



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF EDUCATION**  
**DEPARTMENT OF SPECIAL NEEDS EDUCATION AND EARLY CHILDHOOD**  
**DEVELOPMENT**  
**UNIVERSITY EXAMINATION FOR THE DIPLOMA IN SPECIAL NEEDS EDUCATION**  
**2<sup>ND</sup> YEAR 1<sup>ST</sup> SEMESTER 2017/2018 ACADEMIC YEAR**  
**MAIN CAMPUS REGULAR**

---

**COURSE CODE: ESN 2211**

**COURSE TITLE: MATHEMATICS**

**EXAM VENUE:**

**STREAM: DIP. SNE**

**DATE:**

**EXAM SESSION:**

**TIME: 1 ½ HOURS**

---

**Instructions:**

- 1. Answer Question ONE (COMPULSORY) and ANY other 2 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.**

1 a) Differentiate between the following terms as used in mathematics

- i) Whole numbers and counting numbers (4Marks)
- ii) Ordinal and cardinal aspect of numbers (4Marks)
- iii) Square and rectangular numbers pattern (4Marks)

b) Describe how you would introduce the concept of place value using 35 as an example

(3Marks)

ii) Describe the three number activities that provide pupils with necessary readiness to understand the initial number concept of equality and inequality. (6 Marks)

c) The marked price of machine is ksh 40,000 the hire purchase price of the same machine is 120% of the marked price. Babu bought the machine on hire purchase terms, by paying a deposit plus 10 equal monthly installment of ksh. 2000 each.

- i) How much did he pay as a deposit? (3Marks)
- ii) Jobita bought the similar machine on cash basis by taking a loan from a bank charging a compound interest at a rate of 20% p.a for 2 years. How much did it cost him? (3 Marks)

iii) Who paid more and by how much? (2Marks)

2 a) your next lesson is on subtraction of 2 digits numbers involving borrowing

- i) State the lesson objective (1Marks)
- ii) Write down two stages with an example in each stage that you would use to teach this lesson. (4 Marks)
- iii) You decided to use the example 41- 29 and place value abacus to demonstrate how to work out subtraction with borrowing. Describe how you would do this. (5 Marks)

b) Describe how you would introduce the number “Zero” to your class one pupil (4 Marks)

ii) Explain how you would assist your learners to work out

MDCLX + CCXLVII (3 Marks)

iii) Describe how you would lead your pupils to get the square of the next number in the sequence below:-

98, 87, 74, 57, 34 (2 Marks)

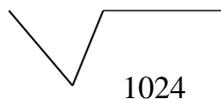
3. a) Using Eratosthenes sieve method , describe how you will guide your learners to identify prime numbers between 1-100 (4 Marks)

ii) Identify six activities you may use to help STD 1 pupil understand the cardinal numbers one to nine. (6 Marks)

b) You want to teach your class how to find the square root of perfect square number using prime factorization method.

i) What background knowledge should the pupil have (2 Marks)

ii) Describe the steps you would follow using the example (4 Marks)



iii) Describe another method (not inspection) you would have used to find the square root of 1024. (4 Marks)

4a) in your preparation for teaching the topic” subtraction” of fraction

i) List the four main sub- topic in their correct order you will consider (4 Marks)

ii) Using example describe a practical activity in the introduction of first and the second sub – topic.

4 b) a closed rectangular wooden box of internal dimension 60cm by 30cm by 20 cm is constructed. The wood is 1.5 cm thick calculate

i) Volume of wood used to make the box (5Marks)

ii) The outer surface area of the box (5Marks)

5a) you wish to introduce the topic temperature to your class. Describe four activities that you would involve your pupils in your lesson development. (4 Marks)

ii) You intend to teach your class how to estimate time using shadows. Describe a practical activity that you would carry out with your class. (4 Marks)

iii) A youth group deposited some money for 3 years at a bank that paid simple interest at the rate of 15% per annum. If at the end of the third year, they withdraw KSH, 13920,000, how much did they deposit at the bank?

Show the chalk board layout of the solution

(2Marks)

b) Using a ruler and a pair of compasses only

i) Construct a rhombus PQRS in which  $PQ = 6\text{cm}$  and angle  $PQR = 30^\circ$

(4 Marks)

iii) From P construct a line perpendicular QR

(1 Marks)

iv) Calculate the area of the rhombus

(3Marks)

v)

vi) On the perpendicular line mark a point T such that the area of the triangle PST is equal to the area of the rhombus

(1Marks)

vii) Complete the triangle PST

(1Marks)