



FOCUS A365

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ADM

NAME

CLASS FORM 3

DATE

SCHOOLST. CLARE GIRLS SECONDARY SCHOOL - GATITU

KCSE | OPENER EXAMS | MATHEMATICS | TERM 1 | 2018

For Examiner's Use Only

| <u>CANDIDATE'S SCORE</u> | <u>MAXIMUM SCORE</u> |
|--------------------------|----------------------|
| | 80 |

Teacher's Comment

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Instructions:

1. Write your **name, class and ADM number** in the spaces provided above.
2. Answer **all** the questions provided in **this booklet**
3. All workings must be **clearly shown** on the question paper provided
4. Any acts of **cheating** will render your examinations nullified
5. For any queries, please confirm with the invigilator.



Answer All Questions in This Booklet (80 Marks)

1 a) Use logarithms to evaluate;

4 mks

$$\sqrt[3]{\frac{0.4532^2 \times 0.8925}{1.704}}$$

b) Simplify the expression:

3 mks

$$\frac{24m + 8n}{n + 3m}$$

c) Solve for x in the equation

3 mks

$$4^{x+1} \times \left(\frac{1}{32}\right)^{2-x} = 16^{x-\frac{1}{2}}$$

- 2 Given that the ratio $a : b = 2 : 3$; find the ratio $(5a - 2b) : (a + b)$ 2 mks
- 3 Without using log tables or a calculator; solve 3 mks
- $$\frac{\log_2 \frac{1}{4} + \log_2 64}{\log_2 32 - \log_2 \frac{1}{8}}$$
- 4 A group of 10 soldiers set off with enough food to last 7 days. After 4 soldiers deserted. How many more days will the food last for the remaining soldiers? 3 mks
- 5 The scale of a map is given as 1:50,000. Find the actual area in hectares of a region represented by a triangle of sides 6cm by 7cm (Give your answer to the nearest whole number). 3 mks

- 6 At a point $20m$ from the foot of a tree, the angle of elevation of the top of the tree is 50° , what will be the angle of elevation of the top of the tree from a point $30m$ away from the tree? 4 mks
- 7 Use reciprocals table to evaluate x in $\frac{1}{x} = \frac{1}{14.64} + \frac{1}{873}$ 4 mks
- 8 a A sales man is paid a commission of 5% on goods worth over sh. 500,000. He is also paid a monthly salary of Ksh. 30,000. Calculate the total earnings in a month when his total sales was Ksh. 600,000. 3 mks

- b In the following month the rate of commission was changed to $x\%$ but his monthly salary remained the same. If the salesman received a total monthly earning of sh. 40,000 for selling goods worth the same amount. Find the value of x . 3 mks
- c If the rate of commission in (b) above was reduced by 15% and his monthly salary increased by 10%. Find the percentage change in his total monthly earnings for selling the same amount for goods. 4 mks
- 9 Jane bought a T.V set by paying a deposit of Ksh.2400 plus 15 equal monthly installment of Ksh.500 each. The hire purchase price was 10% more than the marked price. What was the marked price? 3 mks

- 10 Solve the equation;
 $\log(x + 24) - 2\log 3 = \log(9 - 2x)$ 3 mks
- 11 Make d the subject of the formula
 $v = \sqrt{gd \left(1 + \frac{3h}{6}\right)}$ 3 mks
- 12 Solve the equation
 $\frac{x + 3}{24} = \frac{1}{x - 2}$ 3 mks
- 13 i) Use factor method to get the cube root of the following numbers
a) 729 1 mk

b) 4096

1 mk

ii) Using mathematical tables find the cube root of ;

a) 39.304

1 mk

b) 0.8159

1 mk

14 i) Simplify;

a)
$$\frac{a^2 \times a^4}{a^2 \times a^2 \times a^3}$$

2 mks

b)
$$729^{\frac{4}{3}} \times \left(\frac{1}{243}\right)^{\frac{-2}{5}} \div 27^{\frac{1}{3}}$$

3 mks

- ii) Find the value of the unknown
 a) $125^{x+1} - 5^{3x} - 5 = 615$

3 mks

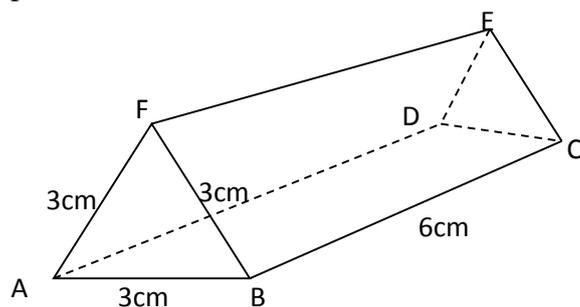
- b) Evaluate;

3mks

$$\frac{\frac{2}{5} \div \frac{1}{2} \text{ of } \frac{4}{9} - 1\frac{1}{10}}{\frac{1}{8} - \frac{1}{6} \times \frac{3}{8}}$$

15

The diagram below represents a prism of length 6cm whose cross-section is an equilateral triangle of sides 3cm. Draw a well labeled sketch of the net of the prism.



- a) Draw a well labeled sketch of the net of the prism.

2 mks

b) Find the capacity of the prism in milliliters

4 mks

c) Find the surface area of the prism

4 mks

16

Construct the image of quadrilateral ABCD under enlargement scale factor -2 center of enlargement E. 4 mks

