

Cambridge International Examinations

Cambridge International General Certificate of Secondary Education

GEOGRAPHY		0460/4
CENTRE NUMBER	CANDIDATE NUMBER	
CANDIDATE NAME		

Paper 4 Alternative to Coursework

October/November 2018

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator

Protractor 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 an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.

If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer all questions.

The Insert contains Figs. 1.1 and 1.4 and Tables 1.1 and 1.2 for Question 1, and Figs. 2.1, 2.2, 2.3, 2.4, 2.6, 2.7, 2.8, 2.9, 2.10 and 2.11 and Table 2.1 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.

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.



1 Students were learning about problems in urban settlements. They agreed with their teacher that traffic was a problem in the centre of their local town. They decided to do fieldwork to investigate the issue.

The students tested the following hypotheses:

Hypothesis 1: The number of vehicles in the town centre varies throughout the day.

Hypothesis 2: *Traffic congestion is a big problem in the town centre.*

- (a) To investigate **Hypothesis 1** the students did a traffic count at different sites in the town centre. These sites are shown on Fig. 1.1 (Insert).
 - (i) Which **two** of the following are important features of a traffic count? Tick (✓) your choices below.

Feature	Tick (✓)
Pedestrians who walk past the counting site and then return must be counted twice.	
Counting must start and finish at the same time at all counting sites.	
Students should work by themselves so they are not distracted by others.	
The speed of each vehicle must be recorded using a stop watch.	
A tally method must count and record vehicles in groups of five.	
Identify every fifth vehicle which passes the counting site by make and model of vehicle.	

(ii)	The students agreed to count the number of vehicles for 10 minutes at two hour intervals between 07:00 and 19:00. Suggest why the students decided to make the counts last for 10 minutes.
	[2]

[2]

- **(b)** The results of the traffic counts are shown in Table 1.1 (Insert).
 - (i) At which site were most vehicles counted during the day?

(ii) Plot the total number of vehicles counted at 17:00 and 19:00 on Fig. 1.2, below. [2]

Results of traffic count

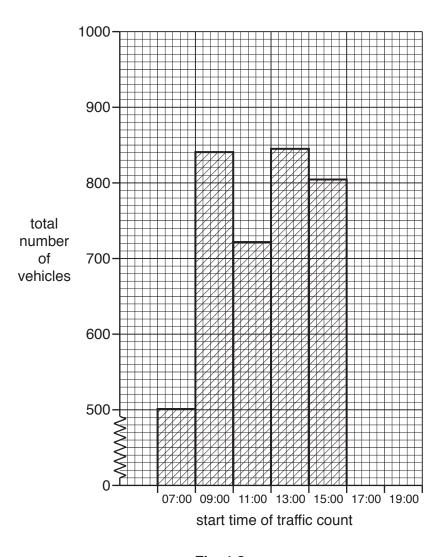


Fig. 1.2

(iii)	What conclusion did the students make about Hypothesis 1: The number of vehicles in the town centre varies throughout the day? Support your decision by only referring to data for the total number of vehicles and the number of vehicles counted at sites 5 and 6 at different times. This data is shown in Fig. 1.2 and highlighted in Table 1.1.
	[4]
(iv)	Suggest two factors which might influence the amount of traffic in a town centre during the day.
	1
	2
	[2]

- (c) One student used the results in Table 1.1 to draw flow lines on a map of the town centre to show the total number of vehicles counted during the day at each survey site. This is shown in Fig. 1.3, below.
 - (i) Use data from Table 1.1 to draw the flow line for site 8 on Fig. 1.3. (Look at Fig. 1.1 to see the direction of traffic movement.)

Flow map to show total number of vehicles counted at each survey site

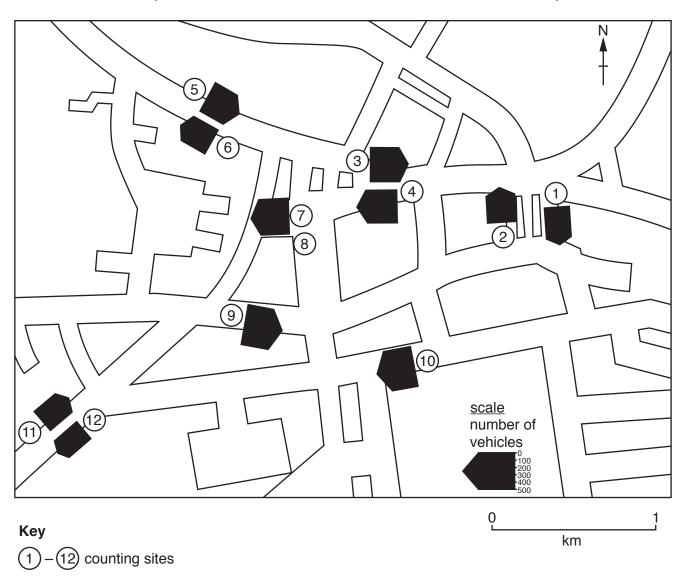


Fig. 1.3

(ii) The students only counted the total number of vehicles at each site. A possible improvement to this method is to identify and count different categories of vehicles. Complete the table below by suggesting **three** other categories which the students could include in their traffic count.

