Exercise 2018-10ℰN-00005(1) Statistics – Measures of distribution

(1) The following are the marks (out of 50) grade 10 learners achieved for Natural Sciences for the first term test:

25, 33, 45, 24, 50, 23, 34, 45, 41, 22, 37, 46, 35, 31, 32, 46, 38, 36, 11, 22, 29, 33, 31, 43, 25, 31, 28, 48, 21, 34, 32, 47, 38, 27, 28, 17, 26, 29, 28, 30, 39, 40, 33, 35, 38, 28, 49, 46, 22, 33

(a) Arrange the data.

(b) Calculate the following percentiles: 2^{nd}, 10^{th}, 50^{th} and 75^{th}.

(c) Predict a possible class average based on (b).

(2) The following represent the heights of 14 new trees (in cm) mr. Daling planted in his garden:

147, 128, 168, 154, 144, 162, 136, 148, 150, 136, 161, 144, 157 and 138

(a) Complete the frequency table:

Interval:	Frequency:
127 - 135	
136 - 144	
145 - 153	
154 - 162	
163 - 171	

(b) Which interval contains the median?

(c) Which interval contains the upper quartile?

(d) Which interval contains the lower quartile?

(e) What percentage of the trees is 1,53 metres or shorter?

(3) The table below shows the number of marriages recorded in the course of 9 years:

Year	Number of marriages registered
1997	40 812
1998	41 300
1999	41 450
2000	39 594
2001	40 734
2002	39 993
2003	38 814
2004	37 828
2005	35 716

(a) Calculate the range of the data.

(b) Determine the median.

(c) Calculate the lower and upper quartiles.

(d) Determine the interquartile range and semi-interquartile range.

(e) Discuss the data distribution in terms of (a) to (d).

(4) The maximum temperatures (in degrees Celsius) for Johannesburg recorded from 21 June to 3 July are as follows:

12, 14, 14, 14, 13, 12, 11, 14, 22, 24, 13, 13, 11

(a) Calculate the range.

(b) Calculate the median.

(c) Calculate the interquartile range.

(d) Discuss the data distribution in terms of (a) to (c).