



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE
NAME

CENTRE
NUMBER

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CANDIDATE
NUMBER

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GEOGRAPHY

2217/21

Paper 2

October/November 2010

2 hours 15 minutes

Candidates answer on the Question Paper.

- Additional Materials: Calculator
 Ruler
 Protractor
 Plain paper

1:25000 Survey Map Extract is enclosed with this Question Paper.

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.

Section A

Answer **all** questions.

Section B

Answer **one** question.

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

Insert 1 contains Photograph A for Question 3.

Insert 2 contains Figs 8 and 10 and Tables 4 and 5 for Question 7 and Figs 12 and 13 and Tables 6, 7 and 8 for Question 8.

The Survey Map Extract and the Inserts are **not** required by the Examiner.

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	
Section A	
Q1	
Q2	
Q3	
Q4	
Q5	
Q6	
Section B	
Q7	
Q8	
Total	

This document consists of **24** printed pages and **2** Inserts.



Section A

Answer **all** questions in this section.



1 Study the 1:25 000 map of Tamarin, Mauritius.

(a) (i) A walker on Tamarin Mountain has reached point **X** at 840838. With the aid of the map complete Table 1. [4]

Table 1

Feature	Grid Reference	Direction from point X	On a clear day could the feature be seen from point X ?
Breakwater	826838	W	Yes
Martello Tower	824827		No
	848842	NE	Yes
Reservoir		N	Yes
Bridge	860818	SE	

(ii) The walker wants to travel in a straight line from point **X** to the nearest road. State the compass direction and the distance in metres.

Direction

Distance metres. [2]

(b) (i) Describe the distribution of the sugar plantations shown on the map.

.....

.....

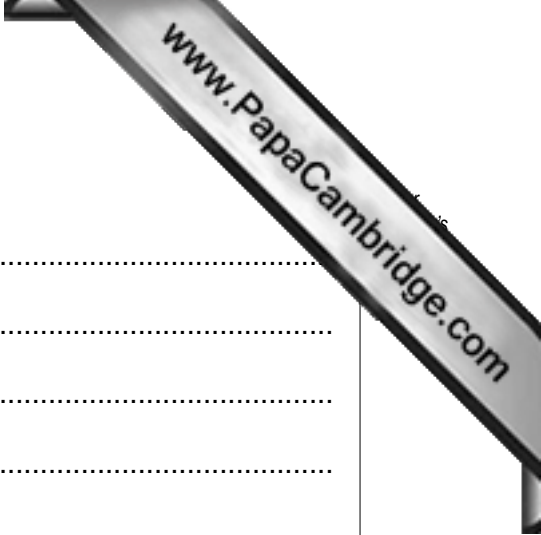
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..... [3]



(ii) Suggest reasons for this distribution.

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

(c) List **four** services found in grid square 8381.

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.....
..... [4]

(d) (i) How is flooding avoided where the “road – other” crosses the estuary in the southern part of 8381?

..... [1]

(ii) Suggest reasons for the route taken by the main A3 road from Riv Noire (8381) to Tamarin (8485).

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..... [3]

[Total: 20 marks]

- 2 Study Fig. 1, which shows part of a coastline visited by students carrying out a geographical investigation.

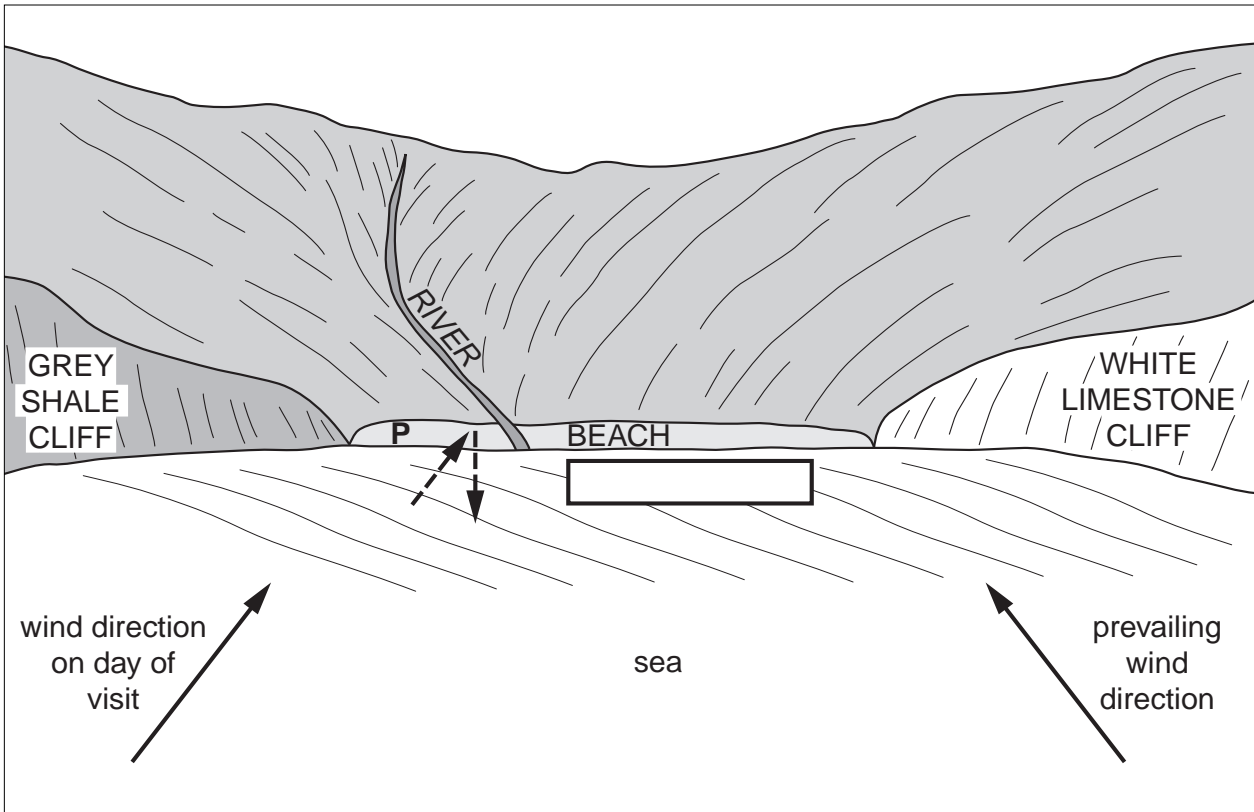


Fig. 1

- (a) (i) Use the letters below to label the arrows drawn near the beach.

