Candidate's Examination Number……

THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
FORM TWO SECONDARY EDUCATION EXAMINATION

0041 **BASIC MATHEMATICS**

Time: 2:30 Hours **Tuesday, 25th November 2014 a.m.**

Instructions

1. This paper consists of sections A and B.
2. Answer **all** questions showing clearly all the working and answers in the space provided.
3. **All** writing must be in blue or black ink **except** drawings which must be in pencil.
4. Mathematical tables, geometrical instruments and graph papers may be used where necessary.
5. **All** communication devices and calculators are **not** allowed in the examination room.
6. Write your **examination number** at the top right corner of every page.

FOR EXAMINER'S USE ONLY					
QUESTION NUMBER	**SCORE**	**EXAMINERS' INITIALS**	**QUESTION NUMBER**	**SCORE**	**EXAMINERS' INITIALS**
1			14		
2			15		
3			16		
4			17		
5			18		
6			19		
7			20		
8			21		
9			22		
10			23		
11			24		
12			25		
13					
TOTAL					

SECTION A (60 MARKS)

Answer all questions in this section

1. Calculate the value of $2x + k + 20 + y$, when $x = 8,\ k = 12$ and $y = -9$.

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2. The radius of the earth is about $6,370,000$ meters. Express the radius in scientific notation.

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3. If A and B are complementary angles such that $A = 25°$ and $B = x + 25°$, find the value of x.

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4. Find the value of x in the equation $\frac{0.8}{x} = 0.03$.

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5. Simplify the expression $7(3m+n)+4(m-3n)-m$.

6. When 9 is added to 3 times a certain number, the result is greater than 90. Write down an inequality that represents the possible values of this number.

7. Without using mathematical tables, evaluate: $\frac{(1.295)^2-(1.297)^2}{1.295-1.297}$.

8. The length of one side of a square is $(8x+10)$ cm. If the side lengths of the square are reduced by half, find the equation for the perimeter of the square after changing the length.

9. Find the value $m+n$, given that $7^m \times 5^n = 875$.

10. Jane requires a piece of cloth of 1.8 meters long to make her dress; whereas Mary requires a piece of a cloth which is one and a half times as long as Jane's. How long is Mary's piece of cloth?

11. Represent the solution set of the inequality $5x+5<20$ on a number line.

12. In a form two class, 5% of the students can play football, $\frac{1}{4}$ can play volleyball, 0.1 can play basketball and $\frac{3}{5}$ can play tennis. Arrange these numbers in descending order.

13. Write 375 grams as a fraction of 3 kilograms.

14. At Kilamara secondary school, the distance (d_1) from the dormitories to the classrooms is twice the distance (d_2) from the classroom to the playing grounds whereas the distance (d_3) from the dormitories to the playing grounds is three times the distance from the dormitories to the classrooms. Using the given notations write down the two equations that summarizes this information and hence find the equation that connects d_3 and d_2.

15. Determine the value of x that satisfies the equation $\frac{x+10}{x-4} = 3$.

16. Write $4\log 3 - \frac{1}{2}\log 81$ as a single logarithmic expression.

17. Find the product of the G.C.F and L.C.M of 6, 9 and 15.

18. Find the gradient of the straight line passing through the points $(-5,2)$ and $(6,2)$.

19. If a triangle has two equal sides of length x cm each and the length of the remaining side is one quarter of the total length of the two congruent sides, write down an equation that represents the perimeter of this triangle.

20. Merina bought a bicycle for 75,000/= and sold it after two years at a loss of 25 percent. Calculate the amount of the loss.

SECTION B (40 Marks)

Answer **all** questions in this section

21. The area of a rectangular room is 196 cm^2 . If its length is four times its width, find its perimeter.

22. Evaluate $\frac{2.78\times3.604}{\sqrt{0.3481}}$.

23. A ladder 12m long leans against the top of vertical wall and makes an angle of 52 degrees with the wall. Find the height of the wall.

24. In a class of 45 students, some study physics or chemistry or both. If 23 students study physics, 33 study chemistry and 10 students do not study neither physics nor chemistry, find the number of students who study both physics and chemistry using the formula.

25. In the figure below AB = 36cm, AC = BC = 24cm, EC = DC = 20cm and ED = 30cm. Show that triangles ABC and EDC are similar.

