上海光華學院劍橋國際中心（光華劍橋）
Guanghua Cambridge International School

Quiz 1

Grade	**AS**
Subject	**Statistics**
Paper Name	**Paper 5**
Duration	**60 minutes**

Student's Information

Name (Pinyin)	English Name	Class	Group

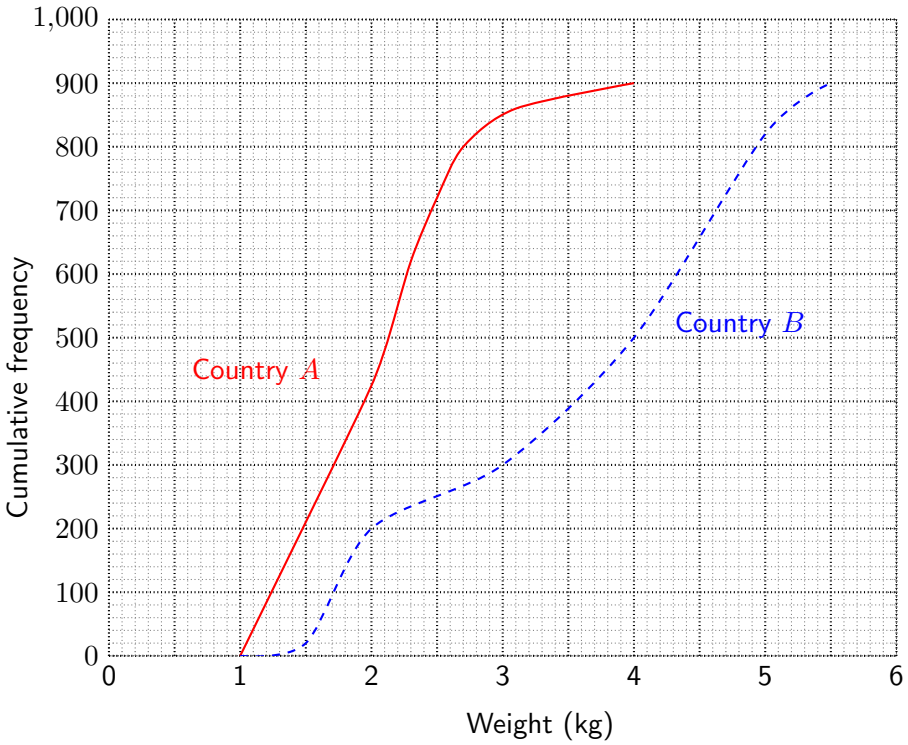
Instructions

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Do **not** use an erasable pen or correction fluid.
- Write your answer to each question in the space provided.
- If additional space is needed, you should use the lined page at the end of this booklet; the question number or numbers must be clearly shown.
- You should use a calculator where appropriate.
- You must show all necessary working clearly; no marks will be given for unsupported answers from a calculator.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- **You are reminded of the need for clear representation in your answers.**

Information:

- The total mark for this paper is 41.
- The number of marks for each question or part question is shown in brackets [ ].

1. The birth weights of randomsamples of 900 babies born in country A and 900 babies born in country B are illustrated in the cumulative frequency graphs. Use suitable data from these graphs to compare the central tendency and spread of the birth weights of the two sets of babies. [6]



2. A sample of 36 data values, x, gave $\sum(x-45)=-148$ and $\sum(x-45)^2=3089$.

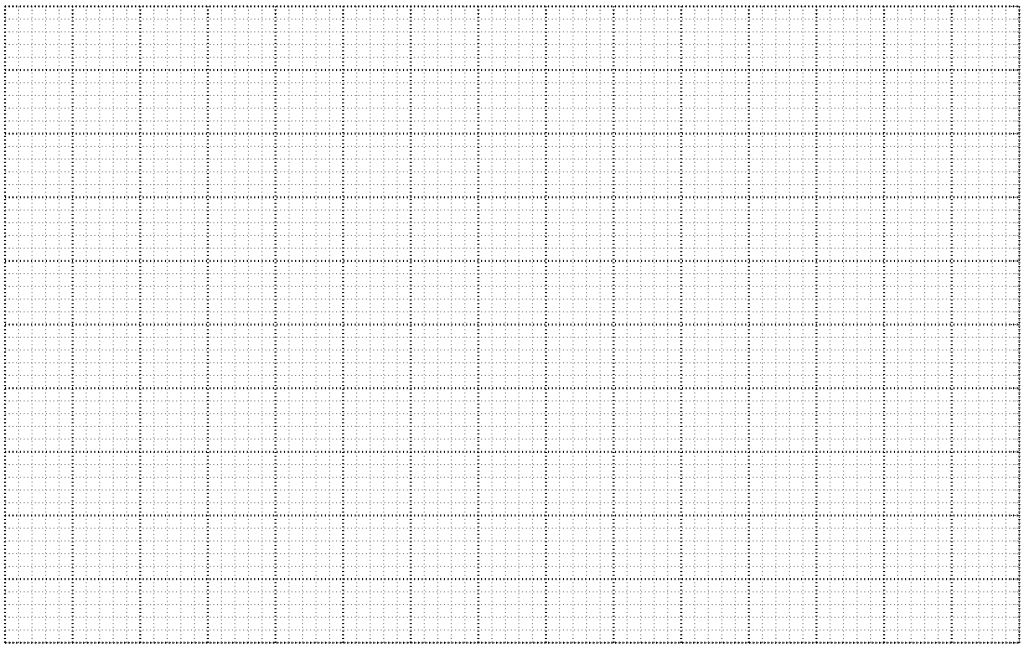
(i) Find the mean and standard deviation of the 36 values. [3]

