Diagrams

Question Paper 2

Level	International A Level
Subject	Maths
Exam Board	CIE
Topic	Representation of data
Sub Topic	Diagrams
Booklet	Question Paper 2

Time Allowed: **57 minutes**

Score: **/47**

Percentage: **/100**

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	'77.5%	70%	62.5%	57.5%	45%	<45%

1 Prices in dollars of 11 caravans in a showroom are as follows.

16 800 18 500 17 700 14 300 15 500 15 300 16 100 16 800 17 300 15 400 16 400

(i) Represent these prices by a stem-and-leaf diagram. [3]

(ii) Write down the lower quartile of the prices of the caravans in the showroom. [1]

(iii) 3 different caravans in the showroom are chosen at random and their prices are noted. Find the probability that 2 of these prices are more than the median and 1 is less than the lower quartile. [3]

2 The table summarises the times that 112 people took to travel to work on a particular day.

Time to travel to work (t minutes)	$0 < t \leqslant 10$	$10 < t \leqslant 15$	$15 < t \leqslant 20$	$20 < t \leqslant 25$	$25 < t \leqslant 40$	$40 < t \leqslant 60$
Frequency	19	12	28	22	18	13

(i) State which time interval in the table contains the median and which time interval contains the upper quartile. [2]

(ii) On graph paper, draw a histogram to represent the data. [4]

(iii) Calculate an estimate of the mean time to travel to work. [2]

3 In a survey, the percentage of meat in a certain type of take-away meal was found. The results, to the nearest integer, for 193 take-away meals are summarised in the table.

Percentage of meat	1 – 5	6 – 10	11 – 20	21 – 30	31 – 50
Frequency	59	67	38	18	11

(i) Calculate estimates of the mean and standard deviation of the percentage of meat in these take-away meals. [4]

(ii) Draw, on graph paper, a histogram to illustrate the information in the table. [5]

4 The marks of the pupils in a certain class in a History examination are as follows.

28 33 55 38 42 39 27 48 51 37 57 49 33

The marks of the pupils in a Physics examination are summarised as follows.

Lower quartile: 28, Median: 39, Upper quartile: 67.
The lowest mark was 17 and the highest mark was 74.

(i) Draw box-and-whisker plots in a single diagram on graph paper to illustrate the marks for History and Physics. [5]

(ii) State one difference, which can be seen from the diagram, between the marks for History and Physics. [1]

5 The weights of 220 sausages are summarised in the following table.

Weight (grams)	<20	<30	<40	<45	<50	<60	<70
Cumulative frequency	0	20	50	100	160	210	220

(i) State which interval the median weight lies in. [1]

(ii) Find the smallest possible value and the largest possible value for the interquartile range. [2]

(iii) State how many sausages weighed between 50 g and 60 g. [1]

(iv) On graph paper, draw a histogram to represent the weights of the sausages. [4]

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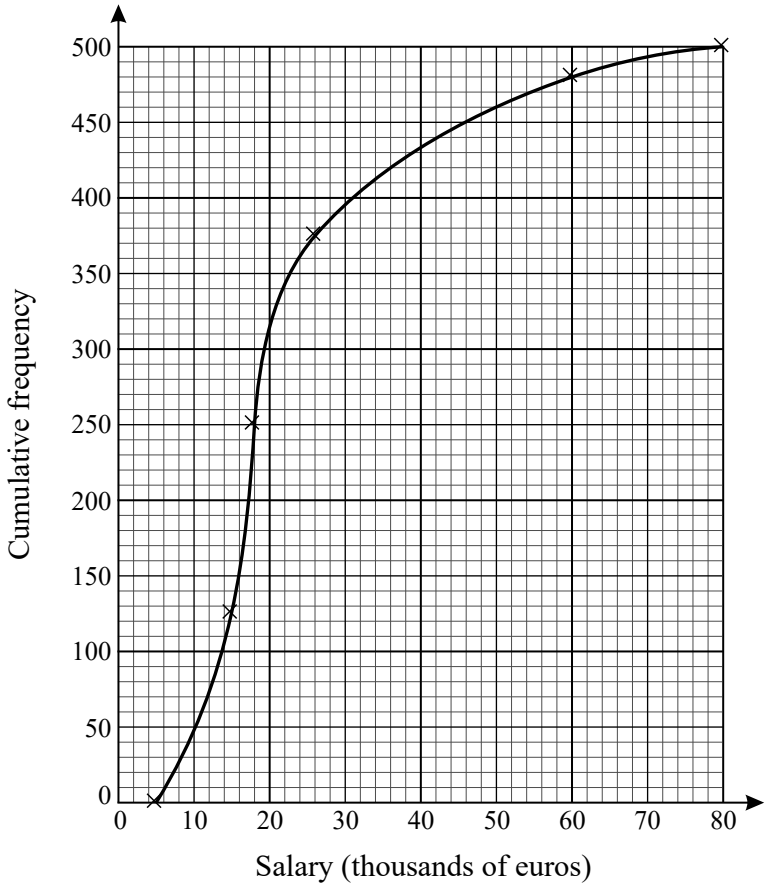

The cumulative frequency graph shows the annual salaries, in thousands of euros, of a random sample of 500 adults with jobs, in France. It has been plotted using grouped data. You may assume that the lowest salary is 5000 euros and the highest salary is 80 000 euros.

(i) On graph paper, draw a box-and-whisker plot to illustrate these salaries. [4]

(ii) Comment on the salaries of the people in this sample. [1]

(iii) An 'outlier' is def ned as any data value which is more than 1.5 times the interquartile range above the upper quartile, or more than 1.5 times the interquartile range below the lower quartile.

(a) How high must a salary be in order to be classif ed as an outlier? [3]

(b) Show that none of the salaries is low enough to be classif ed as an outlier. [1]