Cambridge
O Level

Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

2546537081

GEOGRAPHY **2217/22**

Paper 2 **May/June 2016**

2 hours 15 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator
Protractor
Plain paper

1:50 000 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 an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Section A
Answer **all** questions.
Section B
Answer **one** question.

The Insert contains Photograph A for Question 5, Tables 4 and 5 and Fig. 9 for Question 7, and Fig. 14 and Table 10 for Question 8.
The Survey Map Extract and the Insert are **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.

Section A

Answer **all** questions in this section.

1 The 1:50 000 map is of Galway, Ireland.

(a) Study the areas shown in Fig. 1.

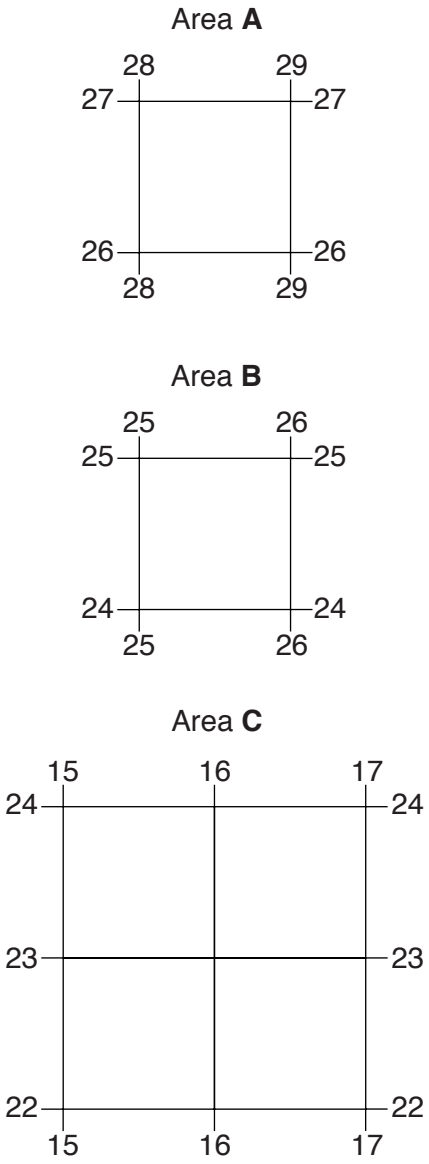

Fig. 1

For each area state the types of road and describe the pattern of roads.

Area **A**

Types .....

.....

Pattern .....

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Area **B**

Types .....

.....

Pattern .....

.....

.....

Area **C**

Types .....

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Pattern .....

.....

..... [7]

(b) Give the six-figure grid reference of the Graveyard on the east bank of the River Corrib near the village of Menlough.

..... [1]

(c) Study Fig. 2, which shows three cross sections **D**, **E** and **F**.

