KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

PRECIOUS BLOOD HIGH SCHOOL

MATHEMATICS

PAPER 1

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PRECIOUS BLOOD KCSE TRIAL AND PRACTICE EXAM 2016

121/1
MATHEMATICS
PAPER 1
TIME: 2 ½ HOURS

SECTION I (50MARKS)

1 Without using tables or calculators, evaluate. (3mks)

$$\sqrt{\frac{0.38x0.23x2.7}{0.114x0.0575}}$$

2 Without using a calculator or tables, find the value of y given that $y = (a+b)(x-c)^2$ and a = 5 , b =6 ,x = -3 and c = 2. (3mks)

3 Solve the following inequalities and represent the solution on a single number line.

$3 - 2x < 5$

$4 - 3x \geq -8$. (3mks)

4 Use the reciprocal, square and square-root tables to evaluate to 4 significant figures the expression. (4mks)

$$\sqrt{\frac{1}{24.56} + 4.346^2}$$

5 A Kenyan bank buys and sells foreign currencies at the exchange rates shown below.

	BUYING (KSHS)	SELLING (KSHS)
1Euro	147.56	148.00
1U.S Dollar	74.22	74.50

An American arrived in Kenya with 20,000 Euros. He converted all the Euros into Kenyan Shillings at the bank. He spent Kshs.2,510,200 while in Kenya and converted the remaining Kenya shillings into U.S Dollars at the bank. Find the amount in dollars that he received. (3mks)

6 Determine the quartile deviation of the following data 4,9,5,4,7,6,2,1,6,7,8,3.(3mks)

7 Translation Q is represented by the column vector $\begin{pmatrix} 6 \\ 3 \end{pmatrix}$ and another translation R by the column vector $\begin{pmatrix} -4 \\ 2 \end{pmatrix}$. A point S is mapped onto a point T by Q and a point T is mapped into a point U by R.If point U is (8 , - 4) ,determine the co-ordinates of point S. (3mks)

8 Find the equation of the perpendicular line that passes through the mid – point X of C(- 7 , 8) and D (3 , - 8) (4mks)

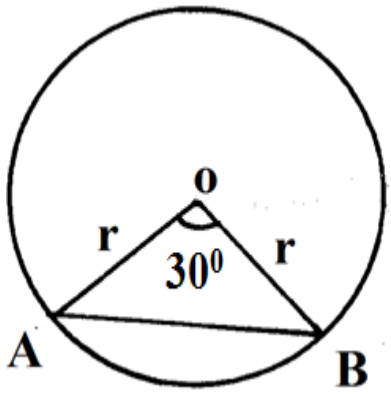
9 Mbom paid Kshs.160 for a blouse after getting a discount of 20%.The vendor made a profit of 30% on the sale of this blouse. What percentage profit would the vendor have made if no discount was allowed? (3mks)

10 The base of a triangle is 3cm longer than its height. Given that the area of the triangle is 35cm^2, determine the height of the triangle. (3mks)

11 Solve for X in the equation. (2mks)

$$\frac{6x-4}{3} - \frac{2x-1}{2} = \frac{6-5x}{6}$$

12 The figure below shows a circle centre O. Chord AB subtends 30^0 at the centre. If the area of the minor segment is 5.25cm^2, find the radius of the circle. (3mks)



13 A certain two – digit number is equivalent to five times the sum of the digits. It is found to be 9 less than the number formed when the digits are interchanged. Find the number.(3mks)

14 The surface area of two similar bottles are $12cm^2$ and $108cm^2$ respectively. If larger one has a volume of $810cm^3$.Find the volume of the smaller one. (3mks)

15 The exterior angle of a regular polygon is equal to one – third of the interior angle. Calculate the number of sides of the polygon and give its name. (3mks)

16 King'oo spends one-third of his salary on food, one – quarter on rent, three – fifth of the remainder on transport and saves the rest.If he spends Kshs.1800 on transport, find how much money he saves. (3mks)

SECTION II (50MARKS)

Choose any five questions only

17 John bought 3 brands of tea A , B and C.The cost price of the brands were sh.25,sh.30 and sh.45 per kilogram respectively. He mixed the brands in the ratio of 5:2:1 respectively. After selling the mixture, he made a profit of 20%.

a) How much profit did he make per kilogram of the mixture. (4mks)

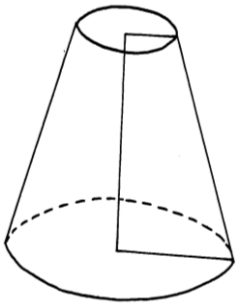
b) After one year, the cost price of each brand was increased by 12%.

i) For how much did he sell one kilogram of the mixture to make 20% profit. (3mks)

ii) What would have been his percentage profit if he sold one kilogram of the mixture at shs.40.25? (3mks)

18 The diagram below represents a solid consisting of a hemispherical bottom and a conical frustrum at the top. O_1O_2=4cm, O_2B=R=4.9cm

O_1A=r=2.1cm



a) Determine the height of the chopped off cone and hence the height of the bigger cone. (2mks)

b) Calculate the surface area of the solid. (4mks)

c) Calculate the volume of the solid. (4mks)