(ii) One extra data value of 29 was added to the sample. Find the standard deviation of all 37 values. [4]

3. The following table gives the marks, out of 75, in a pure mathematics examination taken by 234 students.

Marks	$1-20$	$21-30$	$31-40$	$41-50$	$51-60$	$61-75$
Frequency	40	34	56	54	29	21

(i) Draw a histogram on graph paper to represent these results. [5]

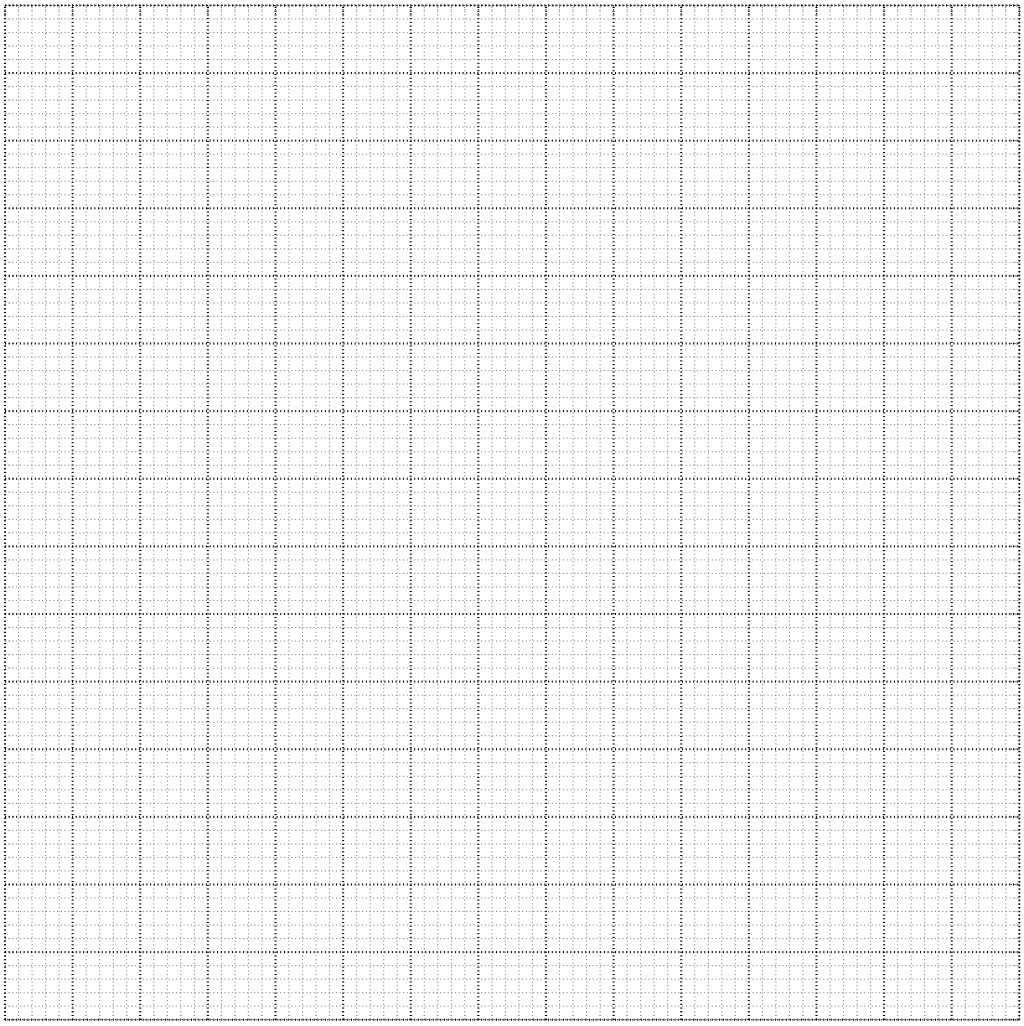


(ii) Calculate estimates of the mean mark and the standard deviation. [4]

4. On a certain day in spring, the heights of 200 daffodils are measured, correct to the nearest centimetre. The frequency distribution is given below.

