

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

GEOGRAPHY

0460/04

Paper 4 Alternative to Coursework

October/November 2004

1 hour 45 minutes

Additional Materials: Answer Booklet/Paper;
Ruler.

READ THESE INSTRUCTIONS FIRST

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.
Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

The insert contains Fig. 1 for Question 1, Fig. 2 for Question 2 and Photograph A for Question 2.

This document consists of **3** printed pages, **1** blank page and **1** insert.



- 1 Students studied the characteristics of the CBD of a town. A map of the CBD is shown on Fig. 1 (Insert). The students decided to count pedestrians and then interview shopkeepers in the town. The hypothesis investigated was *'the number of pedestrians decreases away from the central point of the CBD'*.
- (a) The point marked **X** on Fig. 1 was identified as the central point of the CBD. State four characteristics which may be used to recognise the central area of a CBD. [4]
- (b) Students walked for 100 paces in different directions from **X**. Students then counted and recorded on a recording sheet pedestrians passing them from 10 00 hrs for ten minutes.
- (i) Describe **one** advantage and **one** disadvantage of this method of selecting the sites for recording pedestrian numbers. [2]
- (ii) Name **two** pieces of information which should be recorded, apart from the results, on every recording sheet by each student. [2]
- (c) The results of the pedestrian count are shown as isolines on the map (Fig. 1 Insert).
- (i) On Fig. 1, draw the isoline to show 30 pedestrians. [4]
- (ii) Using the key provided, shade in the area on the map recording more than 50 pedestrians. [2]
- (d) (i) Describe the changes in the number of pedestrians away from **X**. [2]
- (ii) Using other information from the map, suggest reasons for these changes. [4]
- (e) Students decided to interview shopkeepers to find out the busiest time of the day in the CBD. From the 60 shops in the central area, 20 shops were selected, some selling convenience goods and some selling comparison goods.
- (i) What are comparison goods? Name an example. [2]
- (ii) Suggest how the shops would have been selected in order to ask a representative sample of shopkeepers. [2]
- (f) The results of the question to the shopkeepers are shown in Table 1.

Question: <i>Which is the busiest time of the day in this shop?</i>				
0800 – 1000 hrs	1000 – 1200 hrs	1200 – 1400 hrs	1400 – 1600 hrs	1600 – 1800 hrs
1	5	10	4	0

Table 1

- Explain why the results of the question to the shopkeepers may not be reliable. [2]
- (g) Write a conclusion to this investigation. You should refer to the hypothesis and suggest ways to improve the investigation. [4]

2 Students investigated a straight stretch of a stream. The width and depth of the stream were measured and the speed of the water was recorded. The investigation was to test the hypothesis 'water flows faster where the channel is deeper'.

(a) Explain how the students measured the depth of the stream regularly at 0.5 metre intervals from one bank to the other using a rope and a measuring stick. A labelled diagram may be drawn to help the explanation. [3]

(b) Study Table 2 below showing the depth measurements recorded by the students.

(i) Complete the cross-section on Fig. 2 (Insert) using the data in Table 2. [2]

(ii) Describe the changes in depth from **A** to **B**. [2]

Distance (m) from A	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
Depth (mm)	150	170	400	490	590	580	490	390	0
Average Time (seconds)	37.9			27.7			32.7		
Velocity	0.26 m/sec			0.36 m/sec			0.31 m/sec		

Table 2

The students used a floating object to measure the speed of the water over a distance of ten metres. The object was measured floating in the centre of the stream and close to each bank. Each measurement was repeated five times. The average time for each set of measurements was calculated and is shown in Table 2.

(c) (i) Why was the measurement repeated five times in each location? [1]

(ii) Explain how the velocity figures in Table 2 were calculated. [1]

(iii) Complete the histogram / bar graph on Fig. 2 to show the velocity. [3]

(d) (i) Describe the link between the velocity and the depth results shown in Fig. 2. Give reasons for the relationship you have identified. [4]

(ii) Describe **two** possible problems in measuring the velocity that may cause the results to be unreliable. [2]

(e) Photograph A (Insert) shows a location further downstream of the same stream.

(i) Label the photograph with arrows to show

- a slip-off slope
- the flood plain
- undercutting. [3]

(ii) How and why will the depth and velocity differ at this location from the cross-section shown in Fig. 2? [3]

(f) (i) Write a conclusion to the investigation. Reference should be made to the hypothesis and to relevant data from Table 2 which is used as evidence. [3]

(ii) Suggest how the investigation of the hypothesis could be extended to improve the reliability of the results. [3]

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