NAME: …………………………………………. INDEX NO: ……………………………….

KISIRIRI SECONDARY SCHOOL

 END OT TERM 2, 2014 EXAMINATIONS

FORM TWO MATHEMATICS

**2HOURS 30 MINUTES**

* ***Answer All Questions In This Paper On The Spaces Provided.***
* ***Show All Your Working, Logically Arranged.***
* ***Scientific Calculators Must Not Be Used In This Examination.***

**SECTION I 50 MARKS**

1. The equation of line b is -3/5x + 3y = 6. Find the:

(a) Gradient of the line by expressing the equation in the form Y= mX + c. (2mks)

(b) The equation of a line that passes through point (1, 2) and it is perpendicular to line b. (3mks)

1. Use mathematical table to evaluate 182 × 3914 (4mks)

 153 × 564

1. Solve 45x ÷ (23x)2  = 256 (4mks)

4. Cherono spent Sh. 207 to buy seven books and four pencils While Kibet spent 165 to buy five books and five pencils of the same type. Find the cost of each item using the substitution method. (3mks)

5. The table below shows exchange rates between the Kenyan shilling and the Japanese Yen. A Japanese tourist Mr. Chung exchanged 1,000,000 Yen into Kenyan shillings. He spent three quarters of the money and at the end of his holiday he exchanged the remaining Kenyan shillings back to the Japanese Yen. Using the logarithm table, how many Japanese yen did he get? (4mks)

|  |  |  |
| --- | --- | --- |
|  | Buying | Selling |
| Japanese Yen | 0.63 | 0.65 |

6. a regular hexagon has sides of 3cm

1. Construct the above figure using a ruler and a pair campus only. 2mks
2. Determine its area using the trigonometric ratios. 3mks

7. Two girls, one east and the other west of a tower, measure the angle of elevation of the top of its spire as 280 and 370 respectively. If the top of the building is 120m high, how far apart are the girls? (4mks)

8. Use any suitable method to determine the area of a regular polygon with 14 sides of 4cm long. 5mks

9. Four business partners Munyao, Kinura Mulisis and Mango made a profit of shs, 5,600 in one month. They set aside 25% profit for running the business. They then shared the rest in the ratio 2:3:4:6 respectively. How much did Mango get? ( 3mks)

10. Write the following expression as a single fraction (3mks)

 X + 2y - 2x – y

 4 5

11. A tree is 6m high. In photographing it, a camera forms an inverted image 1.5 cm high on the film. The film is developed to form a picture in which the tree is 6cm high. Calculate the scale factor of the two separate stages. (4mks)

12. Two similar jugs have capacities of 2 l and 0.25 l. If the height of the larger jug is 30cm, find the height of the smaller jug. (3mks)

13. Mr. Towet’s car petrol thank was 5/8 full when he left home for school. By the time he got to school, the tank was 2/8 full. How much more petrol does he need to get back home? (4mks)

**SECTION II 50 MARKS**

14. (a)Two aeroplanes P and Q, left an airport at the same time, P flying on the bearing of 2400 at 900km/hr while Q flying due East at 750 km/hr.

(i)Using a scale of 1 cm to rep 100km drawing, show the positions of the airplanes after 40 minutes. (4mks)

 (ii) Find the bearing of Q from P after 40 minutes. (1mk)

1. From a survey carried out, the following information was entered in a field book.

 Y

 240 180 to N

To R 90 180

1. 60 to M

 X

If XY is 360m and SM, RP and QN are the offsets.

a) Sketch the filed (2mk)

b) Determine the area of the field in hectares. (3mks)

15. a) Plot and draw trapezium ABCD where A (1, 2) B (3, 2) C (4, 4) and D (0, 4) on a graph paper (2mk)

b) Trapezium ABCD undergoes reflection in the line y= x to give A1B1C1D1. Draw A1B1C1D1 on the same grid and write itscoordinates (3mks)

c) Trapezium ABCD undergoes a rotation of 1800 about point E (2, -2) as the Centre of rotation. On the same grid, draw and determine the coordinates of the image A2B2C2D2 (4mks)

d) Use trapezium above to state one pair of the trapezium that are oppositely congruent. (1mk)

16. From a balcony of a house, an observer notices that the angle of depression to the foot of a multi-storey building is 30o. The angle of elevation of the same building from the balcony is observed to be 500. If the buildings are 50m a part,

a) Draw a sketch to represent the above statement. (2mks)

b) Using the suitable trigonometric ratio, determine to the nearest meters the height of the building. (4 marks)

c) Without using a mathematical table, use an equilateral triangle to determine;

1. Tan 600 (2mks)
2. Cos 300 (1mk)
3. Sin 300 (1mk)

17. a) Without using a protractor, construct a triangle ABC in which AB = 4cm BC = 6.5cm and angle ABC = 1050 Measure AC ( 5mks)

 b) Draw the perpendicular bisector of lines AC and BC to meet at O. With O as centre, draw a circle through A,B and C. Measure the radius of the circle. (5mks)

18 a) By choosing any three suitable pairs of values of x and y complete the table of values for each function.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 0 | 2 | 4 | 6 |
| y |  |  |  |  |

 (i) x + 3y = 15 (2mks)

 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 0 | 2 | 4 | 6 |
| y |  |  |  |  |

 (ii) x – y = 4 (2mks) 3

 b) Using the grid provided, and on the same axes, draw the lines x + 3y = 15 and x – y = 4 (4mks)

 2 3

c) Use your graph to solve the equations x + 3y = 15 x – y = 4 (2mks)

 2 3

