END OF TERM ONE S.2 EXAMS 2019

Time $2\frac{1}{2}$ hrs

Instructions

- *The paper consist of two sections A and B*
- *Attempt all questions*
- *All questions in both sections carry equal marks*
- *Begin each question in section B on a fresh page*
- *Clear display of all necessary working is required*
- *Untidy work will lead to loss of marks*

SECTION A (40 MARKS)

Answer all questions in this section.

1. Given two points R (4, 5) and S (-2, 9).
   (a) Find the mid point of R and S
   (b) Determine the equation of a line joining R and S
2. Solve the following pair of simultaneous equations

$$3x - 2y = -1$$
$$2x + y = 4$$

3. By rationalizing the denominator, express $\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ in the form $\boldsymbol{p + q\sqrt{15}}$**.** Hence find the values of p and q.
4. Molly shared 480,000/= among her three daughters. Nina got a quarter of the money and shard the remainder equally between Nana and Natasha.

(a) What amount did

(i) Nina get

(ii) Natasha get

(b) Determine the ratio of Nina to Natasha's share

5. Solve for x in $32^{3/5} \div x^{1/2} = 2$.

6. Express the recurring decimal 0.341666…. as a fraction in its simplest form.

7. Given that $2y = 3x - 5$, make x the subject of the formula and hence find the values of x when y = $\frac{1}{2}$.

8. Find the equation of a line whose gradient is 3 and passes through (-1, 4).

9. Given that F is inversely proportional to the square of d and that when F = 18, d = 4. Find the value of F when d = 3.

10. Simplify the fraction $\frac{3-2\frac{3}{4}}{1\frac{3}{4}}$.

SECTION B

11. (a) Find the value of a if the line joining the points (-2,a) and (4,5) is $\frac{1}{3}$.

(b) Three points A,B and C in the x-y plane have coordinates A(4,6), B(1,2) and C(12,6). S is the mid-point of BC. Find the coordinates of S and the equation of the line through S having the same gradient as AB.

12. Using a pencil , a ruler and a pair of compasses only

(a) Construct a triangle ABC such that AB = 7.8cm and angle CAB = 60^0 while angle ABC = 75^0 (05 marks)

(b) Inscribe a circle onto triangle ABC. (05 marks)

(c) Measure and state the length AC and the radius of the circle.(02 marks)

13. (a) Find the HCF of 54, 72, and 144. (04 marks) (b)

Convert 143_{eight} to base six. (04 marks)

(c) In Nairobi a computer costs Kshs 540,000.

How much will it cost in Arusha if 1Khs = Ugshs25 and 1Ugshs = Tshs 1.8.

14. A plane flies from port R due north for 350km to port S. it then flies on a bearing of 295^0 for 250km to port T. from there it flies on a bearing of 090^0 for 500km to another port U.

(a) Draw a sketch diagram to show the route of the plane and hence draw the accurate diagram using a scale of 1cm to represent 50km.(06 marks)

(b) From your diagram, find the distance and bearing of port R from U.

(c) If the plane flies back to port R by the direct route, and travels at an average speed of $250kmhr^{-1}$, find the time in hours taken for the whole journey.

15. (a) Draw a graph representing the equation 2y = 5x + 1 by first completing the table below

X	-2	-1	0	1	2	3
$\frac{5X}{2}$						7.5
$\frac{1}{2}$	$\frac{1}{2}$				$\frac{1}{2}$	
Y			0.5			8

b) Determine the y – intercept of the line drawn (2marks)

THE END