S.5 MATHEMATICS HOLIDAY WORK TERM ONE 2025

Attempt **both** *items*

ITEM ONE

According to the recently concluded Census 2024, the following information was collected from Nakaseke district.

Age in Years	**Number in thousands.**
0 and Under 5	4.0
5 and Under 15	8.4
15 and Under 30	10.5
30 and Under 40	14.6
40 and Under 65	10.0
65 and Under 80	5.0
80 and Under 90	0.5
Over 90	0

Your Uncle works at the district, but has a tight schedule. Approaches you to help him with the following for presentation to government officials (policy makers to plan for the district)

TASK

(a) basing on the raw data, your uncle estimates the Average age to be 35 years. Use his estimate to find the actual mean age.

(b) establish the standard deviation of the age.

(c) using a suitable illustration establish the median age of the district and the number of people below the age of 18 (school going children)

(d) use a suitable illustration to find the most likely age of the district.

ITEM TWO

A student on master's degree, undertaking a research project in Bio-mathematics, established that: the population of a particular species of insects P, grows exponentially at a rate: $P = A(10^{kt})$ where A and k are constants, t is the time in months. Initially at $t = 0$, the population is 2000 insects. And after one month, the population increased to 2500 insects.

TASK

Use the knowledge of logarithms and indices to assist him obtain;

(a) the values of constants A and k

(b) the number of insects after 1 year.

(c) the time taken for the number of insects to double.

WE ALL END UP AS STORIES, JUST MAKE YOURS WORTH SHARING