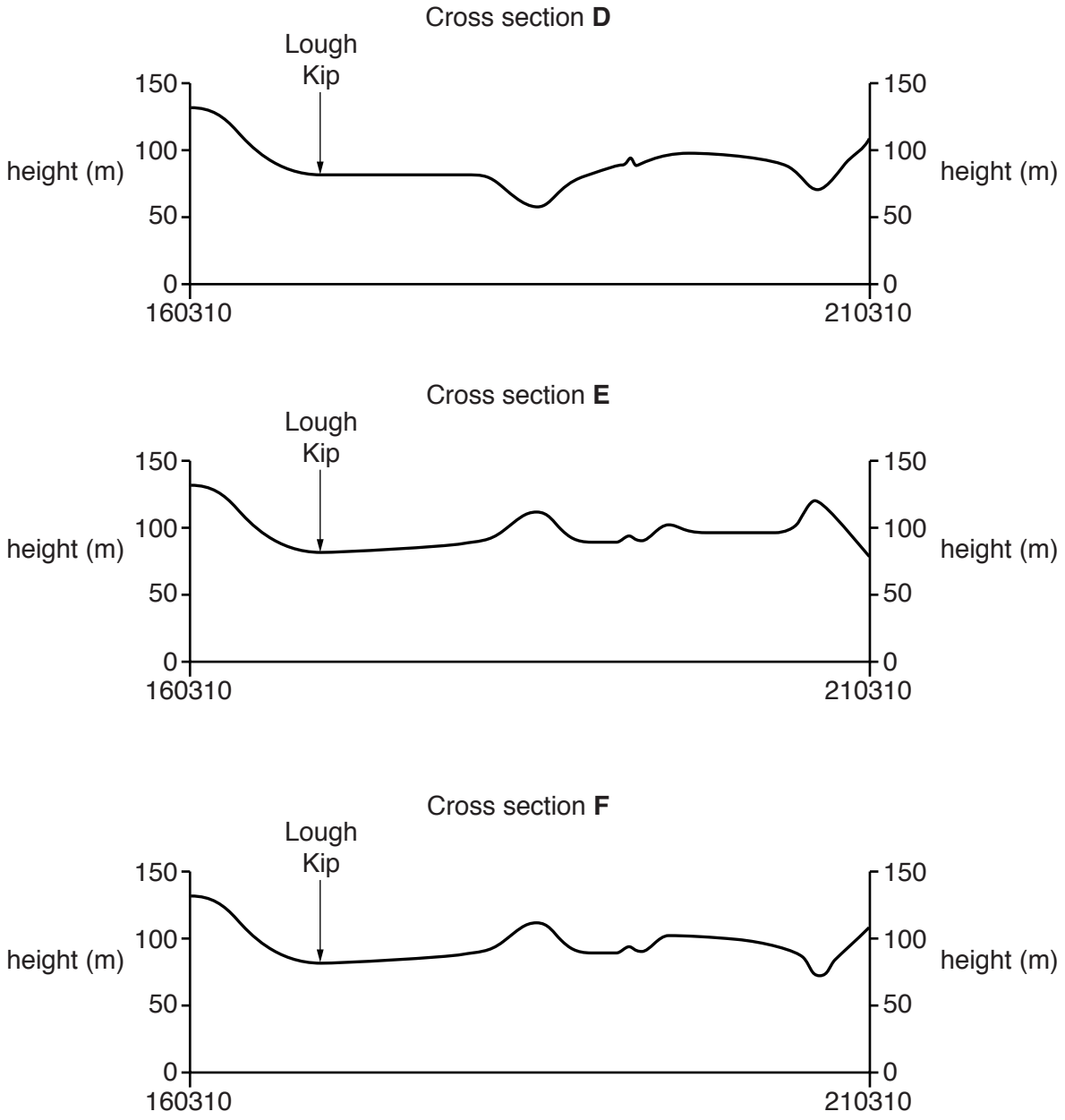

Fig. 2

(i) Which cross section gives the most accurate representation of the land from 160310 to 210310?

..... [1]

(ii) On your chosen cross section, label the following features using the given letters:

- a track (**T**);
- river Sruthan an tSamhaidh (**R**);
- eastern edge of the coniferous plantation (**P**). [3]

(d) (i) Estimate the distance along the road from the post office at Moycullen (in 2132) to the post office at Spiddle (in 1222). Give your answer to the nearest kilometre.

..... [1]

(ii) What is the compass direction from the post office at Moycullen to the post office at Spiddle?

..... [1]

(e) (i) Apart from the post office, what services shown at Spiddle might be used by visitors to the area?

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..... [3]

(ii) State **three** natural attractions, within 4 km of Spiddle.

