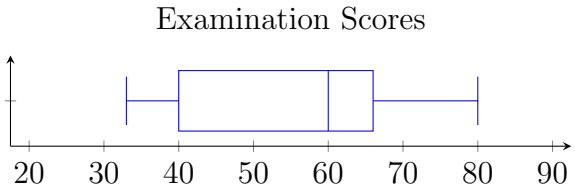
3.11 Exam: Descriptive statistics

Write your answers on the exam in the space provided (or use lined paper labeled clearly). Show work as required.

1. The box-and-whisker plot represents the examination scores of a group of students.



(a) Write down the median score. [1 marks]

The range of the scores is 47 marks, and the interquartile range is 26 marks.

(b) Find the value of

i. the minimum score; [2 marks]

ii. the third quartile. [2 marks]

2. A box contains 100 cards. Each card has a number between one and six written on it. The following table shows the frequencies for each number.

Number	1	2	3	4	5	6
Frequency	26	10	20	k	29	11

(a) Calculate the value of k. [3 marks]

(b) Find

i. the median; [2 marks]

ii. the interquartile range. [3 marks]

3. Given the following set of 15 data:

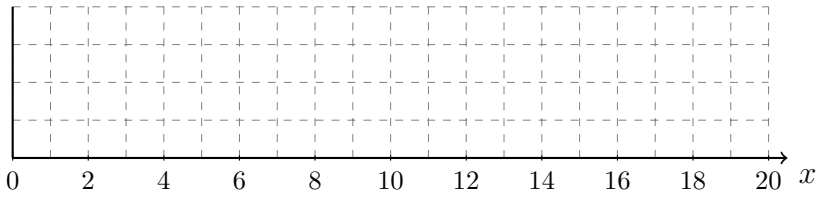
3, 4, 4, 5, 5, 5, 6, 8, 9, 11, 11, 15, 15, 16, 17

(a) Write down the mode [1 marks]

(b) Find the median. [1 marks]

(c) Find the interquartile range. [2 marks]

(d) Draw a box and whiskers plot of the data on the axis below. [2 marks]



(e) Find the mean. [2 marks]

4. There are 250 high school students at BECA ranging in age from 13 to 18 years old. The following table shows the frequencies of each age.

Age (years)	13	14	15	16	17	18
Frequency	27	53	60	55	43	12

(a) Write down the mode. [1 mark]

(b) Find the value of the range. [1 marks]

(c) Find the median. [1 marks]

(d) Find the mean. [2 marks]

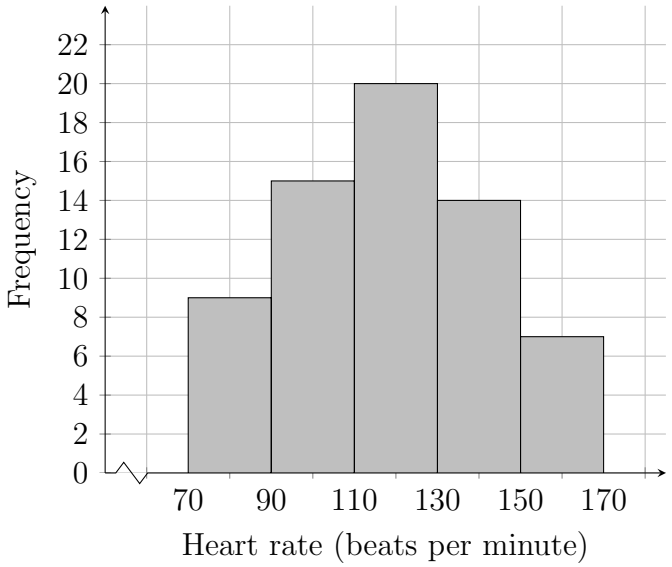
(e) Find the standard deviation. [2 marks]

(f) Four years later the same 250 people have moved on to college and career. Find the new values of the

i. mean; [1 marks]

ii. standard deviation. [1 marks]

5. The histogram below shows the heart rate x in beats per minute for 65 athletes after a fitness exercise.



The following is the frequency table for the distribution of x.

HR (x)	$70 \leq x < 90$	$90 \leq x < 110$	$110 \leq x < 130$	$130 \leq x < 150$	$150 \leq x < 170$
Freq	9	p	20	14	7

(a) Write down the value of p. [1 mark]

(b) Write down the modal class. [2 marks]

(c) What percentage of the athletes have a heart rate of 130 beats per minute or greater? [2 marks]

(d) Consider the class interval $70 \leq x < 90$.

i. Write down the interval width. [1 mark]

ii. Write down the mid-interval value. [1 mark]

(e) Hence find an estimate for the

i. mean; [2 marks]

ii. standard deviation. [2 marks]