PRESENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

FORM THREE MIDTERM EXAMINATION

061 **BASIC MATHE MATICS**

TIME 2.00 hours

Instructions

1. This paper consists of section A and B
2. Answer all questions
3. All necessary working and answer must be shown clearly
4. All writing must be in blue or black ink
5. All communications devices and unauthorized material are not allowed

FOR EXAMINAR USE ONLY		
QUESTIONS	**SCORE**	**EXAMINER'S INITIAL**
01		
02		
03		
04		
05		

SECTION A

1. a)Write 0.007357 correct to three significant figure
   b) Express $0.01\dot{}$ in form of ^{a} where b # 0
   c) Sir Tinka and Mr Sule are riding on a circular path. Sir Tinka completes a round in 24 minute whereas Mr Sule completes a round in 36 minute. If he started at the same place and time and go in the same direction, after how many minutes will they meet again at starting point?

2. In a class of 120 students 40 learn English ,60 learn Kiswahili and 30 learn both Kiswahili and English. How many students learn
   a) English only?
   b) Neither English nor Kiswahili?

3. a) The line joining (2, -3) and (K,5) has a gradient -2. Find K
   b) Rationalize the denominator $\frac{\sqrt{3}-\sqrt{2}}{\sqrt{5}+\sqrt{3}}$
4. a) A regular polygon has an exterior angle of 72^0 Find
   i. The size of interior angle
   ii. How many sides does this polygon have?
5. a) An amount of 24,000/= is to be shared among Joleen , Hellen and Amina in the ratio of 2:3:5 Respectively. How much will each get?
   b) A damaged chair that costs Tsh 11,00/= was sold at a loss of 10%. Find i. The loss made
   ii. The selling price
6. a) Find a time in which a person investing 30,000/= Tsh at the rate of 5% interest per annum.
   b) Solve the equation $2X^2$-3x-5=0 by completing the square

7. a) If 4 pens and 11 pencils cost 1240/= and 3 pens and 2 pencils cost 680/= what are the cost of pen and pencil
   c) The product of two consecutive even number is 288, work out their sum.

8. Msaki bought a certain number of mangoes for 3600 shillings. If each mango had costed 50 shillings less, he could have bought six more mangoes for the same amount of money, how many mangoes did he buy?

9. a) Solve out the value of $\left(\frac{\tan 45}{\tan 45}\right)$ X sin 30^0 without t using mathematical table and leave your answer in surd form
   b) Mr Mlowe walks 6km due to east from Wanike Secondary and then walks 8Km due to south to Igma Secondary. Calculate the Shortest distance from Wanike Secondary to Igma Secondary.

10. Two quantities P and Q are such that P = $\sqrt{2-3}$ and Q = $\sqrt{2+1}$ use these quantities to show that.
    i. PQ = -1-2 $\sqrt{2}$
    ii. $\frac{P}{Q}$ = 5- 4 $\sqrt{2}$
    iii. Express X in term of P and q from the formula P = $\sqrt{q+X,}$ hence, find the value of X it P =

3 and q = -1

11. Given a function f (x) = $x^2 - 2x - 3$

    Find i) Line of symmetry
    ii) The turning point
    iii) Domain and range
    iv) Maximum or minimum value

SECTION B

12. If F (x) is the function such that

$$F(x) = \begin{cases} -3 \text{ if } x \leq -1 \\ 1 \text{ if } -1 < x \leq 2 \\ 4 \text{ if } -2 < x \end{cases}$$

    a) Sketch the graph of F (X)
    b) State the domain and range of F (x)
    c) Find the value of
       i. F (π) ii) F (o) iii) F (-100)

13. The relation R is defined as R = {(x, y): y = - x^2 + 2} where x $\in$ A, and A= {-2, -1, 1, 3, 5}.
    i. List the set of ordered pairs
    ii. Draw a pictorial diagram of the relation
    iii. Find the inverse of R.

14. A rectangular garden is 6 metres wide and 8 metres long. What length should be added is the shorter side and reduced from the longer side to form rectangular garden with an area of 45 metres?