



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

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**GEOGRAPHY**

**0460/43**

Paper 4 Alternative to Coursework

**May/June 2010**

**1 hour 30 minutes**

Candidates answer on the Question Paper.

Additional Materials:      Calculator  
   Ruler

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name in the spaces provided.  
Write in dark blue or black pen.  
You may use a soft pencil for any diagrams, graphs or rough working.  
Do not use staples, paper clips, highlighters, glue or correction fluid.  
**DO NOT WRITE IN ANY BARCODES.**

Answer **all** questions.  
The Insert contains Figs 1 and 2 for Question 1 and Fig. 6 and Photograph A for Question 2.  
The Insert is **not** required by the Examiner.  
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

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.

For Examiner's Use	
Q1	
Q2	
<b>Total</b>	

This document consists of **14** printed pages, **2** blank pages and **1** Insert.



1 Four students wanted to find out more about visitors to a national park. They produced a questionnaire to gain evidence with which to investigate two hypotheses:

**Hypothesis 1:** *The age of visitors influences the activities they take part in within the national park.*

**Hypothesis 2:** *Most visitors have a positive opinion of national parks.*

(a) The four students divided themselves into two pairs to decide on questions to include in a questionnaire. The questionnaire produced by the pair of students who finished the task first is shown in Fig. 1 (Insert).

(i) Unfortunately when they showed their completed questionnaire to their teacher, the students did not receive a positive report. Suggest **three** weaknesses of the questionnaire.

- 1 .....
- .....
- 2 .....
- .....
- 3 .....
- ..... [3]

(ii) The questionnaire produced by the other pair of students was approved by the teacher. This questionnaire is shown in Fig. 2 (Insert). Suggest **two** good features of this questionnaire.

- 1 .....
- .....
- 2 .....
- ..... [2]

(iii) Before using the questionnaire shown in Fig. 2 (Insert), the four students thought about the best way to make use of it. They decided to use a systematic sampling method and to question every tenth person who passed them. They decided to question 100 people in total.

Give **two** advantages of this sampling method.

- 1 .....
- .....
- 2 .....
- ..... [2]

- (iv) The students decided to use their questionnaire in a large car park located to the centre of the national park. Suggest why this is a good place to use a questionnaire.

.....  
 .....[1]

- (v) Finally they decided to ask their questions as visitors returned to their cars before leaving the car park. Suggest why they made this decision and **one** possible disadvantage of their decision.

Why they made the decision: .....

.....

Disadvantage: .....

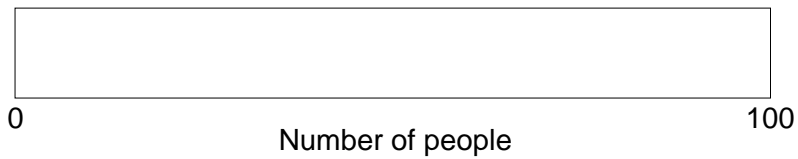
.....[2]

- (b) (i) The results of Question 2 (*Have you visited the national park before?*) in the questionnaire are shown in Table 1 below

**Table 1**

Answer	Number of people
Yes	75
No	25

Use these results to complete Fig. 3 below. [1]



