**NAME:............................................................ADM:........................**

**SCHOOL:........................………......... …………….DATE:.......................**

 **SIGN:....................**

*MATHEMATICS (121)*

*MAY/JUNE 2019*

*FORM ONE*

*MID-TERM TWO EXAMINATION*

*Time: 2 HOURS*

 ***Kenya Certificate of Secondary Education (K.C.S.E)***

**INSTRUCTIONS TO CANDIDATES**

1. Answer all questions from section one of this paper and any five questions from section two.

2. All your calculations must be clearly shown within the spaces provided for marks to be awarded.

3. **NO** referring from any unauthorized materials including text books. Failure to comply will result to a penalty.

4. Silent electronic calculator should **NOT** be used.

**FOR EXAMINERS USE ONLY**

Section I

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

. TOTAL

Section ll

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Question | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| Marks |  |  |  |  |  |  |  |  |

 TOTAL

 SECTION I (50MRKS)

*Answer all questions from this section*

1. Express 1050 in terms of its prime factors (2mks)

2. A square toilet is covered by a number of whole rectangular tiles of sides 60cm by 48cm.Calculate the least possible area of the room in square metres. (3mks)

3. Convert 0.2 into a fraction. (3mks)

4. Given that a=8, b=4, c=-4, d=10 and y=(a+b)(c+d)2, find the value of y without using table or calculators. (3mks)

5. Evaluate the following; - 1 + (4mks)

 + 3 of ÷ – 5 +

6. A seller distributes cartons of books as follows, the first school received of the cartons, the second school received a quarter of the remainder and the third school received a third of what the second school received. If the book seller finally remained with 42 cartons. How many cartons did the second school receive (4mks)

7. Use a number line to solve; 6 – (-4) (2mks)

8. Juma is three times older than his son Andrew. In 10 years time the sum their ages will be 52. Find their present age (3mks)

9. The arc length of length 88cm subtend an angle of 65˚ at the centre of the circle. Determine the radius of the circle and hence calculate its perimeter. (4mks)

10. A regular polygon is such that the sum of its interior angles is 1080˚. Find the number of sides and hence deduce the name of the polygon. (4mks)

11. Find the size of angles marked with letters in the figure below; (3mks)

 a

 **c** b **55**

12. Use tables to find the square root of; 0.10758 (2mks)

13. A number is made from the prime numbers between 1 – 10 and written in descending order. State the total value and the place value of the third digit. (3mks)

14. Evaluate: 32 ÷ 2 of (-4) x 3 + 280 (3mks)

 -4 ÷ 5 x 2

15. Simplify; - + (4mks)

16. In a mixed secondary school there are 360 students. There are twice as many girls as boys. If there are n boys, how many girls are in the school (3mks)

 SECTION II (50 MKS)

*Answer only five questions from this section*

17. A farmer has three containers of capacity 48litres, 36litres and 27litres. Find the capacity of:

 (a) the smallest container that can be filled by each one of them an exact number of times (5mks)

(b) the largest container that can be used to fill each one of them an exact number of times (5mks)

18. A rectangular field is 0.4m longer than its wide. If its length is 6m;

 (a) find its perimeter (3mks)

 (b) when the breadth of the rectangle is reduced by 0.5m, the length is increased such that the perimeter is increased by of its original . What is the change in the length of the rectangle? (7mks)

19. Construct a rectangle PQRS such that PQ=8cm and PS=5.3cm. Construct the bisector of the angle at point P and the perpendicular bisector of line PS. Let the two bisectors meet at point N. Measure NR (10mks)

20. A man bought 110 mangoes at sh.990. He ate four of the mangoes and sold the remainder making a profit of sh. 4 per mango. Calculate:

 (a) his selling price per mango (5mks)

 (b) the overall percentage profit (5mks)

21. Using a ruler and a pair of compass only construct the following angles;

 (a) 37˚ (3mks)

 (b) 105˚ (3mks)

 (c) 165˚ (4mks)

22. The length of an arc of a circle is of the circumference. Given that the circle has a radius of 42cm, determine;

 (a) the length of an arc of the circle (5mks)

(b) the angle θ subtended at the centre of the circle by the arc length (5mks)

23. By giving reasons in each case find the size of angles marked with letters in the figure below: (10mks)

 C D

 60˚

 x

 127˚ a b y

 F A B E