- swash (**S**)
- backwash (**B**)

[1]

- (ii) Draw an arrow in the box provided to show the direction of longshore drift **on the day of the visit**.

[1]

(b) Study Fig. 2, which shows information about a sample of beach material taken at P.

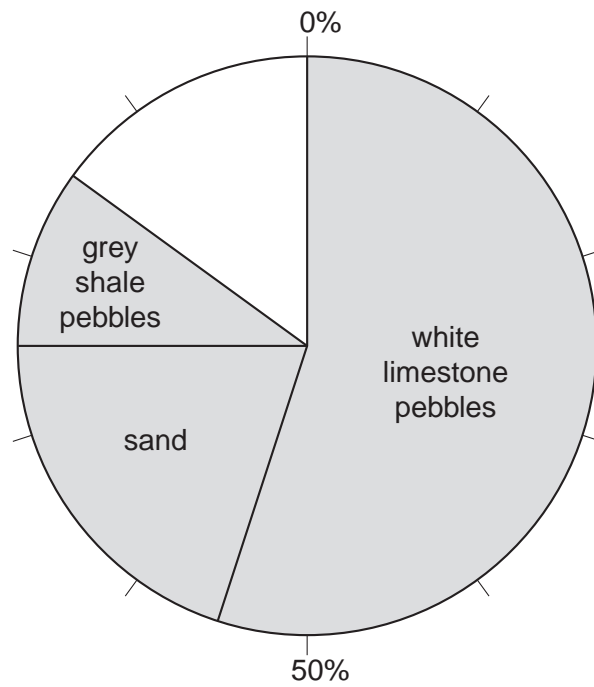


Fig. 2

(i) Complete Fig. 2 to show

- shells – 5%
- driftwood – 5%
- other material – 5%

[2]

(ii) What percentage of the sample is made up of white limestone pebbles?

..... [1]

(iii) Look again at Fig. 1 to suggest why the beach at P is mainly made up of white limestone pebbles.

.....
.....
..... [2]

(iv) Suggest why some grey shale pebbles were found at P.

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

[Total: 8 marks]

3 Study Photograph A (Insert 1) which shows a settlement in central Spain, and Fig. 3, is a map of the settlement and its surroundings.

(a) Describe the settlement shown in Photograph A.

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.....

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..... [2]

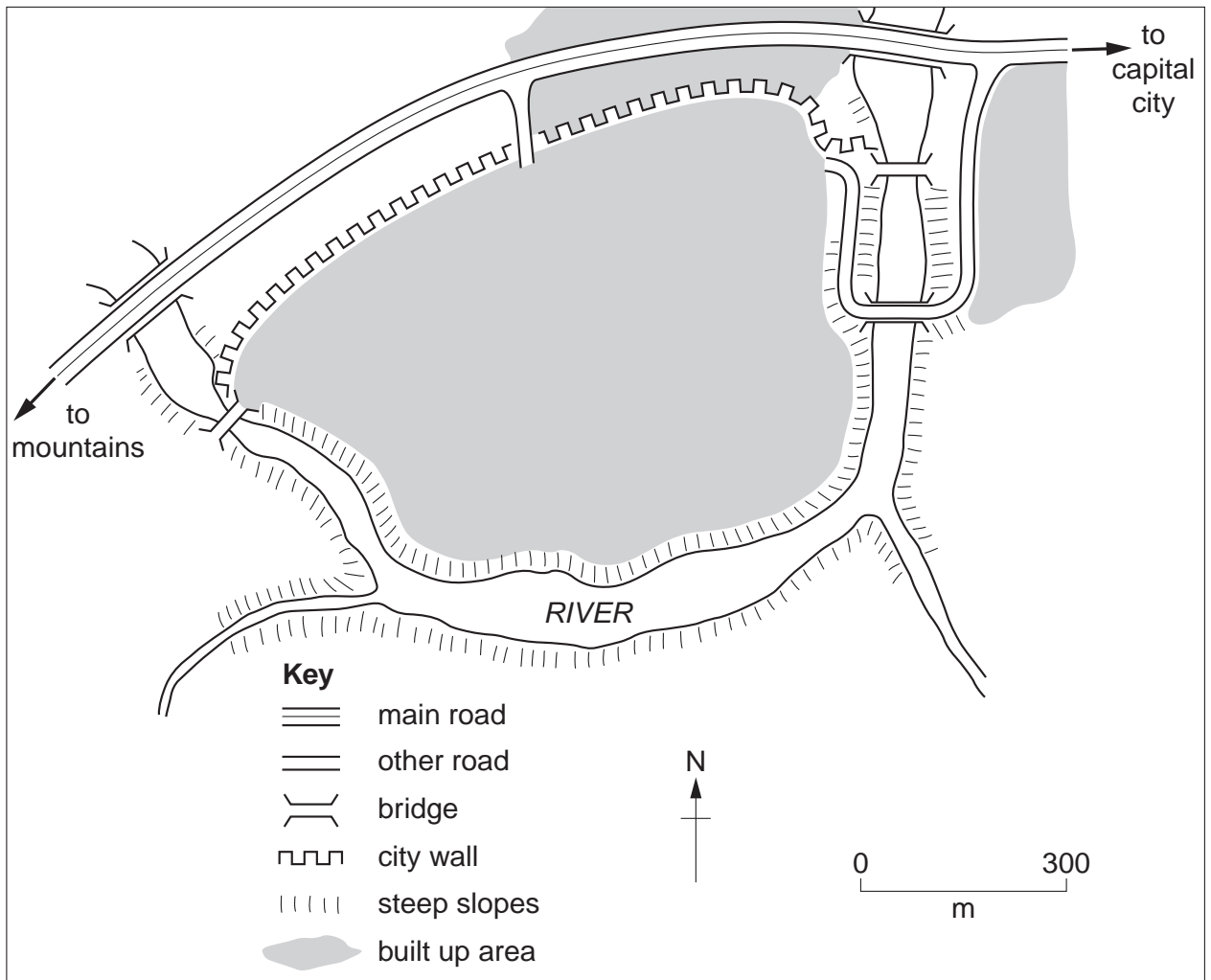
(b) Study Fig. 3 and explain how physical factors may have influenced the choice of site for this settlement.