**Fig. 3**

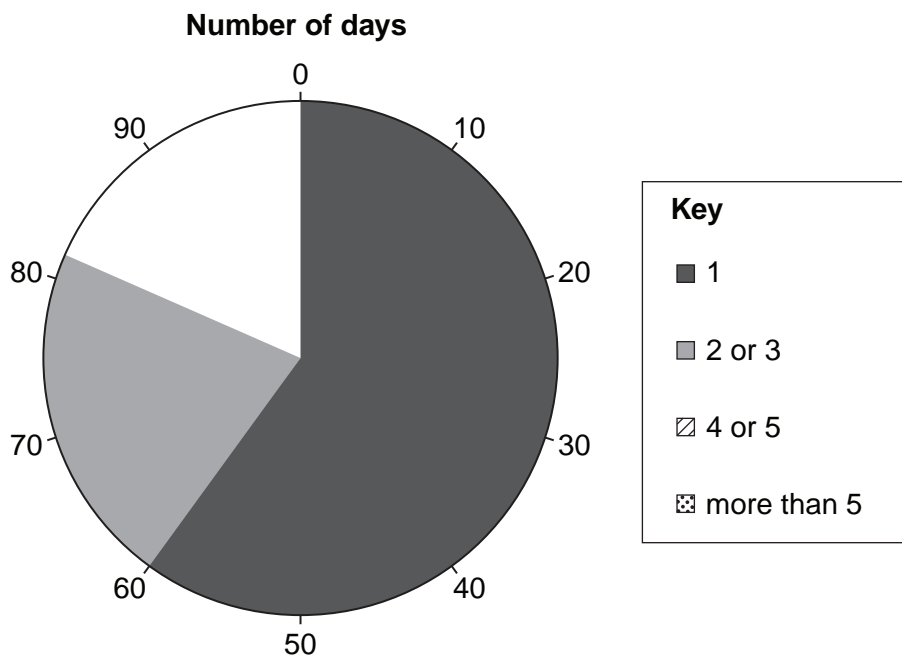
(ii) The results of Question 3 (*How long are you staying in the national park*) are shown in Table 2 below.

**Table 2**

Number of days	Number of people
1	60
2 or 3	22
4 or 5	13
More than 5	5

Use these results to complete Fig. 4 below.

[2]



**Fig. 4**

(iii) The results of Question 4 (*What is the main activity you have been doing in the national park today?*) are shown in Table 3, below, with the age groups of the people interviewed.

**Table 3**

Activity	Age					Total
	Under 20	20–35	36–50	51–65	Over 65	
Walking less than 5 km	5	4	5	5	3	22
Walking more than 5 km	1	5	6	2		14
Climbing		3	4			7
Having a picnic	2		2			4
Sightseeing			2		4	
Bird watching				2		2
Cycling / mountain biking	5	2	2			9
Horse riding	3	2				5
Driving			2	2	2	6
Running / jogging	2	1	1			4
Shopping			3	1	3	7
Visiting historic monument / building	2			5	2	9
<b>Total</b>	20	17	27	22	14	100

Complete Table 3 by inserting the following information:

- 5 people aged 51–65 were sightseeing.
- the total number of people who were sightseeing.

[1]

(iv) The students used the information in Table 3 to work out a conclusion to **Hypothesis 1: The age of visitors influences the activities they take part in within the national park.**

Do you agree with the hypothesis? Support your conclusion with evidence from Table 3.

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[4]

- (c) People gave many different answers to Question 5 (*What do you like most about this national park?*) in the questionnaire (Fig. 2). To make it easier to record these answers, the students grouped them into different categories. These results are shown in Table 4.

Table 4

Category	Number of people
Easy to get to	8
Lots of facilities for visitors	9
Opportunity to do my favourite activity	44
Peace and quiet	18
Scenery	21

- (i) Which categories would the following answers to Question 5 fit into?
- The motorway is only 10km away from this car park and I can use it for almost all my journey home.  
Category: .....
  - The mountains and lakes look spectacular in the summer sun and winter snow.  
Category: .....
  - There are plenty of paths where no vehicles are allowed so it is safe to cycle along them.  
Category: ..... [3]

- (ii) Table 5 shows the main improvements suggested by visitors in their answers to Question 6 (*Suggest one improvement that would make your visit better*) in the questionnaire.

**Table 5**

New walking routes signposted
More car parks
Better toilet facilities
More cafes and refreshment facilities
More cycling / horse riding routes
More information boards
Improved footpath surfaces

Write down **two** of these ideas and suggest how each might improve a visit to the national park.

Idea 1 .....

How it might improve a visit .....

.....  
.....

Idea 2 .....

How it might improve a visit.....

.....  
.....

[2]

- (iii) The students considered **Hypothesis 2: Most visitors have a positive opinion of national parks.**

Do you think that this hypothesis is true? Explain your decision.

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[3]

(d) To extend their investigation the students decided to find out more about where to the national park came from.

(i) Suggest **one** suitable question that students could add to the questionnaire.

