Year 12 Mathematics

Test 2

Time Allowed: 45 minutes

Total Marks: 34

17 January 2021

Calculator Allowed

Full Name of Student: ……

1.

The following table summarises the distances, to the nearest km, that 134 examiners travelled to attend a meeting in London.

Distance (km)	Number of examiners
41–45	4
46–50	19
51–60	53
61–70	37
71–90	15
91–150	6

(a) Use interpolation to estimate the median Q_2, the lower quartile Q_1, and the upper quartile Q_3 of these data.

[6]

(b) Calculate an estimate of the mean and an estimate of the standard deviation for these data.

[4]

[Total for Question 1 = 10 marks]

2.

The variable x was measured to the nearest whole number. Forty observations are given in the table below.

x	10 – 15	16 – 18	19 –
Frequency	15	9	16

A histogram was drawn and the bar representing the 10 – 15 class has a width of 2 cm and a height of 5 cm. For the 16 – 18 class find

(a) the width,

(1)

(b) the height

(2)

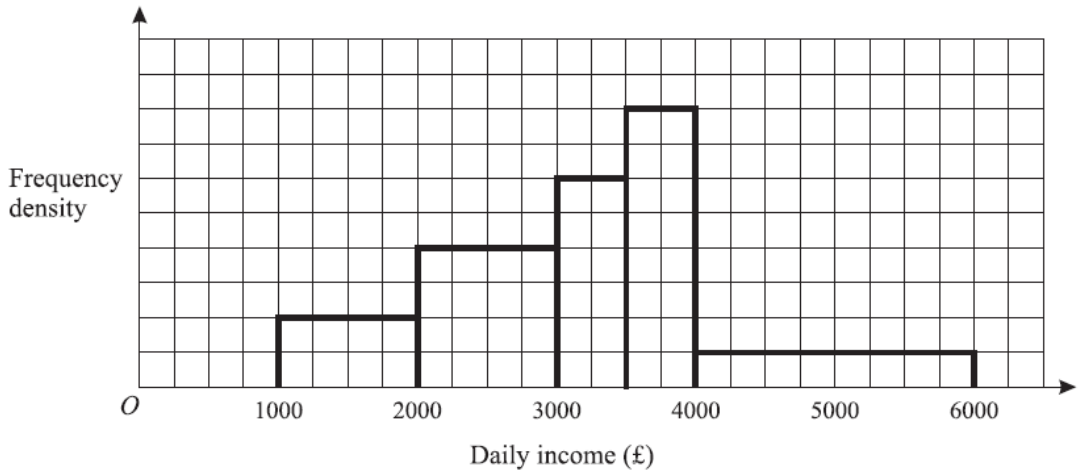
of the bar representing this class.

[Total for Question 2 = 3 marks]

3.

Each day, the Research Department of a retail firm records the firm's daily income, to be used for statistical analysis. The results are summarised by recording the number of days on which the daily income is within certain ranges.

(i)



The histogram shows the results for 300 days. By considering the total area of the histogram,

(a) find the number of days on which the daily income was between £4000 and £6000, [4]

(b) calculate an estimate of the number of days on which the daily income was between £2700 and £3200. [3]

[Total for Question 3 = 7 marks]

(Question 4 is on the next page.)

4.

You need a graph paper for part (b) of this question. If you do not have a graph paper, a square-ruled paper can be downloaded from the NB Tutors website. The link to download it can be found in the same post where you found this test paper. For any reason, if you are unable to print it, you can sketch the box plots for part (b) on your answer sheet and write down underneath it, the values of the important numbers that are shown by the box plots.

The number of caravans on Seaview caravan site on each night in August last year is summarised in the following stem and leaf diagram.

Caravans	1 | 0 means 10	Totals
1	0 5	(2)
2	1 2 4 8	(4)
3	0 3 3 3 4 7 8 8	(8)
4	1 1 3 5 8 8 8 9 9	(9)
5	2 3 6 6 7	(5)
6	2 3 4	(3)

(*a*) Find the three quartiles of these data.

(3)

During the same month, the least number of caravans on Northcliffe caravan site was 31. The maximum number of caravans on this site on any night that month was 72. The three quartiles for this site were 38, 45 and 52 respectively.

(*b*) On graph paper and using the same scale, draw box plots to represent the data for both caravan sites. You may assume that there are no outliers.

(6)

(*c*) Compare and contrast these two box plots.

(3)

(*d*) Give an interpretation to the upper quartiles of these two distributions.

(2)

[Total for Question 4 = 14 marks]

- End of Test -
