**MATHEMATICS FORM II 2021**

**OPENER EXAM**

**NAME:…………………………………………………... ADM NO…………………………...**
**SCHOOL:…………………………………………….….. CANDIDATE’S SIGN ……………**

**DATE ……………………………………..**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and Adm. number in the spaces provided above

2. The paper contains two sections: **Section I** and **Section II**

3. Answer **All** the questions in **Section I** and **strictly any two** questions **from Section II.**

4. All answers and working must be written on the question paper in the spaces provided

below each question.

5. Show all the steps in your calculations, giving your answers at each stage in the spaces

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, except unless stated otherwise.

**SECTION 1 (30marks)**

1. Evaluate -8 ÷ 2+ 12 × 9 – 4 × 6 (3mks)

 56 ÷ 7 × 2

1. All prime numbers less than ten are arranged in Ascending order to form a number m. Another number n is formed by square numbers arranged in descending order between 1 to 10. Find m – n . (3mks)
2. a) Express 10500 in terms of its prime factor. (1mk)

 b) Determine the smallest positive number p such as that 10500p is a perfect cube.(2mks)

1. Use prime factors of 1764 and 2744 to evaluate (3mks)

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

1. The cost of 5 skirts and 3 blouses is sh 1750. Mueni bought three of the skirts and one of the blouses for shs 850. Find the cost of each item. (3mks)
2. The size of an interior angle of a regular polygon is 1560. Find the number of sides of the polygon. (3mks)

1. The interior angles of an octagon 2x0, x0, (x + 40)0 ,1100 , 1350 , 1600 , (2x + 10)0 and 1850. Find value of x. (3mks)

1. Use reciprocal table to evaluate (3mks)

$$\frac{3}{0.276}+ \frac{10}{2.76}$$

1. A fruit vendor bought 1948 oranges on a Thursday and sold 750 of them on the same day. On Friday, the sold 240 more oranges than on Thursday. On Saturday he bought 560 more oranges. Later that say, he sold all the oranges he had at a price of ksh.8 each. Calculate the amount of money the vendor obtained from the sales of Saturday. (3mks)
2. A rectangle of side 48cm by 60cm is divided into squares of side Xcm. Find the greatest value of X and find the area of the square. (2mks)
3. Given that x = - 2 find y and z (2mks)

x+y – 2=-1

x – 2y+z=-7

**SECTION II (20 marks)**

1. Two aero planes p and q leave an airport at the same time P flies on bearing of 2400 at 900km|h while Q flies due east at 750Km|h.
2. Using a scale of 1cm rep 100km make a scale drawing to show positions of the aero planes after 40 minutes. (4mks)
3. Use scale drawings to find the distance between the two aero planes after 40 minutes.

(2mks)

1. Determine;
2. Compass bearing of P from Q. (2mks)
3. True bearing of Q from P (2mks)
4. In the figure below AB=4cm, AD=6cm and AC 1cm, find

 

1. The area of triangle ABC (3mks)

1. The area of the trapezium ABCD (4mks)
2. The length of DC if the area of triangle ADC is equal to 25cm2 (3mks)
3. Two business partners Nzau and Masese contributed sh.112,000 and sh.128,000 respectively, to start a business. They agree to share their profits as follows;

30% to be shared equally

30% to be shared in the ratio of their contributions

40% to be retained for the running of the business

If their total profit for the year 1989 was sh.86400; Calculate

1. i) The amount shared equally (2mks)

ii) Simplified ratio of contribution (3mks)

1. The amount retained for running the business (2mks)
2. The amount received by each partner. (3mks)
3. Use mathematical table to evaluate
4. 845.72 (2mks)
5. $\sqrt{4566.7}$ (2mks)
6. Carol borrowed sh.150000. she paid back sh.25000 in the first month, sh.15000 in the second month and sh.34000 in the third month. She paid the rest in equal amounts for two months. Calculate
7. The amount she paid back in the first 3 months (3mks)
8. How much did she pay for each of the last two months (3mks)
9. The following measurements were recorded in a field book of a farm in metres (xy=400m)

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1. Using a scale of 1cm representing 4000 cm, draw an accurate map of the farm (5mks)
2. If the farm is on sale at kshs.80,000.00 per hectare, find how much it costs (5mks)