CHRIST HIGH SCHOOL PLOT 5, CHS STREET, KM 32, ABUJA-KEFFI ROAD UKE, NASARAWA STATE

SS 1 PAPER II GENERAL MATHEMATICS, SECOND TERM EXAMINATION 2024/2025 ACADEMIC SESSION

SUBJECT: GENERAL MATHEMATICS PAPER II
CLASS: SS 1
TIME: $2\frac{1}{2}$ Hours

NAME……

CANDIDATE'S ADMISSION NO.

INSTRUCTION

Write your name and number in the space provided on your answer booklet. Write your name on any extra sheet used.

The paper is in two parts: **I and II**, and will last for 2 hours 30 minutes.

Answer all the questions in part I and five (5) questions in part II.

Write your answer in blue or black ink in your answer booklet.

At the end of the examination, staple all your work securely together.

FOR EXAMINER'S USE	
Total Score:	+

PAPER II

PART I (THEORY)

INSTRUCTION: Attempt all questions in this part

1. Copy and complete the table below for $y = x^2 - 2x - 3$.

X	-3	-2	-1	0	1	2	3	4	5	6
y		5		-3		-3				27

ii. Using 2cm to 1 unit on the x-axis and 2cm to 5 units on y-axis draw the graph of $y = x^2 - 2x - 3$.

iii. Use the graph to find the roots of the equation above.

iv. Find the least value of the function $y = x^2 - 2x - 3$ and the corresponding x value.

2. Construct a quadrilateral $PQRS$ such that$< PSR = 30°$, PS = 6cm, SR = 8cm, RQ = 7cm and PQ = 6cm. Measure the main axis PR.

(8marks)

3. Construct the truth table for the following:
   a. (P ^ Q) v (Q ^ P)
   b. A v B ≡ ~(~A ^ ~B) **(8marks)**
4. a. Given the expression $y = ax^2 - bx - 12$, find the value of x when a = 1, b =2 As y = 3

   b. Construct the quadratic equations of the given roots $\frac{1}{2}$ and$-\frac{2}{3}$. **(8marks)**

5. (a). write the negation of the following avoiding the word 'not' as much as possible. {Hint: Focus on the adjectives}.
   i. He obtained the least mark in the examination.
   ii. She is the shortest girl in class.
   iii. He is an ugly man
   iv. The hospital is in a bad state.

   b) The radius of a circle is 28cm and the length of the arc is 44cm, calculate the angle subtended by the arc at the centre. (Take $\pi = \frac{22}{7}$)

(8 marks)

PAPER II

PART II (THEORY)

INSTRUCTION: Answer five (5) questions only in this part.

1. (a) define the following terms
   (i) Tautology
   (ii) Contradiction

   (b) (i) show that the statement: $[\sim P \wedge (P \vee Q)] \Longrightarrow Q$ is a tautology.

   (ii) show that the statement: $(P \wedge Q) \wedge \sim (P \vee Q)$ is a contradiction **(12marks)**

2. (a) The height of Moyo and that of Adamu differs by 9. The difference of the squares of their heights is 120. Find their heights.

   (b) solve the quadratic equation; $2x^2 + 9x + 9 = 0$ **(12marks)**

3. (a) Construct a $\triangle XYZ$ in which $XY = 7.5\ cm, \angle XYZ = 30°\ and\ \angle ZXY = 45°$. Measure YZ.

   b) Using a ruler and a pair of compasses, construct:

   i) The locus of points equidistant from $X\ and\ Y$.

   ii) A point C on this locus equidistant from $XY\ and\ XZ$

   (12marks)

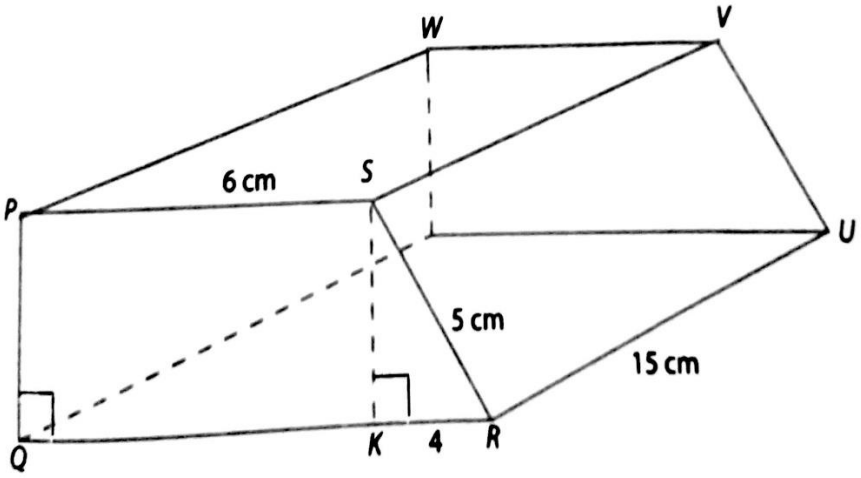
4. (a) The distance between two points is measured to be 3.62km. If this is more than the actual distance and the percentage error is calculated to be 5. What is the actual distance?

   (b) Find the roots of the following the following;

   (i) $\frac{5}{8}a^2 + a^2 = 0$

   (ii) $196 = r^2$ **(12marks)**

5. Calculate the volume of the prism shown below.



(12marks)

6. a) Given that $221_x = 25_{10}$ find x.

   b) Let $A = \{x: x\ is\ an\ even\ number\ less\ than\ 15\}$

   $B = \{x: -3 < x < 10\}$

   $C = \{x: x\ is\ an\ even\ number\ less\ tha\ 15\}\ find$

   i) $A \cap B$ ii) $B \cap C$ iii) $A \cup B$

(12marks)

7. What is the volume of a pyramid with perpendicular height of 5cm and square base of side 7cm?

   b) A woman underestimated the cost of a pair of shoes and her percentage error was 18%. If the actual price of the shoe was £64.00, what was her underestimate?