**NAME……………………………………………………………………………………ADM. NO………………CLASS………**

**MWAKICAN JOINT EXAMINATION (MJET)**

**MATHEMATICS FORM 1**

**END OF TERM III 2019**

**TIME: 2HRS 30 MIN**

**Instructions to candidate**

1. Write your name and Adm. No in the space provided.
2. These papers consist of two sections; Section A and section B.
3. Answer all questions in section A and only 5 from section B.
4. Write all your working on the space provided.
5. Marks are awarded for steps which are correctly worked.
6. Calculators must not be used.

Section I

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

 Section II

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | Total |
|  |  |  |  |  |  |  |  |  |

|  |
| --- |
|  |

 Grand Total

**SECTION I ANSWER ALL QUESTIONS IN THIS SECTION**

 -3(4 + 2) – 9 ÷ 3 +2

 -2 x -4 + -3 x 2

1. Evaluate: (3mks)
2. A number x is such that when it is divided by 30,36 and 45 the remainder is always 7. Find the smallest possible value of x (3mks)
3. Mr Saidi keeps turkeys and chickens. The number of turkeys exceeds the number of chickens by 6. During an outbreak of a disease, ¼ of the chicken and ⅓ of the turkeys died. If he lost a total of 30 birds, how many birds did he have altogether? (3mks)

0.0168 x 2.46 x 7

5.74 x 0.112

1. Without using mathematical tables evaluate (3mks)
2. If X= 3, Y=2 and Z=7 calculate (x2 + y2 + z2) giving your answer correct to 3 decimal

 places (3mks)

1. Express $0.7\dot{3}$ as a fraction 3mks
2. The ratio of Njoroge’s earnings to Musa’s earnings is 5:3. If Njoroge’s earnings increase by 12% his new figure becomes sk 5,600. Find the corresponding percentage change in Musa’s earnings if the sum of their new earnings is sh 9,600 (4mks)
3. Find the perimeter of the figure below (Take ĬĬ=3.142) (3mks)

16cmm

8cm

1. Solve the simultaneous equation by elimination method (3mks)

 3a + 5b = 20

 6a – 5b= 12

1. At the close of a business on a certain day, a kiosk owner realized that he had sold the following items from his stock:

7 crates of soda @ sh 480

50 buns @ sh 7.50

13 trays of eggs @sh 145.00

30 loaves of bread @ sh 34.00

1. packets of milk @ sh 50.00

 What was his total collection on that day? (3mks)

1. calculate the value of x (3mks)

 X

 (100-x)0

 (3x – 1)0

 1600

1. Evaluate ( 3mks)

¼ + ⅕ ÷ 2/2 of ⅓

½ of (⅘ - ¾ + ½)

1. The time table below shows the departure and arrival time for a bus plying between town M and R, 300km apart.

|  |  |  |
| --- | --- | --- |
| Town  | Arrival  | Departure |
| M |  | 0830h |
| N | 1000h | 1020h |
| P | 1310h | 1340h |
| Q | 1510h | 1520h |
| R | 1600h |  |

1. How long does the bus take to travel from town M to R? (1mk)
2. What is the average speed for the whole journey? (2mks)

1. The currency exchange rates at a given bank in Kenya is as follows

|  |  |  |
| --- | --- | --- |
| Currency  | Buying  | Selling  |
| 1 Sterling pound | 135.50 | 135.97 |
| 1 US dollar | 72.23 | 72.65 |

A tourist arrived in Kenya with 5000 US dollars which he converted to Kenya shillings upon arrival. He spent Ksh 214,500 and converted the remaining to Sterling pounds.