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.....[1]

(ii) Describe, in detail, how the students could present this information.

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.....  
.....[3]

[Total: 30 marks]



2 Some students wanted to investigate the flow of a river on a meander. Before they started their fieldwork their teacher spoke to them about safety when planning their fieldwork.

(a) Suggest **three** pieces of advice their teacher gave them to keep them safe.

- 1 .....
- .....
- 2 .....
- .....
- 3 .....
- ..... [3]

The students decided to investigate two hypotheses about the speed of flow (velocity) of the water in the river:

**Hypothesis 1:** *Velocity on the surface varies across a river meander.*

**Hypothesis 2:** *Velocity is greater on the surface and decreases as the depth of the channel increases.*

(b) To investigate **Hypothesis 1**, the students made some measurements on the meander.

(i) Describe how the students measured velocity on the surface using an orange as a float, a tape measure and a stopwatch.

- .....
- .....
- .....
- .....
- ..... [3]

(ii) How did the students measure the depth of the river? Refer to the equipment they would have used.

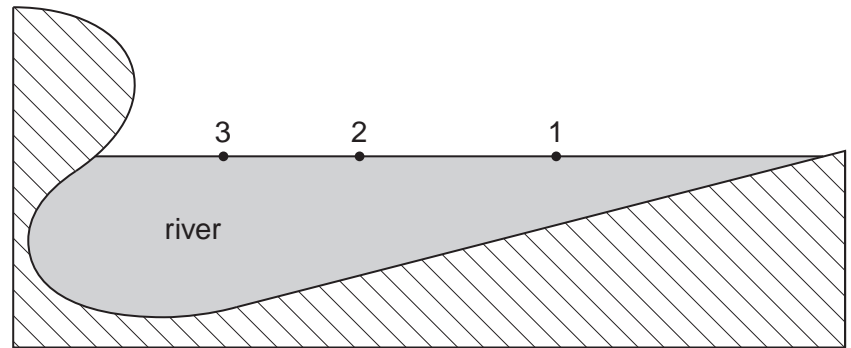
- .....
- .....
- .....
- .....
- ..... [3]

(iii) The results of their measurements are shown in Table 6. Fig. 5 is a sketch of a river meander bend to show sample points.

Table 6

Sample point	Velocity on the surface (cm per second)	Depth of channel (metres)
1	18	0.35
2	41	0.62
3	72	0.75

Sketch of meander bend to show sample points



Outer bank

Inner bank

<p><b>Key</b></p> <ul style="list-style-type: none"> <li>• Sample points</li> </ul>
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Fig. 5

The students agreed with **Hypothesis 1**: *Velocity on the surface varies across a river meander*. Use evidence from Table 6 to suggest how they reached their conclusion.

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[2]

(c) When the students got back to school they described to their teacher how they carried out their investigation to measure surface velocity. Their teacher then suggested some weaknesses in their method.

Give **three** weaknesses that might have been suggested.

- 1 .....
- 2 .....
- 3 ..... [3]

