

1. The weights in kilos of a group of individuals are as follows:

46 51 52 53.5 56 60 61.6  
66 69.4 70 70 72 73 75

- (a) How many classes should be used for the frequency distribution?  
(b) What should be the class width?  
(c) Construct the frequency distribution for the data set  
(d) Construct a histogram for the data set
2. Given the following data set:

2 12 13 14 16 16 17 19 20 20  
23 24 24 24 27 40 42 60 70 79

- (a) Determine the quartiles  
(b) Construct a box plot for the data set  
(c) Is the data skewed to the left or to the right?
3. The following represents the average life span of smokers according to the average number of cigars they smoke in a day:

No. of cigars	5	10	15	20
Life span	65	56	48	40

Let  $x$  represent the number of cigars and  $y$  the life span.

- (a) Find the least squares line for the data set (use two decimal places). [20]  
(b) Use this model to predict the average life span of a person who smokes 25 cigars daily (round-off to the nearest year). [5]
4. The following data gives the number of bacteria in a culture (in billions):

Time (in minutes)	0	1	2	3
Population	7.4	8.2	30.1	50.8

Let  $x$  be the number of minutes and  $y$  the bacteria population:

- (a) Construct a scatter plot for the data set. [12]

- (b) Does the data follow a linear trend?
- (c) Linearize the data set
- (d) Find the least squares line for the linearized data set [8]
- (e) Predict the bacteria population after 10 minutes. [5]

Note: Answers should be correct to four decimal places for this item.

$$m = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2}$$
$$b = \frac{\sum x^2 \sum y - \sum x \sum xy}{n \sum x^2 - (\sum x)^2}$$