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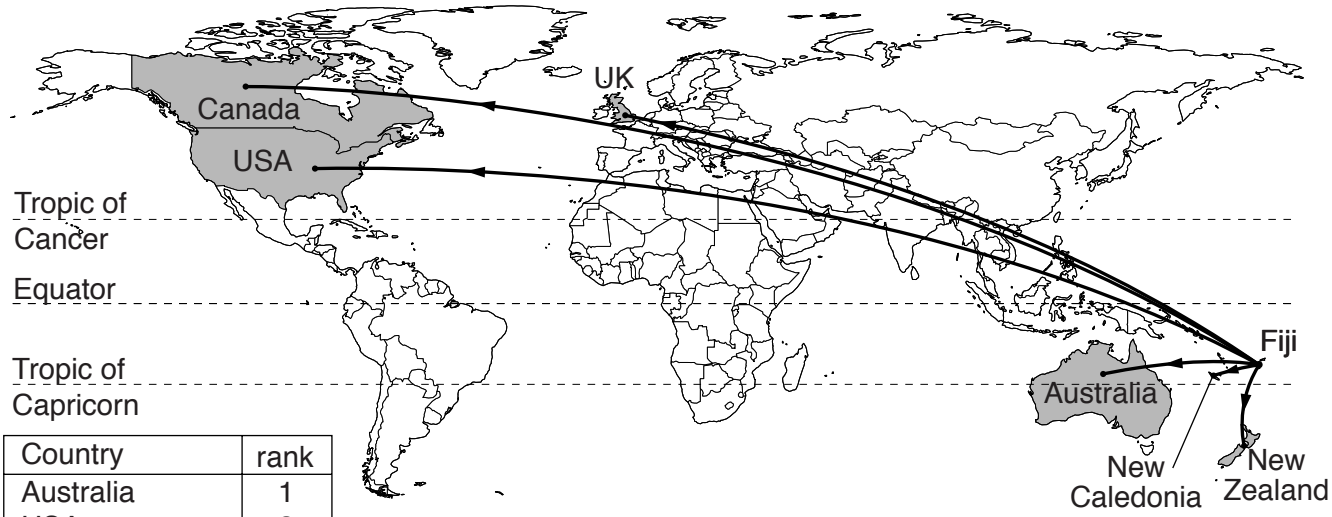
..... [3]

[Total: 20 marks]

2 Study Fig. 3, which shows Fiji and the top six destinations for emigrants **from** Fiji.



Country	rank
Australia	1
USA	2
New Zealand	3
Canada	4
UK	5
New Caledonia	6

Fig. 3

(a) Describe the location of Fiji.

.....

.....

.....

..... [2]

(b) (i) Which destination for emigrants is the third most popular?

..... [1]

(ii) How might the reasons for migrating to New Caledonia be different to the reasons for migrating to the USA?

.....

.....

.....

..... [2]

(c) Study Table 1, which shows the top six countries for immigrants **to** Fiji.

Table 1

Country	Rank
India	1
Australia	2
New Zealand	3
UK	4
Papua New Guinea	5
French Polynesia	6

(i) Which country supplied the most immigrants **to** Fiji?

..... [1]

(ii) How many of the named countries supplying immigrants shown on Table 1 are also named on Fig. 3 as a destination for emigrants?

..... [1]

(iii) Suggest why migrants might eventually return to their country of origin.

.....

..... [1]

[Total: 8 marks]

[Turn over

3 Study Table 2, which shows global totals for the number of earthquakes of different magnitudes on the Richter scale, from 2003 to 2013.

Table 2

Magnitude range (Richter scale)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
8.0–9.9	1	2	1	2	4	0	1	1	1	2	2
7.0–7.9	14	14	10	9	14	12	16	21	19	15	17
6.0–6.9	140	141	140	142	178	168	144	151	204	129	124
5.0–5.9	1203	1515	1693	1712	2074	1768	1896	1963	2271	1412	1402
Total	1358	1672	1844	1865	2270	1948	2057	2136	2495	1558	1545

(a) (i) In which year did the most earthquakes occur?

..... [1]

(ii) How many earthquakes of magnitude 5.0–5.9 occurred in 2009?

..... [1]

(iii) How many earthquakes of magnitude 6.0 or greater occurred in 2006?

..... [1]

(iv) Describe the relationship between magnitude and number of earthquakes.

.....

..... [1]

(b) Study Table 3, which shows earthquakes resulting in deaths in 2013.

