. A map is drawn using a scale of 1:200000. Find the actual area represented on the map by a rectangle 2cm by 2.5cm, giving your answer in km2. (3marks)

**14.** Three Craftsmen takes 101/2hours to wire a building. How many Craftsmen working at the same rate will complete the work in 51/4hours? (3marks)

**15.** Awour uses one third of her farm for coffee, one quarter for tea and two fifths of the remainder for mixed farming. She still has 6 hectares of unused land .Find the size of her farm. (3marks)

**16.** A certain alloy is prepared using 6kg of copper, 2kg of Zinc, and 0.5kg of Tin.

(a)What percentage of the compound is Tin? (2marks)

(b)Find the ratio of copper to tin? (2marks)

**SECTION II**

***Answer all questions in the spaces provided.***

**17.** A triangle has vertices A(1,2), B(7,2), and C(5,4).

(a)Draw triangle ABC on the Cartesian plane. (1mark)



(b) Construct triangle A’B’C’ the image of triangle ABC under rotation of 900 clockwise about the origin. (3marks)

(c)Draw triangle A”B”C”, the image of triangle A’B’C’ under a reflection in the line. state the coordinates of A”, B” and C” (3marks)

(d) Triangle A”’B”’C”’ is the image of triangle A”B’’C” under reflection in the line Draw triangle A”’B”’C”’ and state the coordinates of its vertices. (3marks)

**18**. (a) Using a ruler and a pair of compasses only ,construct triangle ABC in which . , and angle ( 4marks)

(b)Draw the circumcircle of the triangle touching point A, B and C. (3marks)

(c)By taking AB as the base, find the area of the triangle. (3marks)

**19.** (a) A straight line L1 whose equation is meets the x-axis at Z. Determine the coordinate of Z. (3marks)

(b) A second line L2 is perpendicular to L 1 at Z. Find the equation of L2 in the form where, b and c are integers. (2marks)

(c) A third line L3 passes through the point (2,5) and is parallel to L1. Find

1. The equation of L3 in the form , where a, b and c are integers. (2marks)
2. The coordinate of point R at which L2 intersects L3 (3marks).

**20.** Wanyonyi spent sh. 10,500 to buy a number of shirts and trousers from wholesaler at sh.150 per shirt and sh.300 per trouser. Atandi bought the same number of shirts and trouser from another wholesaler where he paid 20% more for a shirt and 10% less for a trouser. Atandi spent sh. 300 more than Wanyonyi.

a) Determine the number of shirts and trousers each man bought? (4marks)

b) Wanyonyi sold all the clothes at a profit of 50% per shirt and 30% per trouser. How much profit did he make? (3marks)

c) Atandi sold all his clothes at profit of 45% per shirts and 60% per trouser. Calculate the percentage profit he made on the sale of all clothes? (3marks)

**21.** A bus left Kampala on Wednesday evening and traveling to Mombasa according to the travel time table below arriving there on Friday,

|  |  |  |
| --- | --- | --- |
| Kampala | Departure | 2015h |
| Malava | Arrival  Departure | 0430h  0655h |
| Nakuru | Arrival  Departure | 1325h  1455h |
| Nairobi | Arrival  Departure | 1840h  2030h |
| Mombasa | Arrival | 0500h |

Calculate;

1. The time taken by the bus to travel from.
2. Kampala to Malava. (1mark)
3. Malava to Nakuru. (1mark)
4. Nakuru to Nairobi. (1mark)
5. Nairobi to Mombasa. (1mark)
6. The total travelling time between Kampala and Mombasa. (2marks)
7. The total stoppage time during the whole journey. (2marks)
8. The average speed for the whole journey given that the distance between Kampala and Mombasa is 1965km. (2marks)