19 a) The bill for completely covering the floor of a rectangular room with carpet

Costing shs.70 per square metre is shs.1960.If one side of the room is X m long; show that the length of the other side is $\frac{28}{x}\ m$ (3mks)

b) By leaving a uniform width of ½ m uncovered all round, shs.700 could have been saved. Use this information to form an equation in x and show that it reduces to $X^2 - 11x + 28 = 0$. (4mks)

c) Solve the equation and hence find the dimensions of the room. (3mks)

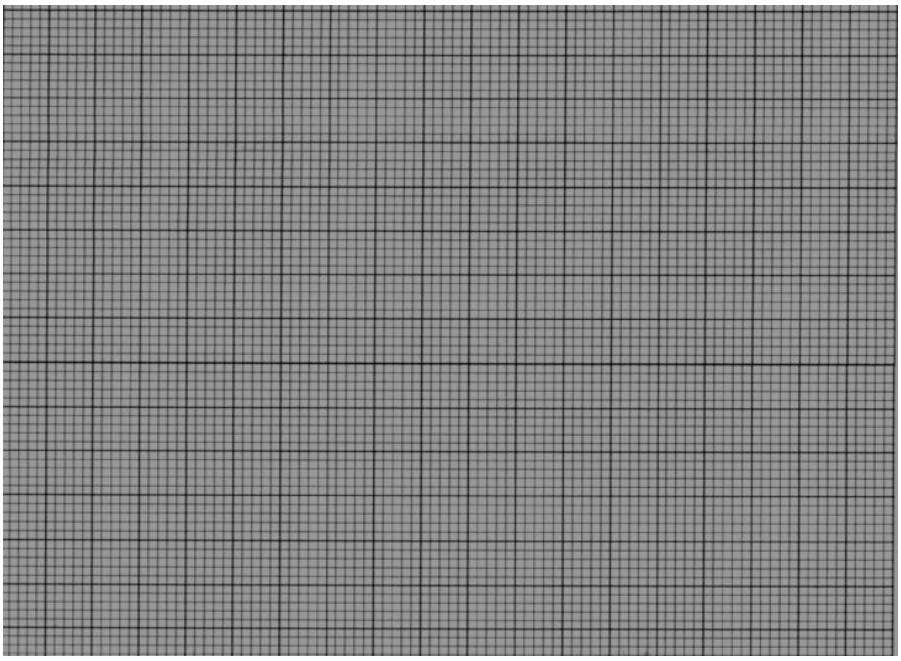
20 The angle of elevation of the top of a flagpole from a point A on a level ground is 13^0.The angle of elevation of the top of the flagpole from another point B nearer the pole and 12m from A is 30^0. Find;

a) i) The height of the flagpole (5mks)

ii) The distance from point B to the top of the flagpole. (2mks)

b) Tan $105^0 = -2-\sqrt{3}$ .Determine the value of Tan 15^0 in surd form.(3mks)

21 a) Draw the graph of the function below on the grid provided
$y = 2x^2 - 7x - 2$ for the values of $-1 \leq X \leq 6$ (5mks)



b) From your graph determine the roots of the function. $2x^2 - 7x - 2 = 0$.(1mk)

c) By drawing a suitable graph of function $y = 2x - 7$ on the same axis, solve the simultaneous equations $y = 2x^2 - 7x - 2$ and $y = 2x - 7$. (4mks)

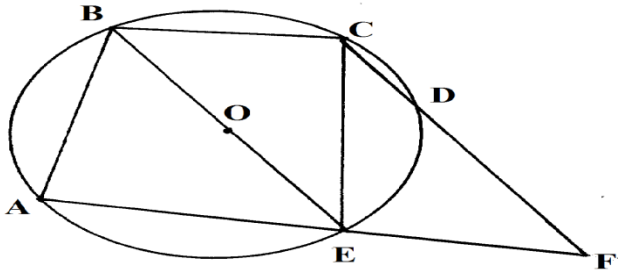
22 Three people; A , B and C work together to make a certain number of tins. If person C was to work alone he will take $4\ ^4/_9$ hours to complete the job. If all working together they will take 1hr 40min to complete the job. They all started working together however person B left after first 40min,while person C left 20min later. Person A took a further 1hr 46min.Calculate how long it would take if all the tins were made by;

a) Person A alone? (6mks)

b) Person B alone? (2mks)

c) Person A and C alone? (2mks)

23 In the figure below O, is the centre of the circle. $\angle AEB = 50^0$, $\angle EBC = 80^0$ and $\angle ECD = 30^0$.



Giving reasons, calculate

i) $\angle CDE$ (2mks)

ii) $\angle DFE$ (2mks)

iii) Obtuse angle COE (2mks)

iv) $\angle ADE$ (2mks)

v) $\angle CAE$ (2mks)

24 Patients who attended clinic in one week grouped by age as shown in the table below.

X Age (years)	No. of patients
0 - 5	14
5 - 15	41
15 - 25	59
25 - 45	70
45 - 75	15

a) Estimate the mean age. (4mks)