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

**DATE:………/……./ 2017**

**MWAKICAN JOINT EXAMINATION (MJET) – 2017)**

**END OF TERM 2 FORM 1 MATHEMATICS EXAM**

**TIME: 2½ HRS.**

**INSTRUCTION TO STUDENTS:**

1. *Write your* ***name****,* ***admission number*** *and* ***class*** *in the spaces provided above.*
2. *Write the* ***date*** *of examination in spaces provided.*
3. *This paper consists of* ***two*** *Sections; Section* ***I*** *and Section* ***II****.*
4. *Answer* ***ALL*** *the questions in Section* ***I*** *and only* ***five*** *questions from Section* ***II****.*
5. *All answers and working must be written on the question paper in the spaces provided below each question.*
6. *Show all the steps in your calculation, giving your answer at each stage in the spaces provided* ***below*** *each question.*
7. *Marks may be given for correct working even if the answer is wrong.*
8. *KNEC Mathematical tables* ***may be*** *used, except where stated otherwise.*
9. *Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.*
10. ***Candidates should answer the questions in English.***

**FOR EXAMINER’S USE ONLY:**

**SECTION I**

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

**SECTION II GRAND TOTAL**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | **TOTAL** |
|  |  |  |  |  |  |  |  |  |

***Ensure that all the pages are printed and no question(s) are missing***

**SECTION I**

1. Without using a calculator evaluate  leaving the answer as a fraction in its simplest form  (3 marks)
2. It takes 30 workers 6 days working 8 hours a day to harvest maize in a farm. How many days would 50 workers working 6 hours a day take to harvest the maize? (2marks)
3. Simplify the expression 10a – 8b – 4 [a- (4b + c)] (3mks)
4. Evaluate $\frac{-2\left(5+3\right)-9÷3+5}{-3×-5+-2×4}$ (3 marks)

1. All prime numbers less than ten are arranged in descending order to form a number.

 (a) Write down the number formed (1 mark)

(b) State the total value of the second digit in the number formed in (a) above (2 mks)

1. A shopkeeper made a loss of 30% by selling an electric iron at sh700. What profit would he have made had he sold it at sh 1150? (3 marks)
2. A square room is covered by a number of whole rectangular slabs of sides 60cm by 42 cm. Calculate the least possible area of the room in square metres. (3 marks)
3. Three bells rang at intervals of 9minutes, 15 minutes and 21minutes. The bells will ring together at 11.00p.m.Find the time the bells had last rang together (4 marks)
4. Three businessmen Makokha, Njau and Odhiambo contributed a total amount of sh 120,000 to start a business. The ratio of the contributions of Makokha to that of Njau was 2:3 and that of Njau to Odhiambo was 2:5. How much did Odhiambo contribute?( 4 marks)
5. Two pairs of trousers and three shirts cost a total of 390. Five such pairs of trousers and two shirts cost a total of sh.810. Find the price of a pair of trousers and a shirt. (4marks)

1. Solve the equation $\frac{1}{4x }$ = $\frac{5}{6x}$ - 7 (3 marks)
2. Without using mathematical tables evaluate (3 marks)

 $\frac{0.18 ×4}{\sqrt{3.24 ×4}}$

1. A number n is such that when it is divided by 27, 30, or 45, the remainder is always 4. Find the smallest value of n. (3mks)
2. Express the following as a single fraction in its simplest form $\frac{3x-6}{4}$ -$ \frac{2x-2}{3}$ (3mks)
3. A watch which looses a half a minute every hour was set to read the correct time at 0445hr on Monday. Determine in twelve hour system the time the watch will show on Friday at 1845hr the same week. 3mks

1. Arrange the following fractions in ascending order. 2/3 , 7/12 , 5/8, (3mks)

**SECTION II**

**Answer only FIVE questions from this section**

1. In the figure below AB=4cm, AD=6cm and AC=10cm find:

A

D

B

C

6cm

10cm

4cm

a. the area of triangle ABC. (3mks)

b. the length of the perpendicular from B to AC. (4mks)

c. the length of DC if the area of triangle ADC is equal to 24cm2 (3mks)

1. The figure below represents a solid cuboid ABCDEFGH with a rectangular base. AC = 13cm, BC = 5cm and CH = 15cm.

 

1. Determine the length of AB. (1 mark)

1. Calculate the surface area of the cuboid (3 marks)
2. Given that the density of the material used to make the cuboid is 7.6g/cm3, calculate its mass in kilograms. (4 marks)
3. Determine the number of such cuboids that can fit exactly in a container measuring 1.5m by 1.2m by 1m. (2 marks)
4.
5. 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 in the ratio of their contributions

 30% to be shared equally

 40% to be retained for the running of the business.

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

1. The amount received by each partner (8marks)

1. The amount retained for running the business (2marks)
2. (a) Three litres of water (density 1g/cm3) is added to 12 litres of alcohol (density 0.8g/cm3) what is the density of the mixture? (5mks)

(b).A right angled triangular prism has length 3m, breadth 2m and height 2.5m. If the mass of the prism is 3.4kg, find its density in g/cm3. (5mks)

1. a)Express the following decimal as a fraction in its simplest form

 . .

 0.185 (2mks)

b. Kamau’s farm is 12 hectares in area. Five hectares is used for grazing and he plants coffee in the rest. What percentage of his farm is under coffee? (3mks)

c. 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. How much did she for each of the last two months? (5mks)

1. Use mathematical tables to evaluate the following

a) 8.4572 (1mks)

b) 567.42 (2mks)

$c ) \sqrt{456.7} $ (2mks)

$d). \sqrt{0.7893}$ (2mks)

e) Round of the following numbers to stated signicant figures (3 mks)

1. 3.07695 (4 s.f)
2. 899 (1 s.f)
3. 0.09057 ( 3. S.f)
4. A salesman received a basic salary of sh.50, 000 a year together with a commission of 6% on the value of goods sold and a car allowance of sh2.50 per km.
5. Find the total amount he received in a year in which he sells goods worth sh.625, 000 and travels 10,000km. (4mks)
6. The next year he travels 12,000km and receives a total of sh.134,000
7. Calculate the value of goods sold (4mks)
8. Calculate the percentage increase in the value of goods sold (2mks)
9. The figure shows three plots of land A, B and C, next to each other. Measurements are in metres

**A**

**B**

**C**

400

350

150

200

100

150

200

Find the area of each plot in hectares (6mks)

What is the total area of the plots (1mk)

If one hectare costs ksh.5000000, how much money can be realised from the sale of the plots? (3mks)