456/1
MATHEMATICS
2¼ hours

TORORO GIRLS, SCHOOL EXAMINATIONS BOARD

Senior Two Beginning of Term Two Examinations

MATHEMATICS

2 hours 15 minutes

INSTRUCTIONS:

Answer **all** *questions in section* **A** *and any questions* **four** *questions from section* **B**.

All *necessary calculations must be shown clearly with the rest of the answer.*

Therefore, no paper should be given for rough work.

Graph paper is provided.

Silent non-programmable scientific calculators and mathematical tables with a list of formulae may be used.

DRAW THIS TABLE ON THE FIRST PAGE OF YOUR ANSWER BOOKLET

	Maximum Score	**Actual Score**
SECTION A	40	
Question 11	10	
Question 12	10	
Question 13	10	
Question 14	10	
TOTAL	**80**	

SECTION A: (40 MARKS)

Attempt **all** *questions in this section.*

1. Evaluate:

(a) $27^{\frac{2}{3}}$

(b) $2^{-3} \text{x } 8^{\frac{2}{3}}$ (*04 marks*)

2. If the point (4, ***a***) lies on the line $3x + 2y = 0$, find the value of ***a***. (*04 marks*)

3. Find the equation of the line which passes through the following points: (2, 1) and (4, -3). *(04 marks*)

4. Given that f(x) = ***p***x – 4 and f(3) = 14, Find the value of

(a) ***p***

(b) f(-4) (*04 marks*)

5. The average of four numbers is 20. If another number, 7***x*** is added, the new average is 30. Find the value of ***x***. (*04 marks*)

6. After spending $\frac{1}{8}$ of his monthly salary on school fees and $\frac{1}{7}$ of the remainder on house rent, John is left with 150,000. Determine John's salary. (*04 marks*)

7. Make ***x*** the subject in the expression,

$$v = w\sqrt{a^2 - x^2}$$ (*04 marks*)

8. Solve the inequality below and show the solution on a number line:

$5 \leq 11\text{-}3x < 17$

(*04 marks*)

9. The interior angle of a rectangular polygon is 162°. How many sides does the polygon have?

(*04 marks*)

10. Expand the bracket and simplify the expression:

$\left(2x - \frac{1}{3}\right)\left(3x - \frac{1}{2}\right)$ (*04 marks*)

SECTION B: (40 MARKS)

Answer any **four** *questions from this section. All questions carry equal marks.*

11. (a) Edward invests Shs. 125,000 at 18% per annum. What is his annual interest?

(b) In 2010, the price of beans increased from Shs. 1,300 to 1,500 per kilogram. Find the percentage increase in price.

(c) If the price increase persisted at the same rate, what would be the price in 2011? (*10 marks*)

12. The table below shows marks scored in a Mathematics test marked out of 40:

30	29	27	28	27	26	30	26	27	29
26	28	26	28	29	25	29	28	29	30
25	26	28	27	28	27	28	29	30	29

Copy and Fill in the table below:

Mark (x)	Tally	Frequency (f)	f(x)
25			
26			
27			
28			
29			
30			
		$\sum f =$	$\sum f(x) =$

(i) Find the mean.

(ii) Find the modal mark.

(iii) Draw a bar graph to represent this information. (*10 marks*)

13. Jinja is 80km East of Kampala while Kamuli is 50 km North of Jinja. A helicopter flies from Kampala to Jinja and then to Kamuli.

(a) Use an accurate scale drawing to represent the journey of the helicopter.

(b) Find the bearing and the direct distance from Kamuli to Kampala.

(c) If the helicopter flies at a speed of 200km/hr, Find:

(i) the time it took the helicopter to move from Kampala to Kamuli via Jinja,

(ii) the time it will take to fly back to Kampala on a direct journey. (*10 marks*)

14. Using a pair of compasses and a ruler only,

(a) Construct a triangle ABC in which AB=8cm, ABC = 60^o, and ACB = 75^o.

(b) Measure the length AC and BC.

(c) Bisect AC and BC perpendicularly. Let the bisectors meet at X

(d) With X as the centre and radius XC, draw a circum-circle and measure the length of its radius. (*10 marks*)

END.