	Category of vehicle
1 Car	
2	
3	
4	

(d)	stud	nvestigate Hypothesis 2: <i>Traffic congestion is a big problem in the town centre</i> , the lents produced a questionnaire to use with people in the town centre. The questionnai nown in Fig. 1.4 (Insert).	
	(i)	They decided to give the questionnaire to every fifth person who walked past them. Whis this sampling method called?	at
			[1]
	(ii)	Give two advantages of using a sampling method when using a questionnaire.	
		1	•••
		2	
			[2]
(e)	The	results of the questionnaire are shown in Table 1.2 (Insert).	
	(i)	Use the results for Question 1 to complete Fig. 1.5, below.	[2]
		At what time of day do you think traffic congestion is worst?	

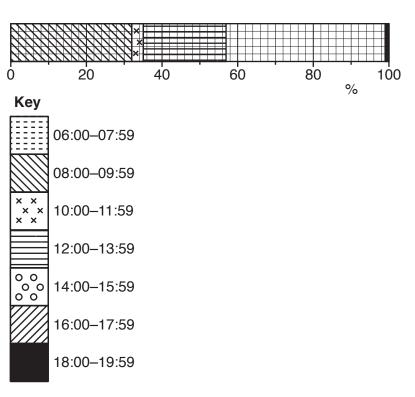


Fig. 1.5

	7	
(ii)	How do the results for Question 1 in the quest traffic count? Look again at Fig. 1.2 and Table	
		[2]
(iii)	Use the results for Question 2, in Table 1.2 (In	nsert), to complete Fig. 1.6 below. [2]
1	Answers to Questic On how many days of the week do you thinl	
	90 90 0% 20 70 60 50	Key number of days ○ 7 5 ★★ 3 1 0
	Fig. 1.6	
(iv)	The students decided that the results of the <i>Traffic congestion is a big problem in the town</i> Use evidence from Figs. 1.5 and 1.6 and Table	n centre.

(f)	Traffic congestion in the centre of towns and cities is caused by large numbers of vehicles. Suggest three ways to reduce traffic congestion in a town or city centre.
	1
	2
	3
	[3]
	[Total: 30]
	[10(a), 50]

2 A group of students went to do fieldwork at Bawdsey on the east coast of England. They wanted to investigate movement of beach material along the coast and methods of protecting the coast against erosion by the sea.

(a) When the students were planning their fieldwork they studied the tide table and weather

The students agreed to test the following hypotheses:

Hypothesis 1: Longshore drift takes place along the coast at Bawdsey.

Hypothesis 2: Coastal defences have a positive impact on the coastline.

fore	cast. These are shown in	n Figs. 2.1 and 2.2 (Insert).	
(i)	At what date and time is	s the highest tide forecast in Fig. 2.1?	
	Date	. Time	[1]
(ii)	Explain why the student	s needed to study the tide table whilst planning fieldwork.	
			[2]
(iii)	Look at Fig. 2.2. At wha wind and least cloud cov	at time is there forecast to be the highest temperature, stroover?	ngest
			[1]
(iv)	Give two advantages of	studying the weather forecast when planning fieldwork.	
	1		
	2		

(b)	the	lass the students revised how longshore drift is important in moving beach material along coast. This is shown in Fig. 2.3 (Insert). lain how longshore drift moves beach material along the coast.
		[4]
(c)		nvestigate Hypothesis 1: Longshore drift takes place along the coast at Bawdsey, the lents used the fieldwork method described in Fig. 2.4 (Insert).
	(i)	Suggest why the students painted the pebbles.
		[1]
	(ii)	The results of the students' measurements are shown in Table 2.1 (Insert). Complete the histogram and the long axis measurement in Fig. 2.5, below. The long axis is a measurement of the longest part of a pebble. [2]