.....

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.....

..... [2]





(c) This settlement attracts many tourists. A proposal has been made to build a hotel in area **Y** on Photograph A. Suggest **two** advantages and **two** disadvantages of building a hotel in area **Y**.

Advantages

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.....
.....
.....

Disadvantages

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.....
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..... [4]

[Total: 8 marks]

4 Study Fig. 4, which shows the speed of flow of a river at various depths across a meander.

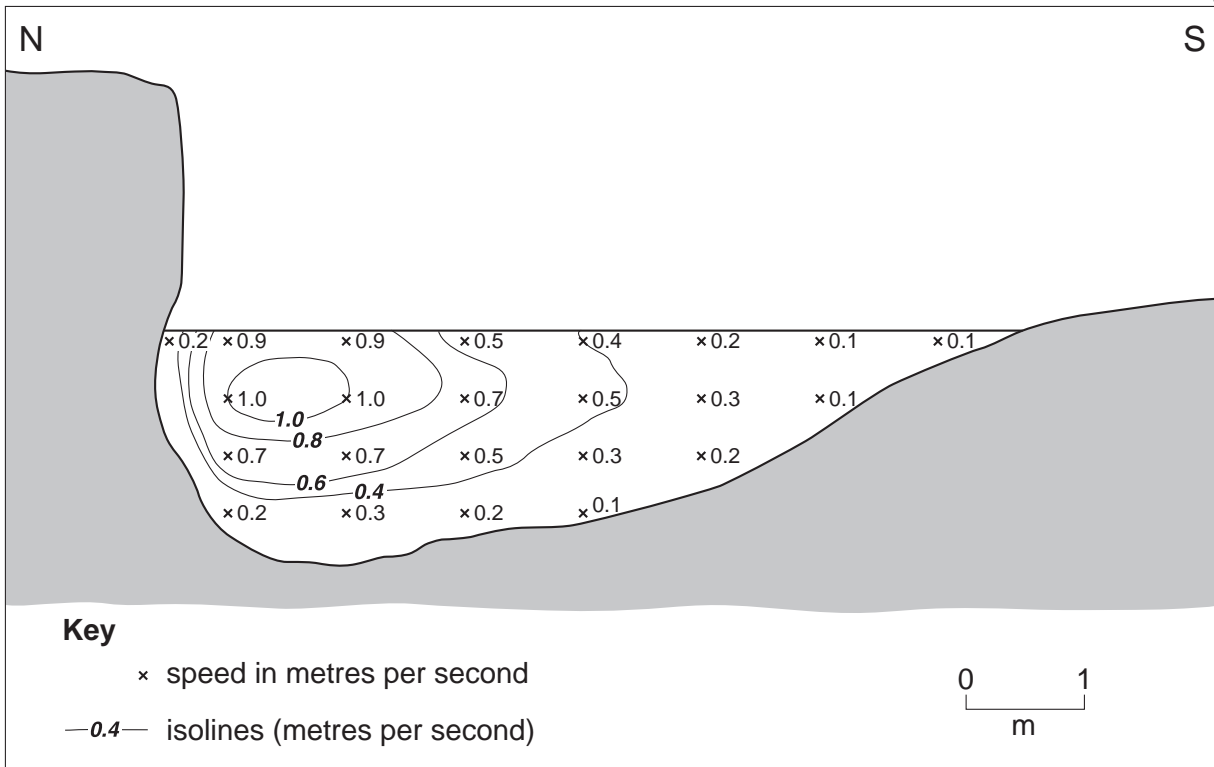


Fig. 4

(a) (i) On Fig. 4, use labelled arrows to show the positions of:

- a river cliff,
- a point bar (slip-off slope).

[2]

(ii) On Fig. 4, use the letters below to show where the river is carrying out:

- erosion (**E**),
- deposition (**D**).

[1]

(iii) On Fig. 4, shade the zone where the water is flowing at more than 1.0 metres per second. [1]

(iv) Complete Fig. 4 by inserting the isoline for 0.2 metres per second. [2]

(b) Suggest how the north bank will change in the future.

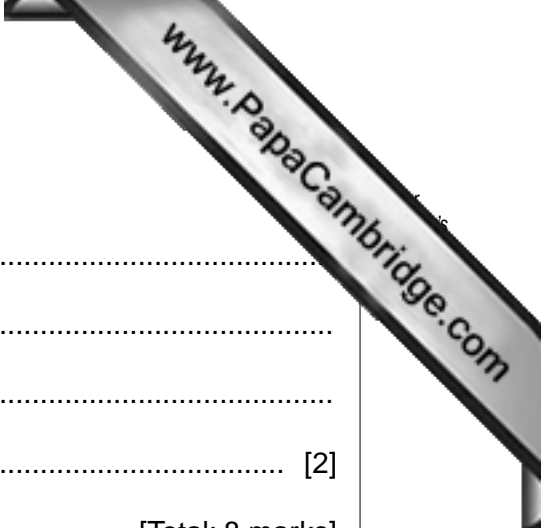
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..... [2]

[Total: 8 marks]



5 Study Figs. 5A and 5B, which show towns used for weekly food shopping and towns used for clothes shopping by people living in villages.

