Candidate's Examination No……..……

THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
FORM TWO SECONDARY EDUCATION EXAMINATION, 2011

0041 **BASIC MATHEMATICS**

Time: 2 ½ Hours

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. Write your examination number at the top right corner of every page.
5. Mathematical tables, geometrical instruments and graph papers may be used where necessary.
6. Cellphones and calculators are not allowed in the examination room.

FOR EXAMINER'S USE ONLY					
QUESTION NUMBER	SCORE	INITIALS OF EXAMINER	QUESTION NUMBER	SCORE	INITIALS OF EXAMINER
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)

1. Add the first three common multiples of 3 and 5.

2. Two numbers are such that the first number plus the second number is 7. The first number minus twice the second number is 1. Find the numbers.

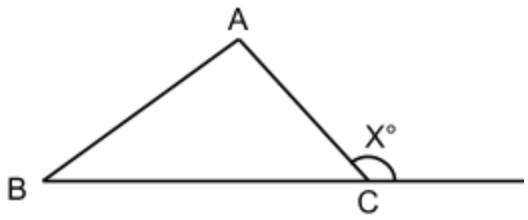
3. Re-arrange the following fractions starting from the greatest to the smallest:
   $\frac{7}{12}, \frac{3}{4}, \frac{5}{6}, \frac{2}{3}, \frac{1}{2}$

4. In Mpitimbi village 70% of 1200 cows are black and 22.3% of 18000 goats are white. Find the sum of black cows and white goats.

5. Juma walked a distance of 1 kilometre and 300 metres from his home to a shop. He then walked further 0.85 kilometres to the stadium to greet his friend who was watching football. Calculate the total distance in metres Juma travelled.

6. Express 0.007678 to 3 significant figures.

7. Find the value of X in the following figure, given that m(BAC) = 50° and m(ABC) = 75°



8. Simplify 3a – 5b – 7a + 6c + 7a + 8b

9. Expand the expression $(3m + 7n)^2$

10. Find two positive numbers whose difference is 5 and whose product is 266.

11. George and Asha shared 35 mangoes in the ratio 2:3. How many mangoes did each get?

12. Find the slope of the line with equation $7x + 2y = 8$.

13. A school assembly ground is 30m by 30m. Part of the ground is a concrete rectangle of 25m by 5m, while the rest is grass. Calculate the area of the grass.

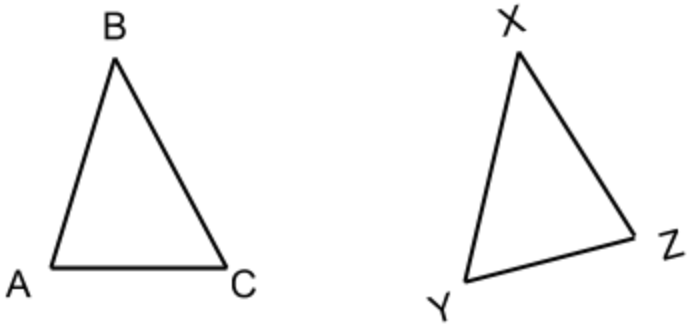
14. Rationalize the denominator to the simplest form: $\frac{\sqrt{3}+\sqrt{5}}{\sqrt{5}-\sqrt{3}}$

15. Simplify $(-4g^5)^3$

16. A mother is 4 times older than her child. Five years ago the product of their ages was 175. Find their present ages.

17. Show that $\log_a (MN) = \log_a M + \log_a N$

18. Given that m(BAC) = 80°, m(BCA) = 69°, m(YXZ) = 31° and m(YZX) = 80°. Show that the following triangles are similar.



19. The co-ordinates of the square PQRS are given by P(1, 4), Q(3, 4), R(3, 2), and S(1, 2). Write the co-ordinates of the image of the square P'Q'R'S' under reflection in the x-axis.

20. Which of the following triples fits to Pythagoras theorem?
    (a) (33, 55, 65) (b) (15, 30, 35)

SECTION B (40 Marks)

21. Given that the universal set ξ = {all counting numbers less than 29}. M and N are the subsets of set ξ where M = {Numbers which are multiples of 4} and N = {Numbers which are perfect squares}. Find (M∩N).

22. An engineer finds that the angle of elevation of the top of a building from a point on the ground is 25°. She walks along a straight line 30 metres closer to the foot of the building and finds that the angle of elevation is 50°. Determine the height of the building. (Your answer should be correct to one decimal place)

23. The masses of 40 students from the University of Dar es Salaam were recorded to the nearest kilogram as follows:

60	64	63	67	66	68	59	58	59	60
64	66	65	60	73	70	63	69	70	60
66	70	74	69	63	69	59	65	64	65
73	61	62	64	61	61	62	63	58	73

From the data given, construct a frequency distribution table taking equal class intervals 57 - 61, 62 - 66, 67 - 71, … and determine the class interval with the highest frequency.

24. Use mathematical tables to compute $\frac{17.83\times246.9}{256.2\times3.28}$ correct to 3 decimal places.

25. Calculate MN and YM in the following figure

