COLLEGE PRIVE BILINGUE MONTESQUIEU MONTESQUIEU BILINGUAL PRIVATE COLLEGE B.P 1027. TEL : 222224101	TRAVAIL DISCIPLINE REUSSITE	REPUBLIC OF CAMEROON PEACE-WORK-FATHERLAND SCHOOL YEAR 2024/2025

EXAM	**maths: 4th sequence**	
CLASS	**Lower sixth**	**2h**
NOM/NUMERO		

.Answer all the questions,showing all the working.

SECTION A

1. A)Given that $g(x)=x^3+x^2+2x$ and $f(x)=\frac{x+2}{g(x)}$.Show that x+1 is a factor of g(x).Hence express f(x) in partial fractions .b)Given that $f(x)=ax^2+bx+c$ leaves remainder 1,25,1 when divided by x-1,x+1, and x-2 respectively, show that f(x) is a perfect square.
2. A)Express the following partial fraction a) $x-1/x^2(x+1)$ b)$2x-1/(x+1)(x^2+2)$
3. A) Find the a formula for the nth term of the sequences 11, 7, 3... .b) The 3rd term of an AP is 8 and 16th is 47.Find the 1st term and the common difference. c)The 1st term of AP is Log a and 9th term is Log 28a.Find the common difference

SECTION B

1) Three events A,B and C are such that A and B are mutually exclusive, while B and C are independent. Given that $P(A)=\frac{3}{10}$, $P(AUB)=\frac{2}{5}$, $P(AUC)=\frac{7}{10}$, $P(BUC)=\frac{11}{20}$, FIND a)P(B) b)P(C) c)P(A/C)
2) The probability distribution for a discrete random variable Y is given below.

Y	1	3	5	7	9	11
P(Y=y)	C	3C	5C	7C	9C	11C

A) Find the value of C
b) Find P(1<Y<3)
C) Find P(3<y<9)
d) Find P(Y<7)
e) State the mode

3) The discrete random variable X has cumulative distribution function F(x) defined by

$$F(X)=\begin{cases}\frac{X}{16}(8-X), X=1,2,3,4 \text{ AND } 1, X>4\end{cases}$$

A) Find the probability distribution of x
b) Find E(x) and Var(x)
c) Determine the mode and the median of x

4) The continuous random variable x has probability function f given by

$$F(x)=\{k(k+3), -3<x<3 \text{ and } 0, \text{otherwise}$$

A) The value of the constant K
B) The mean of X
C) The variable of X

D) The cumulative distribution function of X

E) The median of X, giving your answer correct to 1 decimal place

f) The values of the constants a and b if E(aX+b)=5 and var(aX+b)=8