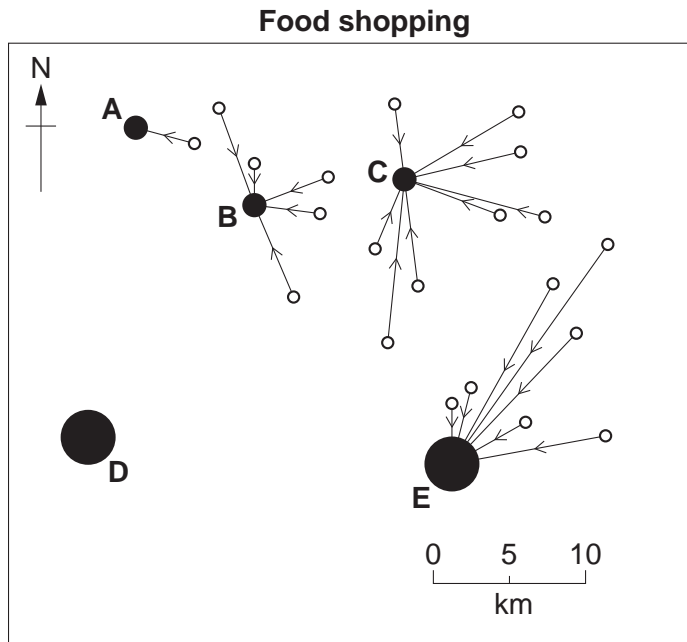
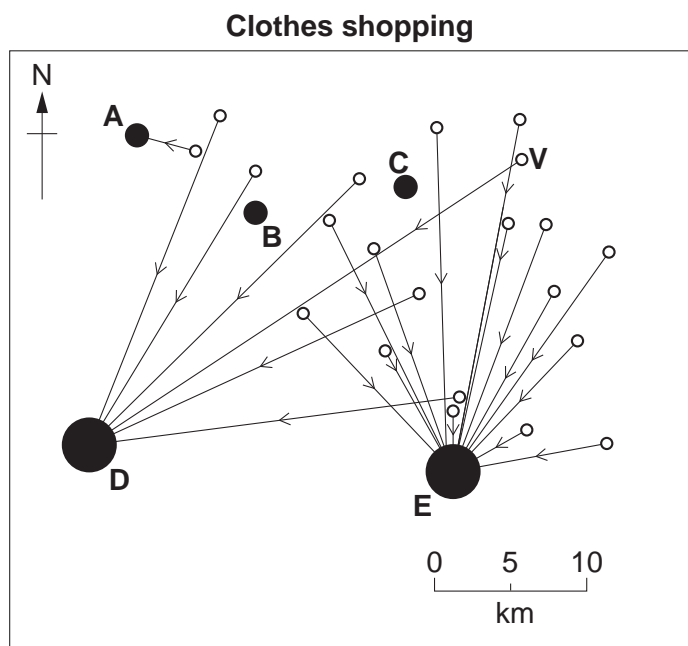
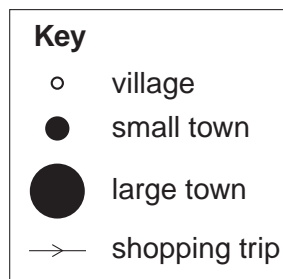
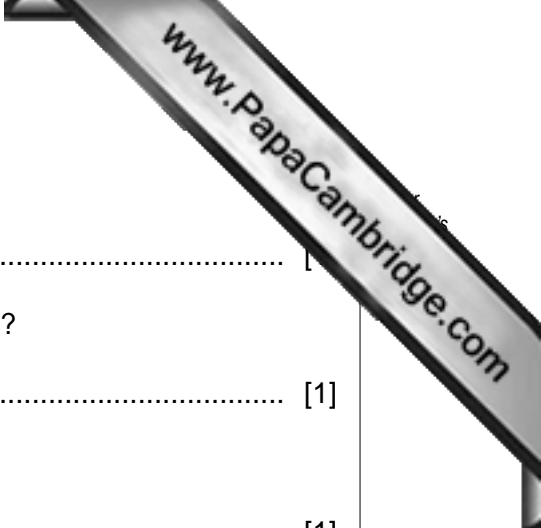


Fig. 5A





(a) (i) Which town received the most visits for food shopping?

..... [1]

(ii) Which town received the most visits for clothes shopping?

..... [1]

(iii) How far was the longest trip for food shopping?

..... [1]

(b) (i) Suggest why people travel further for clothes shopping than for food shopping.

.....
.....
.....
..... [2]

(ii) Suggest why someone from village **V** would travel to town **D** to buy clothes when town **E** is nearer.

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.....
.....
..... [2]

(c) On Fig. 5A, draw a line and shade the sphere of influence of food shops in small town **B**. [1]

[Total: 8 marks]

6 Study Table 2, which shows energy consumption in the USA.

Table 2

Source	%
Oil	39
Gas	23
Coal	22
Nuclear	8
Hydroelectric	4
Other renewable energy	4

(a) (i) What is meant by the term *renewable energy*?

.....
 [1]

(ii) State one type of energy source that could be included in the “other renewable energy” category on Table 2.

..... [1]

(b) Use the data in Table 2 to complete the divided bar on Fig. 6 below. [2]

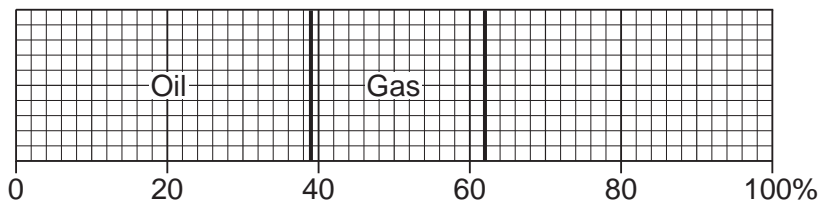


Fig. 6

(c) Study Fig. 7, which shows the sources of energy used for production of electricity, USA from 1950 to 2007.