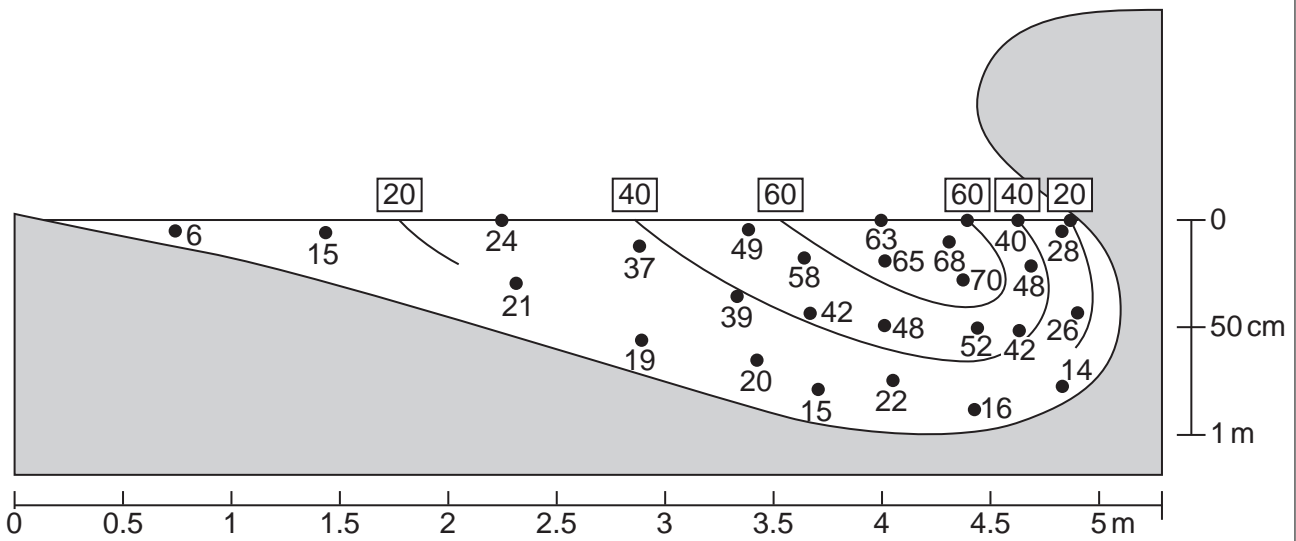
(d) Taking the advice from their teacher the students went to another meander on the river in order to improve their measuring procedures.

(i) First they used a flowmeter to measure the velocity. This is shown in Photograph A and Fig. 6 (Insert). Suggest how they used this equipment.

- .....
- .....
- .....
- .....
- .....
- ..... [3]

(ii) Using their results obtained with the flowmeter, the students were able to measure the river velocity more accurately. Their results are shown in Fig. 7 below.

**Sketch of the meander to show velocity at different points**



**Key**

- 15 velocity of river at selected points in centimetres per second
- [60] isoline (line joining points of equal velocity) in centimetres per second

**Fig. 7**

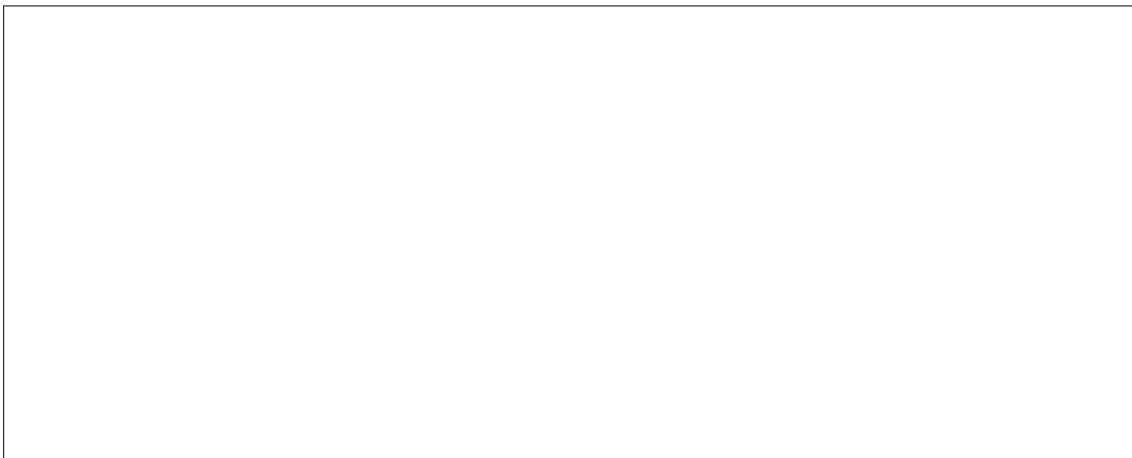
On Fig. 7 complete the 20 cm per second isoline. [2]

(iii) On Fig.7, shade in the part of the river where the current is greater than 40 cm per second. [1]



(e) In order to extend their fieldwork the students decided to compare their results from a meander with a straight section of river 100 metres further downstream.

Suggest what similarities and differences the students would find between the velocity in the two sections of river. You may draw a diagram as part of your answer.



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[4]

[Total: 30 marks]



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