Height (cm)	$4-10$	$11-15$	$16-20$	$21-25$	$26-30$
Frequency	22	32	78	40	28

(i) Draw a cumulative frequency graph to illustrate the data. [4]



(ii) 28% of these daffodils are of height h cm or more. Estimate h. [2]

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(iii) You are given that the estimate of the mean height of these daffodils, calculated from the table, is 18.39 cm. Calculate an estimate of the standard deviation of the heights of these daffodils. [3]

5. The lengths of some insects of the same type from two countries, X and Y, were measured. The stem-and-leaf diagram shows the results.

Country X		Country Y	
(10)	9 7 6 6 6 4 4 4 3 2 | 80		
(18)	8 8 8 7 7 6 6 5 5 5 4 4 3 3 3 2 2 0 | 81	1 1 2 2 3 3 3 5 5 6 7 8 9	(13)
(16)	9 9 9 8 8 7 7 6 5 5 3 2 2 1 0 0 | 82	0 0 1 2 3 3 3 q 4 5 6 6 7 8 8	(15)
(16)	8 7 6 5 5 5 3 3 2 2 2 1 1 1 0 0 | 83	0 1 2 2 4 4 4 4 5 5 6 6 7 7 7 8 9	(17)
(11)	8 7 6 5 5 4 4 3 3 1 1 | 84	0 0 1 2 4 4 5 5 6 6 7 7 7 8 9	(15)
	| 85	1 2 r 3 3 5 5 6 6 7 8 8	(12)
	| 86	0 1 2 2 3 5 5 5 8 9 9	(11)

Key: $5|81|3$ means an insect from country X has length 0.815 cm and an insect from country Y has length 0.813 cm.

(i) Find the median and interquartile range of the lengths of the insects from country X. [2]

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(ii) The interquartile range of the lengths of the insects from country Y is 0.028 cm. Find the values of q and r. [2]

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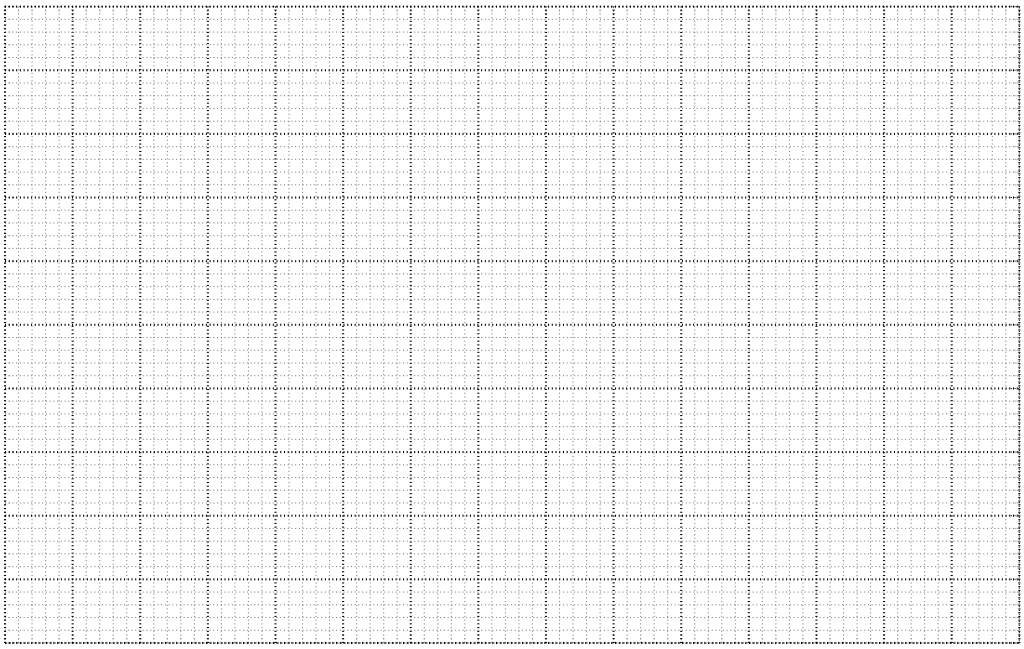
(iii) Represent the data by means of a pair of box-and-whisker plots in a single diagram on graph paper. [4]



(iv) Compare the lengths of the insects from the two countries. [2]

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