**NAME:……………………………………………………… ADM NO:…………………..**

**DATE: ……………………………………………………… CLASS: …………………...**

**MID- TERM EXAM-2024**

***Kenya Certificate of Secondary Education***

**FORM 2**

**MATHEMATICS**

**PAPER- JUNE/JULY**

**TIME: 1HOUR 20 MINS**

**INSTRUCTIONS TO CANDIDATES**

*1.Write your name and index number in the spaces provided at the top of this page.*

*2.This paper consists of two sections:* ***Section l and Section II***

*3.Answer all questions in section l and any five questions from* ***Section II.***

*4. Show all the steps in your calculations, giving your answers at each stage in the spaces below each question.*

*5.Marks may be given for correct working even if the answer is wrong.*

*6.Non- programmable silent electronic calculators* ***and KNEC*** *Mathematical tables may be used.*

**FOR EXAMINER’S USE ONLY**

**SECTION I**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | TOTAL |
|  |  |  |  |  |  |  |  |  |  |

**SECTION II**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 10 | 11 | 12 | 13 | TOTAL |
|  |  |  |  |  |

**SECTION I(30 MARKS)**

**Answer ALL Questions from this section in the spaces provided**

1. Use logarithm tables ONLY, evaluate to 4 significant figures $\sqrt[3]{\frac{72.56x 0.64}{\left(1.845\right)^{2}}}$ (4mks)
2. The sum of three consecutive odd integers is 219. Determine the first three such integers (3 mks)
3. A Kenyan company received US Dollars 100,000.The money was converted into Kenya shillings in a bank which buys and sells foreign currencies as follows:

Buying **Selling**

(in Kenya shillings) (in Kenya shillings)

1 US Dollar 77.24 77.44

1 Sterling Pound 121.93 122.27

1. Calculate the amount of money, in Kenya shillings, the company received. (2 mks)
2. The company exchanged the Kenya shillings calculated in (a) above, into sterling pounds to buy a car from Britain. Calculate the cost of the car to the nearest sterling pound. (2 mks)
3. A solid cone of height 12cm and radius 9 cm is recast into a solid sphere. Calculate the surface area of the sphere. ( 4 marks)

1. The G.C.D of two numbers is 12 and their L.C.M is 240. If one of the numbers is 60, find the other number. (2mks)
2. Solve for x in the equation: 6x2-13x+6=0 (3mks)
3. Simplify without using tables 4 cos 450 sin 600 (2mks)
4. Use mathematical tables **only** to evaluate 11.45 sin 38.3 (3mks)
5. If the area of a regular nonagon is 185.1cm2. What is the length of each side? (3mks)

**SECTION II (30 MARKS)**

**Answer ANY THREE Questions from this section in the spaces provided**

1. A helicopter flies from Kaptiony due south for 300km. It then flies on a bearing of 2550 for 350km. From there it flies on a bearing for 0400 for 400km.

 (i)Draw an accurate diagram showing the journey of the helicopter using a scale of 1:5000000. (5mks)

(ii)From your diagram, find the distance and bearing of Kaptiony from the final position of the .helicopter. (2mks)

 (iii)Given that the helicopter flies at a steady speed of 200kmh-1, find how long the whole journey took. (3mks)

11. The figure below shows two intersecting circles with centres P and Q and radius 5cm for the small one and 6cm for the big one. AB is a common chord of length 8cm. Calculate;



P

A

Q

B

5cm

6cm

(a) the length of PQ (1 mark)

(b) the size of;

(i) angle APB (2marks)

 (ii) angle AQB (2 marks)

(c) the area of the shaded region(5 marks)

1. Below are the measurements of a wheat field using a baseline XY recorded in metres.

|  |  |  |
| --- | --- | --- |
|  | Y |  |
|  | 240 |  |
| TO R 60 | 190 |  |
|  | 180 | 75 TO Q |
|  | 150 | 50 TO P |
| TO S 100 | 120 |  |
|  | 100 | 100 TO N |
| TO T 30 | 50 |  |
|  | 20 | 20 TO M |
|  | X |  |

a) Using a scale of 1cm represents 20m. Sketch the map of the wheat field. (4mks)

(b) Find the area of the field in hectares. (4mks)

(c) If the cost of one hectare is sh65, 000 find the cost of the wheat field. (2mks)

1. The figure below shows a glass in form of a frustum of a cone whose top and bottom diameter of 7cm and 3.5cm respectively. Its depth is 10cm. Taking $π=\frac{22}{7}$,



Calculate;

1. Its total surface area. (5 marks)
2. Its capacity. (5 marks)