



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF HEALTH SCIENCES**

**UNIVERSITY EXAMINATION FOR THE DIPLOMA IN COMMUNITY HEALTH AND  
DEVELOPMENT**

**1<sup>ST</sup> YEAR 1<sup>ST</sup> SEMESTER (SEP – DEC) 2018/2019 ACADEMIC YEAR**

**NAMBALE CAMPUS**

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**COURSE CODE:**

**SMA 2111**

**COURSE TITLE:**

**MATHEMATICS I**

**EXAM VENUE:**

**STREAM: Diploma Comm. Hlth & Dev**

**DATE:**

**EXAM SESSION:**

**TIME: 1.30 HOURS**

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**Instructions:**

- 1. Answer QUESTION ONE (Compulsory) and any other TWO QUESTIONS.**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

### Question One

- a. You borrow ksh 5000 for 4 years and agree to pay  $6^{1/2}$  compound interest for this period. What amount will you have to pay back? Use the compound interest formulae. (4mks)
- b. Use the laws of indices to evaluate the following; (4mks)
- a.  $3^0 \times 3^3 \times 3^2$  (b)  $1^9 \div 1^4$
- c. The following data represents marks scored by students in a certain subject.

Marks	10-14	15-24	25-29	30-44
No. of Students	5	16	4	15

Calculate the mean, median and standard deviation. (10mks)

- d. In a triangle PQR, angle PRQ=90°, angle PQR=36° and RQ=4cm. draw triangle PQR and calculate PR. (6mks)
- a. Define the following terms. (6mks)
- Sequence
  - Arithmetic sequence
  - Arithmetic series

### Question Two

- a. You start working for a company as a sales person and obtain a basic salary of Ksh. 2000 in your first month employed. Thereafter your salary decreases each month by 10% of the previous months' salary. If you work for 1 entire year, will you earn more than Ksh 1000 in December (12 months) assuming that you start working in January, and earn your first salary at the end of this month? 8mks)
- b. Expand the following expression. (2mks)
- $$(x+5)(3x+2)$$
- c. Evaluate the following
- $2^3 \times 2^{-3}$  (2mks)
  - $(\frac{2}{3})^{-2}$  (3mks)

### Question Three

- a. Factorize the expression below. (3mks)
- $$x^2 + 6x + 5$$
- b. Write in logarithm form. (3mks)
- (a)  $2^4=16$  (b)  $9^{1/2}=3$  (c)  $b^n=m$
- c. Define the following terms. (6mks)
- Mean
  - Median
  - Mode
- d. Find the number whose logarithm is: (5mks)
- (a) 0.6107 (b)  $-4.5441$

#### Question Four

- i. Evaluate  $234 \sin 36$ . (1mks)
- ii. The sum of  $(-8)+(-2)+(4)+\dots$  is 1600. Work out how many terms are there. (4mks)
- iii. Consider the total population of animals in a farm given as 1800. Out of these 1200 are chicken, 200 cows, 300 goats, and 100 ducks. Represent the information in a pie chart. (10mks)

#### Question Five

- a. Differentiate the following terms
  - i. Discrete and continuous variables. (4mks)
  - ii. Nominal data and Ordinal data. (4mks)
- b. There were 240 exercise books to be given to form 2w. Thirty four students in the class did not receive the books for various reasons. If the books were shared equally among the remaining members of the class, the number obtained by each student was equal to the number of students in the class. Find the number of students in the class. (5mks)
- c. Subtract  $x - 2y + 5z$  from  $2x - 3y - 4z$ . (2mks)