IGIHOZO SAINT PETER

SOUTHERN PROVINCE
NYANZA DISTRICT

MATHEMATICS HOLIDAY PACKAGE

SUBJECT: **MATHEMATICS**

CLASS: **SENIOR 2**

COMBINATIONS:

ORDINARY LEVEL

DURATION: 3 HOURS

INSTRUCTIONS:

1) Do not open this question paper until you are told to do so.
2) This paper consists of **two** sections: **A** and **B**.
   Section A: Attempt **all** questions. **(55marks)**
   Section B: Attempt **only three** chosen questions. **(45marks)**

Use a **blue or black** pen **and pencil for drawing**

SECTION A : ANSWER ALL QUESTIONS /55MARKS

1) Find the prime Factors of the the following numbers

a) **32/2MARKS**

b) 64. **/2MARKS**

2) Given that {2,3, ,5,7, x} ∩ {9,3,4,7} = {3,4, y}. Find the values of x *and* y **/2MARKS**

3) Evaluate the following if $a = 2$

a) $3a^2$ (b) $5a^3$ (c) $9a^2$ 6marks

4) If A = $27x^4y^3z^4$ and B = $3x^2yz^2$, find:

(a) AB (b) A ÷ B 4marks

5) a) $2^x = 32$. **3MARKS**

6) $4^{x+1} = 32$ **3MARKS**

7) Solve the index equation $9^{(a-3)} \times 81^{(1-a)} = 27^{-a}$ 4marks

8) Calculate

a) $\sqrt{12} + \sqrt{75}$ 3MARKS

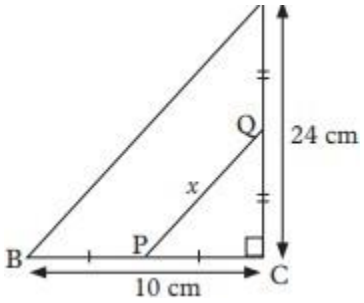
b) Expand($\sqrt{2} + \sqrt{3}$)($\sqrt{2} - \sqrt{3}$) **3MARKS**

9) a) by combining like terms Simplify the expression 2x – 4y + 5x – 3y 2MARKS

b) Find the numerical value of the following expression $12x^2 - 4x -$ 5.If a = -1, b = –2, c = –5 2MARKS

c) Solve using delta i) $7x^2 - 3x - 6 = 0$. **/5marks**

10) Use Pythagoras theorem to find the value of x in the following problems /6marks



11) Rationalize the denominator and simplify completely / 3marks

$$x = \frac{4 - \sqrt{3}}{3 - 2\sqrt{3}}$$

12) Express the following in standard1form /2marks

a) 0.06 b) 0.000005

13) Without using calculator, show all your working, calculate**/ 2 marks**

$5\sqrt{20} + 3\sqrt{48} - 2\sqrt{80} - 2\sqrt{27}$

14) Given the points $A(-3,2)$, $B(2,-3)$ *and* $C(6,1)$4MARKS

i) Find the column vector of $\overrightarrow{AB}$,$\overrightarrow{AC}$, and $\overrightarrow{BC}$

ii) Calculate the length of $\overrightarrow{AC}$,$\overrightarrow{AB}$ and $\overrightarrow{BC}$

SECTION B: ONLY THREE Questions attempted /45 marks

15) Let $f(x) = 6x^3+37x^2+58x+24$ and $g(x) = 6x^3-49x^2+84x-36$ Solve f(X) and g(x) 15marks

16) Use the Cramer's rule method to solve / 15marks

$5x-2y = 9$

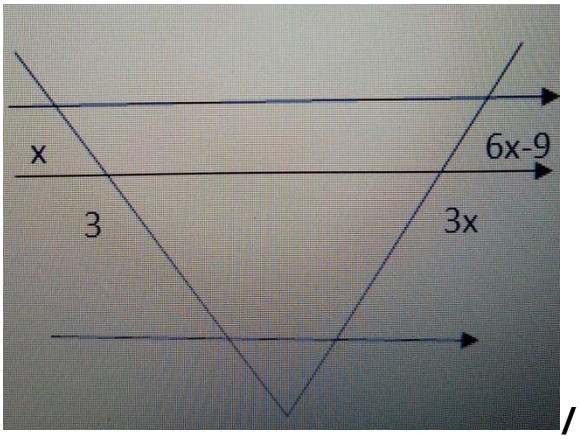
$3x + 7y = -11$

17) Solve the following simultaneous inequalities and draw on number line

5marks

a) $\frac{1}{2}x - \frac{1}{6} \leq \frac{2}{3}$ and $\frac{1}{3}(2x - 4) \leq 2x - 1$ 5marks

b)Use the Thales theorem to find the value of x, all given lengths are in cm.



/ 10 marks

18) Given the table the marks obtained by student of S1 in mathematics

15marks

Marks	10	15	20	25	30	35	40	50
frequency	5	3	7	6	4	2	3	4

a) Calculate the total numbers of student in the class

b) Calculate the mean

c) Construct the bar chart

d) Calculate the quartile Q1 and Q3

19) The following are the dimensions of two triangle. Which one of them is a right angled triangle?

i) 15cm, 30cm, 35cm

ii) 33cm, 56cm, 65cm /**15marks**

c) The length of a diagonal of a rectangular flower bed is 24.6cm and the length of one of side is 18.9cm. Find the perimeter and the area of the flower bed.

20).a) The cost of 3 shirts and 2 jackets is 144000FRW. If 4 shirts and a jacket cost 15200FRW, find the cost of two shirts and a jacket.

b) The population of town increases by 8% every year. The population this year is 52800. What will be the population after 2 years? /**15 marks**

21) a) what is a set /2

b) write your first name and name set B composed by letters of your name /3

C) a survery carried out of 50 people about the hotels they like for taking lunch from among Hilltop, Serena and Lemigo. It was found that 15 people ate at Hilltop, 30 people ate at Serena ,19 people at Lemigo ,8 people ate at Serena and Hilltop, 12 people ate Hilltop and Lemigo, 7 people Eat at Serena and Lemigo. 5 people ate at Hilltop ,Serena and Lemigo.

i) Represent the information on a Venn diagram./3

ii) How many people ate at Hilltop only?/3

iii) How many people ate at Hilltop and Serena but not at Lemigo? /2

iv) How many people did not eat from any of these three hotels? /2

End !!!