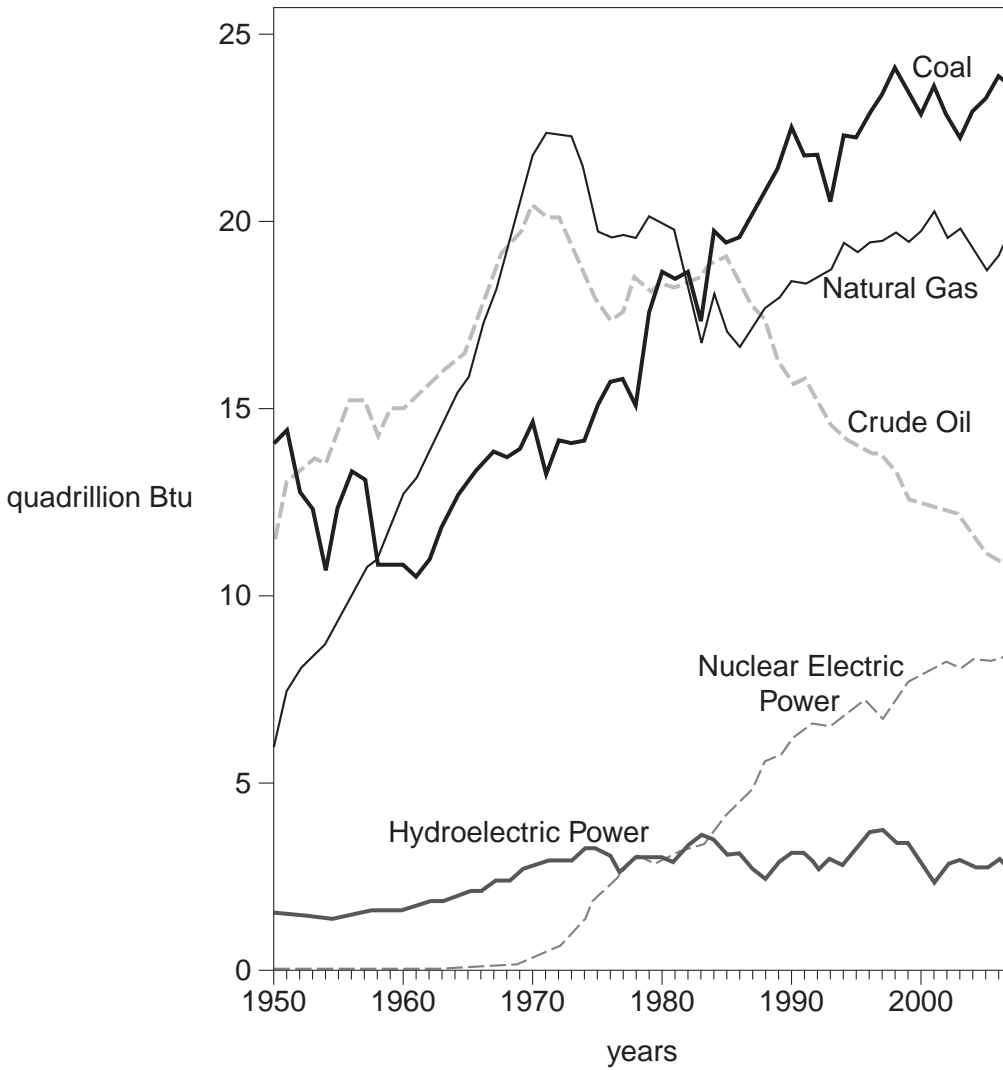


Fig. 7

(i) Which source produced the most electricity in the year 2000?

..... [1]

(ii) Describe how the amount of electricity produced from crude oil varied from 1950 to 2000.

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

Section B

Answer **one** question in this section.

- 7 Students wanted to investigate the possible impacts of tourism on a village visited by many people. They wanted to find out if there were both positive and negative effects. To do this they decided to test the following hypotheses:

Hypothesis 1 *Tourism has a major impact on the shops and services in the village*

Hypothesis 2 *The impact of tourism decreases away from the main car park*

- (a) To investigate the importance of tourism, the students mapped different types of shops and services, as shown on Fig. 8 (Insert 2), to see if they were mainly used by tourists or local people.

- (i) How many hotels are shown on Fig. 8 (Insert 2)?

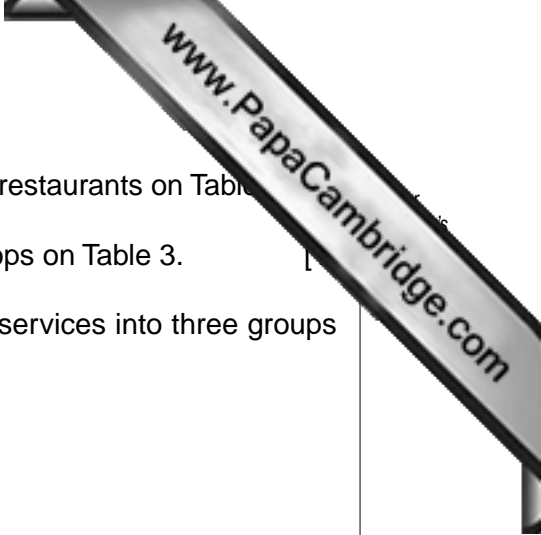
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[1]

Table 3

Details of shops and services

Type of shop or service	Tally	Total	Percentage of total number of shops
Art Gallery	/	1	2.5
Baker	/	1	2.5
Bank	/	1	2.5
Book shop	///	3	7.5
Butcher	/	1	2.5
Café	////	4	10.0
Chemist	/	1	2.5
Flower shop	//	2	5.0
Food store	///	3	7.5
Gift shop	//// //	8	
Hairdresser	/	1	2.5
Museum shop	/	1	2.5
Post Office	/	1	2.5
Public House	///	3	7.5
Restaurant			10.0
Sweet shop	//	2	5.0
Food Take Away	//	2	5.0
Tourist Information	/	1	2.5



- (ii) Look at Fig. 8 and complete the tally and total number of restaurants on Table 3.
 - (iii) Calculate and write in the missing percentage for gift shops on Table 3.
- (b) To test **Hypothesis 1**, the students classified the shops and services into three groups just by looking at them:
- Used mainly by tourists;
 - Used mainly by local residents;
 - Used by both tourists and local residents.