How many pounds did he receive? (3mks)

1. The diagram below shows a triangular prism of length 5cm and an equilateral as cross-section area of sides 3 cm. draw a sketch net of the prism (3mks)

 3CM

 5CM

1. Add one thousand and forty four to the product of one thousand and six and one hundred And eighty.

 (3 marks)

**SECTION II ANSWER ONLY FIVE QUESTIONS FROM THIS SECTION**

1. The figure below represents a cuboid ABCDEFGH with a rectangular base AB=12cm,BC=5cm and GH=15cm.

 **F E**

 D

 **G H**

 **15cm**

 **A D**

 12cm

 B 5cm C

1. Determine the volume of the cuboid (2mks)
2. Calculate the surface area of the cuboid (3mks)

1. Given that the density of the material used to make the cuboid is 8.6g/cm3. Calculate its mass in kilograms. (3mks)
2. Determine the number of such cuboids that can fit exactly in a container measuring 4.5M by 3.92M

 (2mks)

1. Villages A, B and C are such that B is on abearing of 1200 from A at a distance of 4km, C is 6km from B on a bearing of 2400
2. Using a scale of 1cm to represent 1km, show the relative positions of these villages (4mks)
3. Find
4. The distance of C from A (2mks)
5. The true bearing and compass of C from A (2mks)
6. The true bearing and compass of A from C (2mks)
7. Telephone bills consist of a fixed standing charge and an amount which depends on the number of calls made. The table below shows the total amount payable by a subscriber for different number of calls.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Number of call(n) | 10 | 20 | 30 | 40 | 50 | 60 |
| Amount payable in shillings(c) | 90 | 110 | 130 | 150 | 170 | 190 |

1. Draw the graph of the amount of money payable© against the number of calls made(n) (4mks)



1. From your graph, answer the following questions.

What would be charges for

1. 15 calls? (1mk)
2. 55calls? (1mk)

1. How many calls did a subscriber make if he paid
2. Sh 72? (1mk)

1. Sh166? (1mk)

1. What is the standing charge? (1mk)
2. The table below shows measurements of a farm in a field book. The length AB= 600M.

 **B**

 **550 120 TO L**

 **T0 K 150 450**

 **250 90 TO M**

 **T0 J 60 40**

 **A**

1. Using a scale of 1cm to represent 50M draw the map of the farm (4mks)
2. Find the area of the farm in hectares (6mks)
3. In the year 2016 the price of a television set in a shop was ksh. 14,000
4. Calculate the amount received from the sale of 280 television sets (1mk)
5. In the year 2017 the price of each television set increased by 25% while the number of sets sold decreased by 10%.
6. Calculate the percentage increase in the amount received from the sales (4mks)
7. If at the year 2018 the price of each television set changed in the ratio 9:8, calculate the amount received from the sale of 250 such sets. (2mks)
8. The sides of a triangle are in the ratio 3:5:2. If the shortest side is 8cm,find the longest side of the

triangle (3mks)

1. Using a ruler and a pair of compasses only, construct triangle PQR in which QR=1.5cm, PR=2.2cm and angle PRQ = 1200 (3mks)
2. Measure PQ and angle PQR (2mks)
3. Construct the perpendicular bisector QR and PR (2mks)

1. Draw the circumscribed circle of triangle PQR (2mks)
2. Measure the radius of the circle (1mk)
3. There are 8 lessons of 40 minutes each in Bama secondary school. Students are supposed to report I hour before the assembly in the morning. The school assembly takes 15minutes. There is a 20minutes break after the first 3 lessons, and a lunch-break is 1 hour 10 minutes, after the next three lessons. Games start 10 minutes after the last lesson and go on for 2hours. Students go home at 5:30pm.
4. How much time are the students supposed to spend in school? (2mks)
5. At what time are the students supposed to report to school? (2mks)

1. When does the first lesson begin (2mks)
2. At what time do the students go for lunch? (2mks)
3. When does the last lesson end? (2mks)
4. A sales woman is paid a commission of 2% on goods sold worth over ksh.100,000. She is also paid a monthly salary of Ksh 12,000. In a certain month, she sold 360 handbags at kshs. 500 each.
5. Calculate the sales woman’s earning that month (3mks)
6. The following month, the sales woman’s monthly salary was increased by 10%. Her total earnings that month were ksh. 17,600.

Calculate

1. The total amount of money received from the sales of handbags that month (5mks)
2. The number of handbags sold that month. (2mks)