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

SCHOOL ……………………… …………….........DATE:…………………… SIGN:…………………….

121/1

MATHEMATICS PAPER 1

FORM THREE

JANUARY/FEBRUARY 2019

TIME: 2½

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

**INSTRUCTIONS TO CANDIDATES**

1.Answer all questions from section I of this paper and only five questions from section II.

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

3..No referring from text books or any other unauthorised materials. Failure to comply will result to a penalty.

SECTION 1

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

 TOTAL

SECTION TWO

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| QUESTIONS | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| MARKS |  |  |  |  |  |  |  |  |

 TOTAL

**SECTION 1 (50 mks)**

Answer ALL questions in this section.

1. Use logarithm tables to evaluate: (4mks)

 0.234 x 93.21

 2 32.6 x 0.0091

1. A two digit number is such that the sum of its digits is 5 and when the digits are interchanged the number formed exceeds the original number by 9. Find the original number. (4mks)
2. P(2, -1) and Q(6,3) are points on a line. If R is the midpoint of PR. Find the coordinates of R and hence the equation of the line through R perpendicular to PQ. (3mks)
3. Add the missing term to the following expression to make it a perfect square

 X2 + 8x + --- (2mks)

1. Solve for x using completing the square method .

X2 + 5 x + 1 = 0 (3mks)

1. The base of a right pyramid is a rectangle of length 40 cm and width 30 cm.

Each slantt edge of the pyramid is 130cm. Calculate the volume of the pyramid correct to 3 d.p (4mks)

1. Given that 62n – 3 = 7776. Find the value of n (3mks)

8.Omondi spent of his salary on food, of the remainder on transport and saved the rest. If he saves sh. 12600 how much money does he earn? (3mks)

9.Factorise KI – Kn + Mn. Hence use it to simplify the expression

(K1 – M1 – Kn + mn )( 1 + n) (4mks)

10. The surface area of the two similar cylindrical water tanks are 50m2 and 1622 . Given that the volume of the larger tank is 36490m3 . Find the volume of water in the smaller tank if it is half full. (4mks)

11. A perpendicular line drawn from a point Q(4,6) to the line 5y + 4x = 20. Find its equation in the form of ay + bx = c where a,b and c are integers

 (3mks)

12. A Kenyan business intended to buy goods worth US dollar 20000 from South Africa. Calculate the value of the goods to the nearest South Africa (S.A) rand given that 1 dollar = Ksh 101.9378 and 1 SA. rand= Ksh 7.6326 (3mks)

13.The length of a swing is 2.1m. If the length of the arc that is made by the swing is 44m. Calculate the angle swept by the swing. (2mks)

14 A measuring cylinder contain 45cm3 of water.2oog of sand having a density of 5g/cm3 is poured carefully into the measuring cylinder. What volume does the measuring cylinder show? (3mks)

15. A group of girls finished a piece of work in 10 days. How many extra girls are needed to complete the same work in 8 days. (2mks)

16. A safari Rally reduces its velocity from 180 km/h to 90 km/h in 5 seconds. Find deceleration of the car. (3mks)

SECTION 2(50)MKS)

Answer only five questions from this section

17. a) Using a ruler and a pair of compass only construct triangle ABC such that BC = 10cm, and ABC 600  and AB = 7cm ( 4mks)

b) Construct the perpendicular bisector of lines AB and BC hence draw the circumference of triangle ABC (3mks)

c) Measure the radius of the circumference hence use it to calculate the area of the circle drawn. (3mks)

18. The diagram below shows a frustrum made by cutting a small cone on a plane parallel to the base of the original cone. The frustrum represents a bucket with top diameter 36cm and the bottom diameter 24cm. The bucket is 18cm deep as shown below. (Take π =22/7).

 Calculate the;

a) Volume of the small cone cut off (4mks)

b) Volume of the original cone. ((3mks)

c) The capacity of the bucket in litres. (3mks)

19. In the figure below ABC is a tangent to the circle at point B. Angle ABF = 640 and BDE = 360 . Triangle BEF is an isosceles triangle with BE = EF

Giving reasons calculate the following angles

1. Angle BEF `(2mks)
2. Angle FBE (2mks)
3. Angle DBC (2mks)
4. Angle DBE (2mks)
5. Angle BED (2mks)

20.The measurement of a maize field 10 are recorded in the field book as shown below using the base line XY = 400

 Y

 360 80 to Q

 To R 80 280

 To S 160 200

 80 200 to P

 X

Draw a sketch of the maize field hence use it to calculate the area of the maize field in hectares.

21. three business partners Abira, Bwire and Camile contributed Ksh 12000, Ksh.18000. and 240000 respectively to boost their business. They agreed to put 20% of the profit back into the business and use 35% of the profits for the business (official operations)

The remainder was to be shared among the business partners in the ratio of their contributions. At the end of a certain year a gross profit of 2250000 were raised. Calculate

1. Amount put back into the business. (3mks)
2. Amount used for official operations. (2mks)
3. Amount of profit each partner got (5mks)

 *END*

*GOOD LUCK*