The results of the decisions the students made about this classification are shown on Table 4 (Insert 2).

- (i) Why would the students have found it difficult to classify some shops and services?

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..... [2]

- (ii) How could the students be more certain that the customers of each shop were tourists or local residents?

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.....
..... [2]

(iii) Use the results in Table 4 (Insert 2) to complete the pie graph shown in Fig.

Pie graph of classification of shops and services

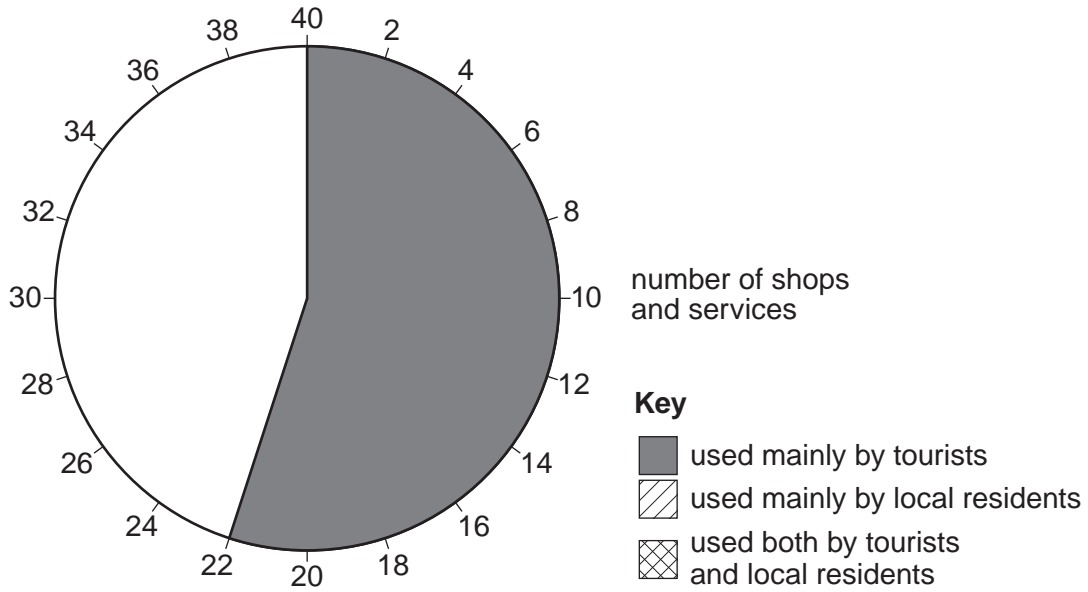


Fig. 9

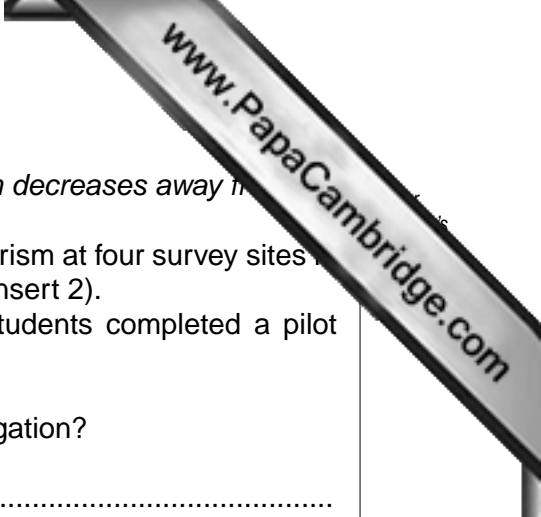
(iv) The students accepted **Hypothesis 1** that tourism has a major impact on the shops and services in the village. Do you agree with them? Support your answer with evidence from Table 3 and Fig. 9.

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.....[2]



(c) Next the students tested **Hypothesis 2** *The impact of tourism decreases away from the main car park.*

They devised a scoring system to measure the impacts of tourism at four survey sites in the village. These survey sites are labelled **A** to **D** on Fig. 8 (Insert 2).

Fig. 10 (Insert 2) shows the final scoring sheet after the students completed a pilot study.

(i) What is a pilot study and why is it important in an investigation?

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..... [2]

(ii) What decisions would the students have to make in organising and carrying out the main survey?

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..... [3]

(d) The results of the main survey of the impacts of tourism are shown on page 18 (Insert 2).

(i) Complete Fig. 11, below, by plotting the results for tourist buildings for sites B and D from information given in Table 5.