Results of students' measurements

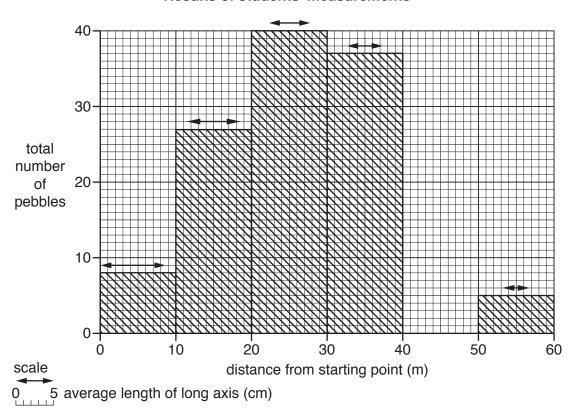


Fig. 2.5

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()	coast at Bawdsey was true. Use evidence from Fig. 2.5 and Table 2.1 to support this conclusion. Refer to different pebble sizes in your answer.
	[4]
	in area further along the coast the students noted some groynes like the one shown in 2.6 (Insert).
Des	cribe the groyne and explain how it can reduce the effect of longshore drift.
The Figs	students also looked at other ways of reducing coastal erosion. These are shown in
The Figs	students also looked at other ways of reducing coastal erosion. These are shown in s. 2.7, 2.8, 2.9 and 2.10 (Insert). Investigate Hypothesis 2: Coastal defences have a positive impact on the coastline, the dents did a bi-polar survey of the different defences. Their bi-polar survey sheet is shown
The Figs	students also looked at other ways of reducing coastal erosion. These are shown in s. 2.7, 2.8, 2.9 and 2.10 (Insert). Investigate Hypothesis 2: Coastal defences have a positive impact on the coastline, the dents did a bi-polar survey of the different defences. Their bi-polar survey sheet is shown ig. 2.11 (Insert). Describe how the students could make sure their results of the bi-polar survey were
The Figs	students also looked at other ways of reducing coastal erosion. These are shown in s. 2.7, 2.8, 2.9 and 2.10 (Insert). Investigate Hypothesis 2: Coastal defences have a positive impact on the coastline, the dents did a bi-polar survey of the different defences. Their bi-polar survey sheet is shown ig. 2.11 (Insert). Describe how the students could make sure their results of the bi-polar survey were
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	Fig.

(ii) The results of the bi-polar survey of gabions, shown in Fig. 2.7 (Insert), are in the following table.

Type of coastal defence: Gabions

	Score)		
Negative factor		-1	0	+1	+2	Positive factor
Ugly			1			Attractive
Does not protect land behind beach					1	Protects land behind beach
Erosion by the waves still happens					1	Stops all erosion by the waves
Poor access to beach		1				Good access to beach
Dangerous to people				1		Safe for people
High construction and maintenance costs		1				Low construction and maintenance costs
Lots of disturbance caused during construction	1					Little disturbance caused during construction

Use these results **to complete the graph and calculate the total score** for gabions in Fig. 2.12 on page 13. [2]

Results of the bi-polar survey

WOODEN GROYNE TO	TAL SCO	RE = +3			
Negative factor	-2 -	-1 (0 +	1 +2	Positive factor
Ugly				,	Attractive
Does not protect land behind beach					Protects land behind beach
Erosion by the waves still happens					Stops all erosion by the waves
Poor access to beach				(Good access to beach
Dangerous to people					Safe for people
High construction and maintenance costs					ow construction and maintenance costs
Lots of disturbance caused during construction					ittle disturbance caused during construction

Fig. 2.12

GABIONS	TOTAL SCORE =	
GABIONS	IOIAL SCORE =	

Negative factor	-2	-1	0	+1	+2 Positive factor
Ugly					Attractive
Does not protect land behind beach					Protects land behind beach
Erosion by the waves still happens					Stops all erosion by the waves
Poor access to beach					Good access to beach
Dangerous to people					Safe for people
High construction and maintenance costs					Low construction and maintenance costs
Lots of disturbance caused during construction	t				Little disturbance caused during construction

RIP RAP TOTAL	. SCOR	E = -4			
Negative factor	-2	-1	0	+1	+2 Positive factor
Ugly					Attractive
Does not protect land behind beach					Protects land behind beach
Erosion by the waves still happens					Stops all erosion by the waves
Poor access to beach					Good access to beach
Dangerous to people					Safe for people
High construction and maintenance costs					Low construction and maintenance costs
Lots of disturbance caused during construction	d				Little disturbance cause during construction

Fig. 2.12

SEA	WALL	TOTAL SCORE = -4	

Negative factor –	-2 –	-1 (0 +	1 +	-2 Positive factor
Ugly					Attractive
Does not protect land behind beach					Protects land behind beach
Erosion by the waves still happens					Stops all erosion by the waves
Poor access to beach					Good access to beach
Dangerous to people					Safe for people
High construction and maintenance costs					Low construction and maintenance costs
Lots of disturbance caused during construction					Little disturbance caused during construction

BEACH REPLENISHMENT	TO	TOTAL SCORE = +4				
Negative factor -2	-1 0 ·		+1	+2 Positive factor		
Ugly					Attractive	
Does not protect land behind beach					Protects land behind beach	
Erosion by the waves still happens					Stops all erosion by the waves	
Poor access to beach					Good access to beach	
Dangerous to people					Safe for people	
High construction and maintenance costs					Low construction and maintenance costs	
Lots of disturbance caused during construction					Little disturbance caused during construction	

Fig. 2.12

	(iii)	To what extent do the results of the fieldwork support Hypothesis 2: Coastal defences have a positive impact on the coastline? Support your decision with data from Fig. 2.12. Refer to different coastal defences in your answer.
		[4]
(f)		an extension task the students decided to measure wave frequency. Describe a method students could use on a field visit to measure wave frequency.
		[3]
		[Total: 30]

Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.	ЭN
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