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

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

SUBJECT: FURTHER 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.

Answer only six (6) questions in this paper

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 (THEORY)

INSTRUCTION: Attempt only six questions in all this paper.

PART A : Attempt all questions in this part.

1. (a) Construct a table of values for $y = \cos x - 3\sin x$ for values of x from 0^0 to 180^0 at intervals of 20^0.

(b) using a scale of 2cm to 20^0 on the x-axis and 2cm to 1 unit on the y-axis, draw the graph of $y = \cos x - 3\sin x$.

(c) using your graph to find the value(s) of x correct to the nearest degree for which

(i) $3\tan x = 1$

(ii) $2 + \cos x = 3\sin x$ **[8marks]**

2. A straight line passes through point P(2, 5) and Q(6,9). Find:
(i)the distance between P and Q.
(ii) The midpoint of P and Q
(iii). the slope (gradient) of point P and Q. **[8marks]**

PART B : Attempt only two questions in this parts.

3. The **first term** of an Arithmetic Progression is -8, the **last term** is 52 and the sum of terms is 286. Find the:

(a) Number of **terms** in the series

(b) Common difference [**6marks]**

4. (a) The third of a geometrical progression is 63 and the fifth term is 567. find the sum of the first six terms of the progression.

(b)find the sum to infinity of the sequence $1, \frac{1}{4}, \frac{1}{16}, \frac{1}{64}$. ..[**6marks]**

5. The position vector of point A, B, C respectively are

$A = 2i + 3j$
$B = -4i + 5j$

$C = 7i - j$

Find the position vector of point P, which divides:

(a). AC in the ratio 1:4

(b). BC in the ratio 2: 3 **[6marks]**

PART C : Attempt only two questions in this parts.

6. (a) show that : $(3 - sin^2\theta)cosec^2\theta = 2cosec^2\theta + cot^2\theta$.

(b)Find the values of θ between 0^0 and 360^0 which satisfy $6sin^2\theta + \sin\theta - 1 = 0$

7. (a) Find the range of values of x for which $5x(x + 2) > 0$

(b) find the solution set of the inequality $x^2 - 4x - 8 < 2 - x$

[6marks]

8. Construct truth tables for the following statements:

(a) ~p ⇔ q

(b) (~p ⇔ q)∧(q ⇔ ~p)

(c) Comment on your results. **[6marks]**