Table 3

Magnitude (Richter scale)		Deaths	
Magnitude	Rank	Number	Rank
8	1	18	
7.7	=2	825	1
7.7	=2	35	
7.2	4	222	2
6.8	5	22	
6.6	6	193	3
6.3	7	37	
6.1	8	35	
5.9	9	95	
5.6	=10	18	
5.6	=10	7	

(i) Complete the ranking of number of deaths on Table 3. [1]

(ii) Suggest why earthquakes of similar magnitude can have very different numbers of deaths.

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..... [3]

[Total: 8 marks]

4 Study Fig. 4, which shows the climate for Brazzaville, Congo, which is 4° south of the Equator.

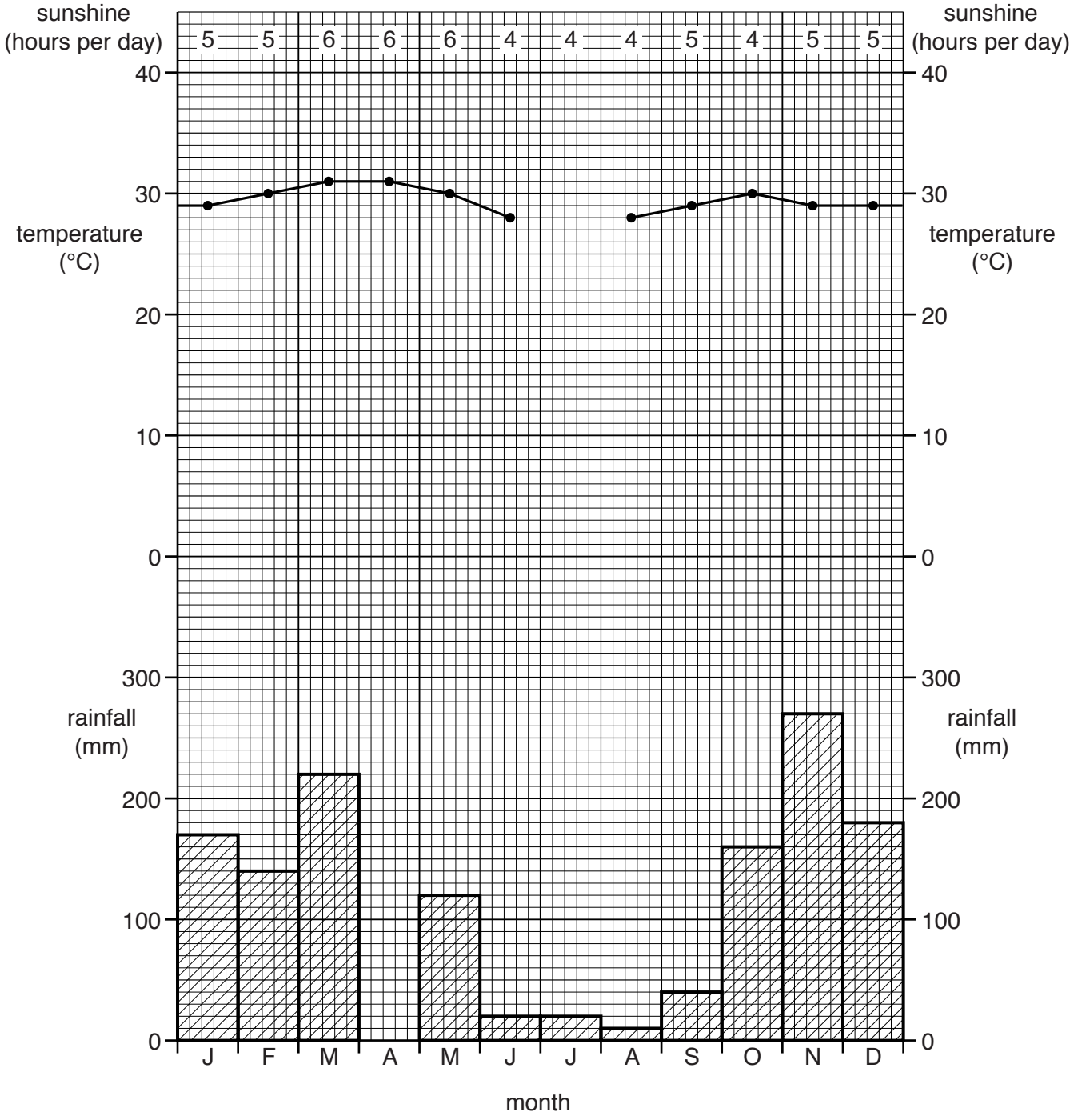

Fig. 4

(a) Complete the graph to show 210 mm of rainfall in April. [1]

(b) **(i)** The annual temperature range is 5 °C. Use this information to calculate two possible values for the temperature in July.

..... [2]

(ii) Which of the two temperatures in your answer to **(b)(i)** is most likely to be the real temperature? Give a reason for your answer.

.....

..... [1]

(c) Describe the variation in sunshine hours per day.

.....

.....

.....

..... [2]

(d) Which **two** statements below describe the vegetation found in this climate?

Statement	Tick (✓)
Broad leaves with drip tips	
Narrow leaves with drip tips	
Narrow leaves and thorns	
Thick bark and deep roots	
Thick bark and shallow roots	
Thin bark and deep roots	
Thin bark and shallow roots	

[2]

[Total: 8 marks]

[Turn over

5 **(a)** Photograph A (Insert) shows rice production in Bangladesh. Describe the inputs shown on Photograph A.

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..... [4]

(b) Study Fig. 5, which shows some consequences of reduced food production, in Bangladesh.

Bangladesh is vulnerable to excess flooding, which can affect food production. To cope with reduced food supply, families reduce the number and the quality of meals consumed and switch to cheaper but less preferred foods. The elderly and women are usually the first to reduce their food intake, allowing men and children to eat as normal. If food supply remains low, and prices continue to increase, women are forced to look for employment, children are taken out of school so that they can work and men migrate to urban areas to look for employment.

Fig. 5

Using Fig. 5 **only**, explain how the reduction in supply and increasing cost of food affect each of the following groups of people:

the whole family;

.....

.....

children only;

.....

.....

men only;

.....

.....

women only.

.....

..... [4]

[Total: 8 marks]

