THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA
FORM TWO NATIONAL ASSESSMENT

042 **ADDITIONAL MATHEMATICS**

Time: 2:30 Hours **Year: 2020**

Instructions

1. This paper consists of ten **(10) Compulsory** questions**.** Each question carries **10** marks.
2. Answer **all** questions.
3. All writing must be in **blue** or **black** ink **except** drawing which must be in pencil.
4. Cellular phones, and any unathorized materials are **not** allowed in the assessmenmt room.
5. Write your **Assessment Number** at the top right hand corner of every page.

FOR ASSESSOR'S USE ONLY		
QUESTION NUMBER	**SCORE**	**ASSESSOR'S INITIALS**
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL		
CHECKER'S INITIALS		



1. (a) Write down all factors of 30 which are greater than 2.

   (b) Given the whole numbers 14472 and 91896 and required to identify the number which is divisible by both 8 and 9.

2. (a) Simplify the expression $6(x+1)+2(x+2y)-8x+10y-2(3+4y)$.

(b) (i) Use elimination method to solve the simultaneous equations $6m \quad -2n + 14$ and $\quad 2m + 5n \quad 9$.

(ii) Solve the linear inequality $7 < 3y + 1 \leq 13$.

3. (a) Draw the line segment XY, then divide it into two equal parts.

(b) Construct the Hexagon with sides of length 4cm each.

4. Find the locus of a point which is equidistant from points (0, 2) and (0, -3).

5. Find the coordinates of the points of intersection of the graphs of y $x^2 - x - 3$ and $y \quad x$.

6. (a) (i) Daw all lines of symmetry in an equilateral triangle and

(ii) determine the number of lines of symmetry in an equilateral triangle.

(b) For each of the following figures, state whether they are symmetrical or not.

(i) a circle and

(ii) rhombus

7. (a) If P stands for Anna is the tallest girl in form two and Q stands for Anna is an intelligent girl in Form Two; write verbal statements for:

(i) $\sim P \wedge \sim Q$ and

(ii) $P \leftrightarrow \sim P$.

(b) Draw an electrical circuit for the statement $(p \wedge q) \vee r$.

(c) Test the validity of $\sim p \rightarrow \sim q$ by using a truth table.

8. The variable x and y are directly proportional to each other. If $x \quad 3$ and $y \quad 12$, find the equation relating x and y .

(b) If r is directly proportional to t , and r is 6 when t is 18, and were required to find r when t is 24.

9. In a class of 105 students, 10 study English and Geography, 8 study History and Geography, 20 study English and History and 5 study all the three subjects. If the number of students studying English only, Geography only and History only are 23, 17 and 27 respectively,
   (a) Show this information on a Venn diagram
   (b) Determine the number of students who are taking neither of the three subjects.

10. (a) Simplify the expression $\frac{a+1}{3} - \frac{(2a+1)}{4}$.

(b) Solve for c if $\frac{2}{c-1}+\frac{3}{c+1}\quad\frac{5}{c}$

(c) Solve the simultaneous equations: $\begin{cases} c^2+d & 9 \\ d+6 & 2c \end{cases}$