Results of the survey of the impacts of tourism

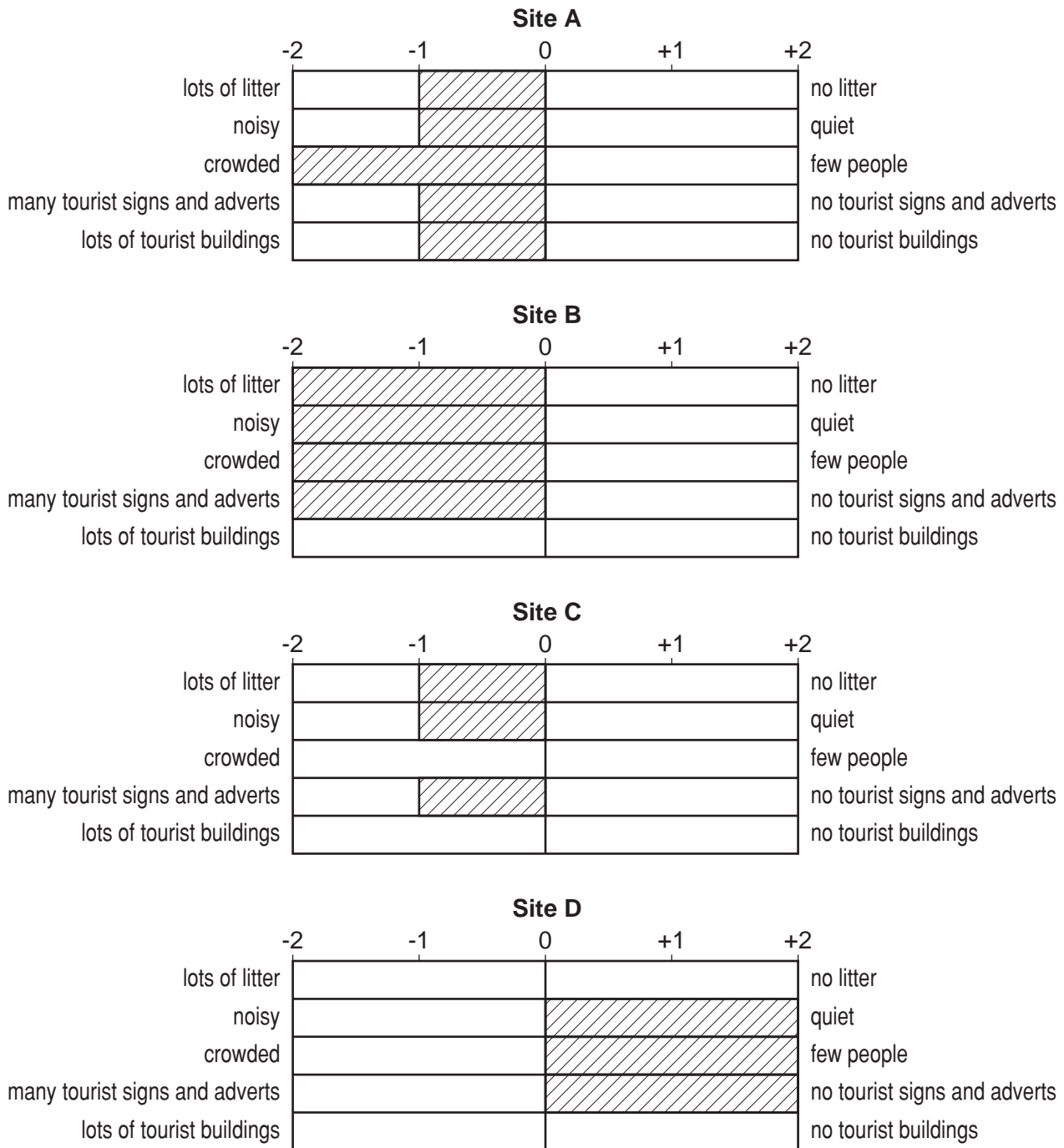
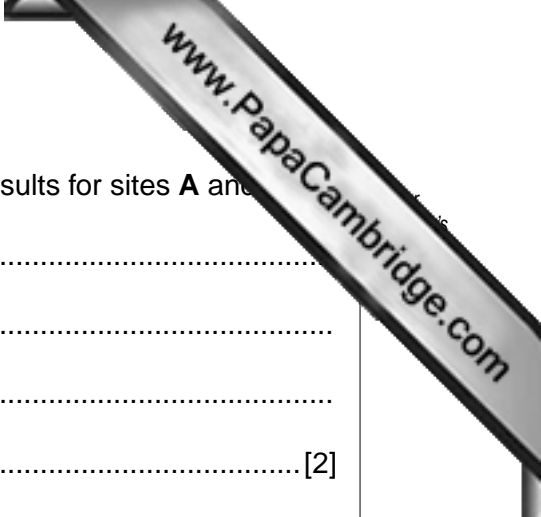


Fig. 11

[2]



(ii) Identify **one** similarity and **one** difference between the results for sites **A** and **B**.

Similarity

.....

Difference

..... [2]

(iii) To what extent do these results support **Hypothesis 2** that the impact of tourism decreases away from the main car park?

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..... [2]

(iv) Suggest reasons for the results of the survey of the impacts of tourism. Refer back to Fig. 8.

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..... [4]

(e) Suggest **one** other issue the students could have investigated in the village. Briefly describe how they could have done their investigation.

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..... [4]

8 Students were concerned about how human activities may threaten the environment, causing air pollution.

(a) (i) State **two** human activities which could cause air pollution.

1

2 [2]

(ii) Describe **three** effects of air pollution on the natural environment.

1

.....

2

.....

3

..... [3]

The students decided to focus on one problem caused by air pollution – the impact of acid rain in their region. First they researched acid rain and made a fact file. This is shown on Fig. 12 (Insert 2).

The students decided to test the following hypotheses:

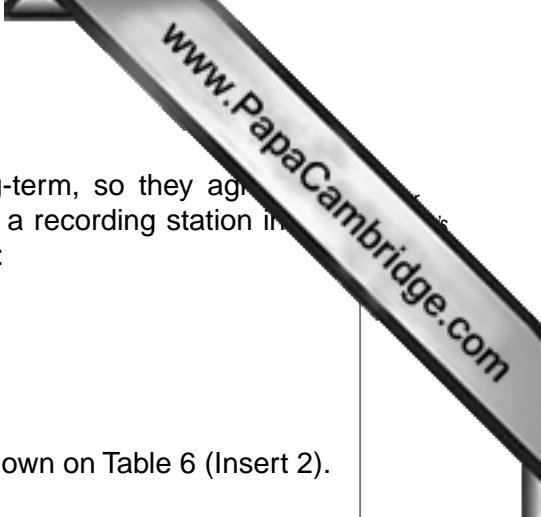
Hypothesis 1 *The acidity of rainfall is affected by the direction of the wind*

Hypothesis 2 *Rainfall is more acidic after a period of dry weather*

(b) Look at Fig. 13 (Insert 2) which is a sketch map of the area where the students live. What is meant by the term *prevailing wind*?

.....

..... [1]



(c) The students realised that this investigation would be long-term, so they agreed to do their investigation every day for four months. They set up a recording station in the grounds of their school. Each day they recorded the following:

- wind direction;
- amount of rain that had fallen in the previous 24 hours;
- pH value of any rainwater collected.

They recorded their results as a data log. Part of this log is shown on Table 6 (Insert 2).

(i) Describe how they collected their data. Refer to equipment used in your answer. The answer for pH has been done for you.

