**SUNSHINE SCHOOL**

**FORM 1**

**MATHS**

**END TERM EXAM – OCT. 2015**

**TIME: 2 ½ HRS**

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

**INSTRUCTIONS**

1. Write our name, admission number and class in the spaces above.
2. Answer all questions in section A and section B.
3. All calculations should be done in the spaces provided.
4. Silent / electronic calculators **must not** be used.

**For examiners’ use only**

**Section A**

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

**Section B**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 17 | 18 | 19 | 20 | 21 | TOTAL |
|  |  |  |  |  |  |

|  |
| --- |
|  |

1. The sum of four consecutive even numbers is 420, find the numbers. Hence express the largest number as a product of its prime factors in power form. (3 mks)
2. Simplify: (2 mks)

7 of 13 – (18 ÷ 6 + 3) ÷ (9 x 3 – 25)

1. Giving reasons, test the divisibility of 34, 700 by 4. (3 mks)
2. A sector of a circle, radius = 7 cm, has an angle of 800 at the centre. Find its perimeter. (3 mks)
3. Mwisa, Otieno and Kamau divided 500 eggs among themselves in the ratio 14 : 5 : 6 respectively. Later Mwisa gave 20 eggs to Otieno and 20 eggs to Kamau. Find the percentage eggs that Otieno finally had to that of Kamau. (3 mks)
4. Evaluate: (3 mks)

$$ \frac{0.032 + 0.608}{0.0016 x 0.25}$$

1. Kamau divided a certain number by 10, 15 and 18 and he realized the remainder was always 7. What was the possible number? (3 mks)
2. (a) Simplify the expression $ \frac{x-1}{x} - \frac{2x +1}{3x}$: (2 mks)

(b) Hence or otherwise solve the equation $\frac{x-1}{x} - \frac{2x +1}{3x} = \frac{2}{3}$ (2 mks)

1. A bus left town A at 2045 hrs and arrived at town B at 0320h, where it stayed for 3 hours. It then set off to town C and took 6 hours from B to C.
2. How long did the journey take from A to B. (1 mk)
3. At what time in the 12 hour clock did the bus arrive at C.? (2 mks)
4. Evaluate: (3 mks)

$$\frac{1}{2} of \frac{1}{4} ÷ \frac{1}{8} + ^{3}/\_{4}- \frac{1}{8}$$

1. Calculate the volume of 4000 kg of methylated spirit in m3 if the density of the methylated spirit is 0.8 g/cm3. (3 mks)
2. Solve the following simultaneous equations by elimination method. (3 mks)

$$\frac{x}{3}- \frac{y}{2}+ 1=0$$

$$6x +y+8= 0^{}$$

1. A Kenyan bank buys and sells foreign currencies as shown below.

|  |  |  |
| --- | --- | --- |
|  | Buying (Ksh) | Selling (Ksh) |
| 1 Euro | 84.15 | 84.26 |
| 100 Japanese Yen | 65.37 | 65.45 |

A Japanese traveling from France arrives in Kenya with 5000 Euros. He converts all the 5000 Euros to Kenya shillings at the bank. While in Kenya he spends a total of Ksh 289,850 and then converts the remaining Kenya shillings to Japanese Yen at the bank. Calculate the amount in Japanese Yen he receives. (4 mks)

1. Use square and square root tables to evaluate to 4 significant figures the expression;

 (4 mks)

$$\sqrt{0.0465^{2} +4.346}$$

1. A cylindrical container of diameter 42 cm and height 30 cm is one-third full of water. The container is filled using a smaller cylindrical can of radius 4.2 cm and height 10 cm. determine the number of full cans required to fill the container. Use ( π = 22/7) (3 mks)
2. The angle of elevation of a stationery hot air balloon 50m above the ground from a man on the ground is 170. The balloon moves vertically upwards so that the angle o elevation from the man is 300. Find by scale drawing, how far above the ground the balloon is. (3 mks)
3. (a) Find the number of sides of a regular polygon whose interior angles are:

(i) 900 (1 mk)

(ii) 1080 (1 mk)

(iii) 1350 (1 mk)

(vi) 1560 (1 mk)

(b) Find the number of sides of:

1. A polygon having the sum of interior angles 10800. (2 mks)
2. A regular polygon if:
3. Each exterior angle is 240 (2 mks)
4. Each interior angle is 1500 (2 mks)
5. Complete the table for:
6. x – 2y = -1

|  |  |  |  |
| --- | --- | --- | --- |
| x | 0 | 1 | 3 |
| y |  | 1 |  |

1. 2x – y = 4 (3 mks)

|  |  |  |  |
| --- | --- | --- | --- |
| x | 0 | 1 | - |
| y | -4 | -2 | 0 |

Hence or otherwise solve graphically the simultaneous equation above. (5 mks)

x – 2y = -1 and 2x – y = 4

State the coordinates of point of intersection. (2 mks)

1. A surveyor followed the route PQRS. Q is 250 km on a bearing of 0750 from P. R is on a bearing of S 700E from P and 275 km from Q. S is 300 km on a bearing of 1000 from Q. using a scale of 1 cm to represent 50 km:
2. Show the relative position of PQRS. (4 mks)
3. Determine:
4. The distance PR in km. (2 mks)
5. Bearing of Q from R. (1 mk)
6. Distance PS in km. (2 mks)
7. The bearing of R from S. (1 mk)
8. (a) Using a ruler and a pair of compass only, construct a triangle ABC in which AB = 4.6 cm,

 BC = 5.4 cm and <ABC = 750 (4 mks)

(b) (i) Measure AC. (1 mk)

(ii) Drop a perpendicular from B to meet AC at N. (2 mks)

(iii) Measure BN. (1 mk)

(iv) Hence calculate the area of triangle ABC. (2 mks)

1. The diagram below represents a steel girder used in construction work. The cross-section consists of a rectangle measuring 20 cm by 14 cm form which two similar semi-circles have been removed. The girder is 5 m long and is made of steel whose density is 8.5 g/cm3



1. Calculate:
2. The cross-sectional area of the girder. (3 mks)
3. The mass of the girder in kilograms. (4 mks)
4. The removed semi-circular toughs are filled with concrete whose density s 5. g/cm3. Calculate the mass of concrete used to fill the removed parts of the girder. (Take π = 22/7)

(3 mks)