Wind direction

Amount of rain that had fallen

pH They used a pH meter or pH strips to measure the pH value of rainwater. [2]

(ii) Why did the students decide to do their investigation over four months?

..... [2]

(iii) What difficulties might the students have had in collecting their data, which may have affected their results?

..... [3]

- (iv) Using their data log, they produced the summary in Table 7 (Insert 2). By studying this summary, what conclusion could the students make about the acidity of rainfall? State a **Hypothesis 1** *The acidity of rainfall is affected by the direction of the wind?* What evidence from Table 7 supports their conclusion?

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..... [3]

- (v) Use information from Figs 12 and 13 (Insert 2) to explain why the level of acidity in rainfall varies with wind direction.

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..... [3]

Next, the students looked at **Hypothesis 2** *Rainfall is more acidic after a period of dry weather.*

- (d) Using their data log again, the students produced the summary in Table 8 (Insert 2).

- (i) Use the results recorded in bold in Table 8 to complete the scatter graph, Fig. 14 (opposite) and draw in a best-fit line. [3]
- (ii) The students accepted **Hypothesis 2** *Rainfall is more acidic after a period of dry weather.* Do you agree with them? Support your answer with evidence from Fig. 14.

.....
.....
.....
..... [2]

Relationship between number of dry days before rainfall and average pH reading

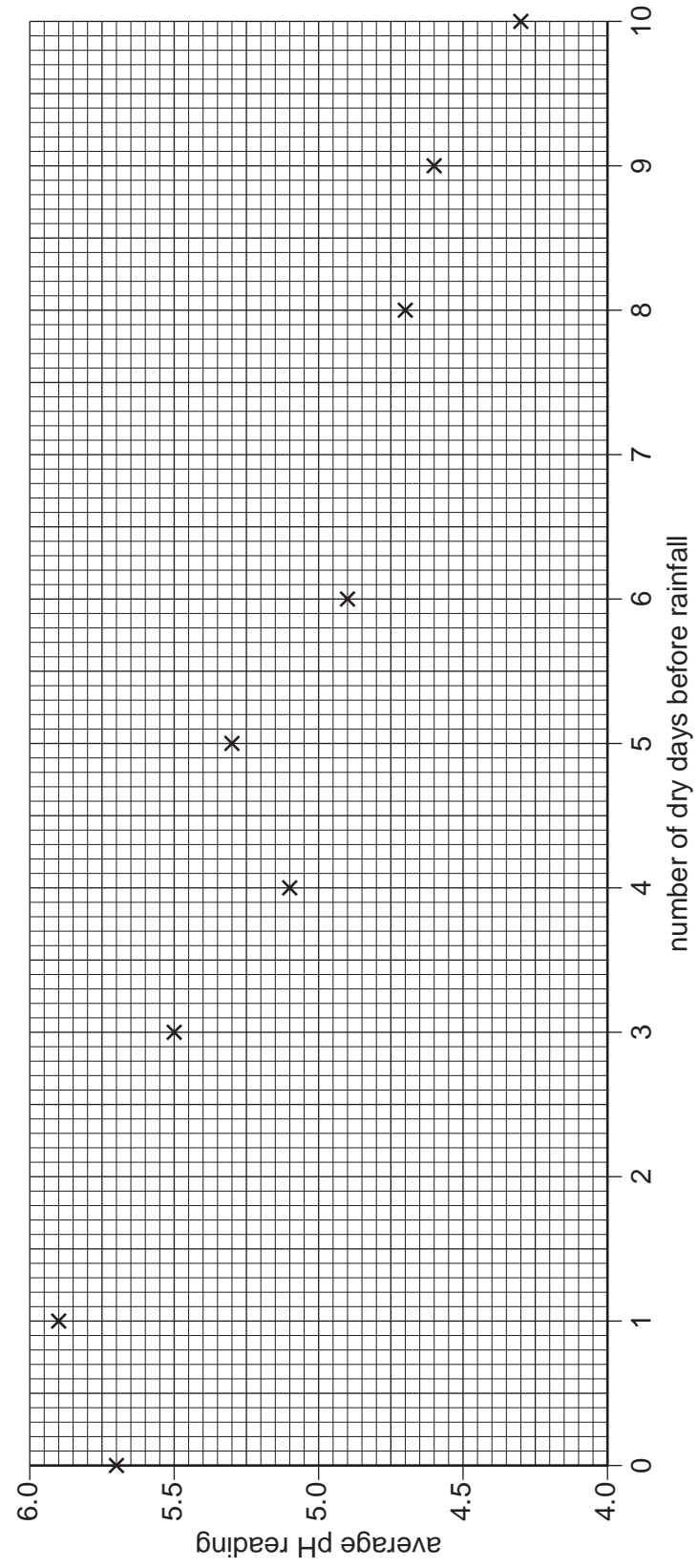
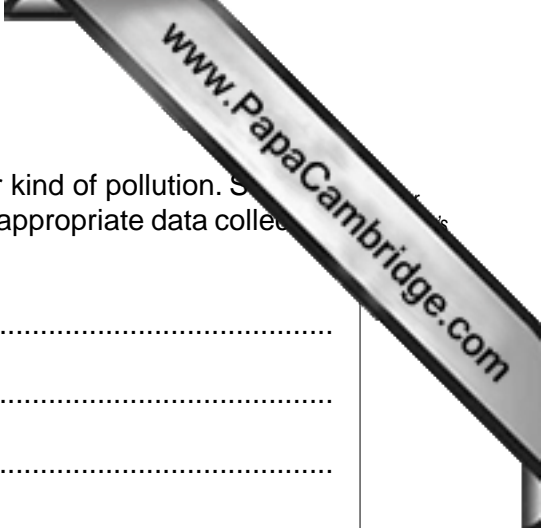


Fig. 14



- (e) (i) The students wanted to investigate the impact of another kind of pollution. Suggest a possible hypothesis about water pollution and describe appropriate data collection methods.

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..... [4]

- (ii) Having completed their investigation of water pollution, what recommendations might the students have made to a water authority about how to reduce the level of pollution?

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..... [2]

[Total: 30 marks]