6 Study Fig. 6, which shows the processing of cassava roots, a vegetable, to make two products.

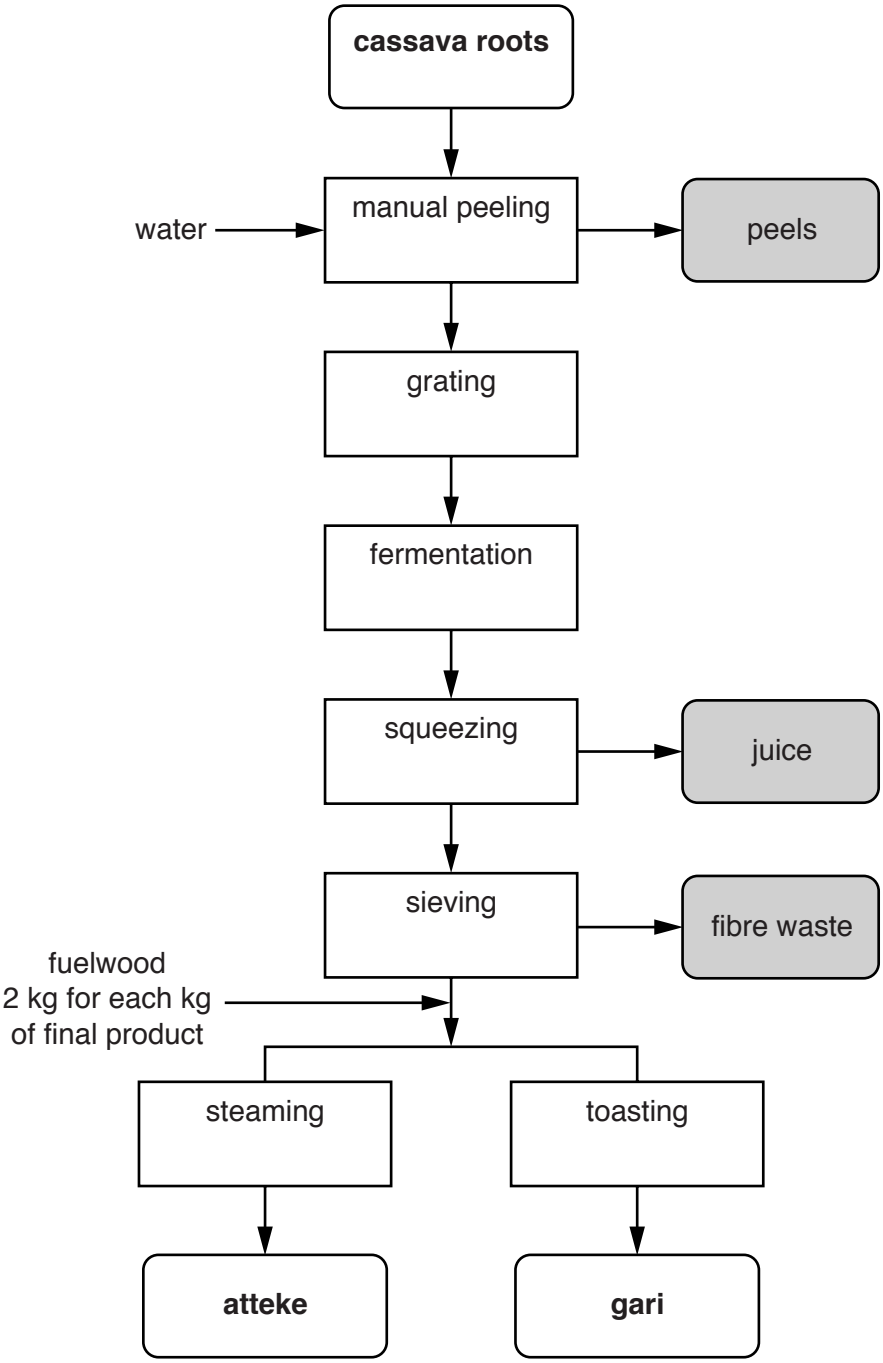

Fig. 6

(a) (i) Identify **two** inputs into this process.

.....

..... [2]

(ii) Identify **two** outputs from the process, other than the final products of atteke and gari.

.....

..... [2]

(iii) What is the first stage of the process?

..... [1]

(b) (i) How is the processing of atteke different from the processing of gari?

.....

..... [1]

(ii) How much fuelwood is needed to make 250 kg of atteke?

..... [1]

(c) What type of pollution could be produced by the processing of cassava? Explain your answer.

.....

..... [1]

[Total: 8 marks]

Section B

Answer **one** question from this section.

7 Students in Portugal went to six sites along a local river to do a fieldwork investigation on changes in the river channel downstream. The river which they studied flows 13 km from the Sintra Hills to the Atlantic Ocean.

(a) From the alternatives below choose the correct terms to complete the following sentences.

confluence mouth source tributary valley

- A river begins at its .....
- A river enters the sea at its ..... [2]

The students investigated the following hypotheses:

Hypothesis 1: *The area of the cross section of the river channel increases downstream.*

Hypothesis 2: *Average velocity of river flow increases downstream.*

(b) The students selected six sites along the river approximately 2 kilometres apart to do their fieldwork.

(i) In pairs they measured the width of the river channel at each site using a tape measure.

Suggest **two** things the students could have done to make sure that their results were reliable.

1 .....

.....

2 .....[2]

(ii) The results of their measurements at each site are shown in Table 4 (Insert).
Plot the result for site 6 on Fig. 7 below, which shows how the width of the river channel varies downstream. [1]

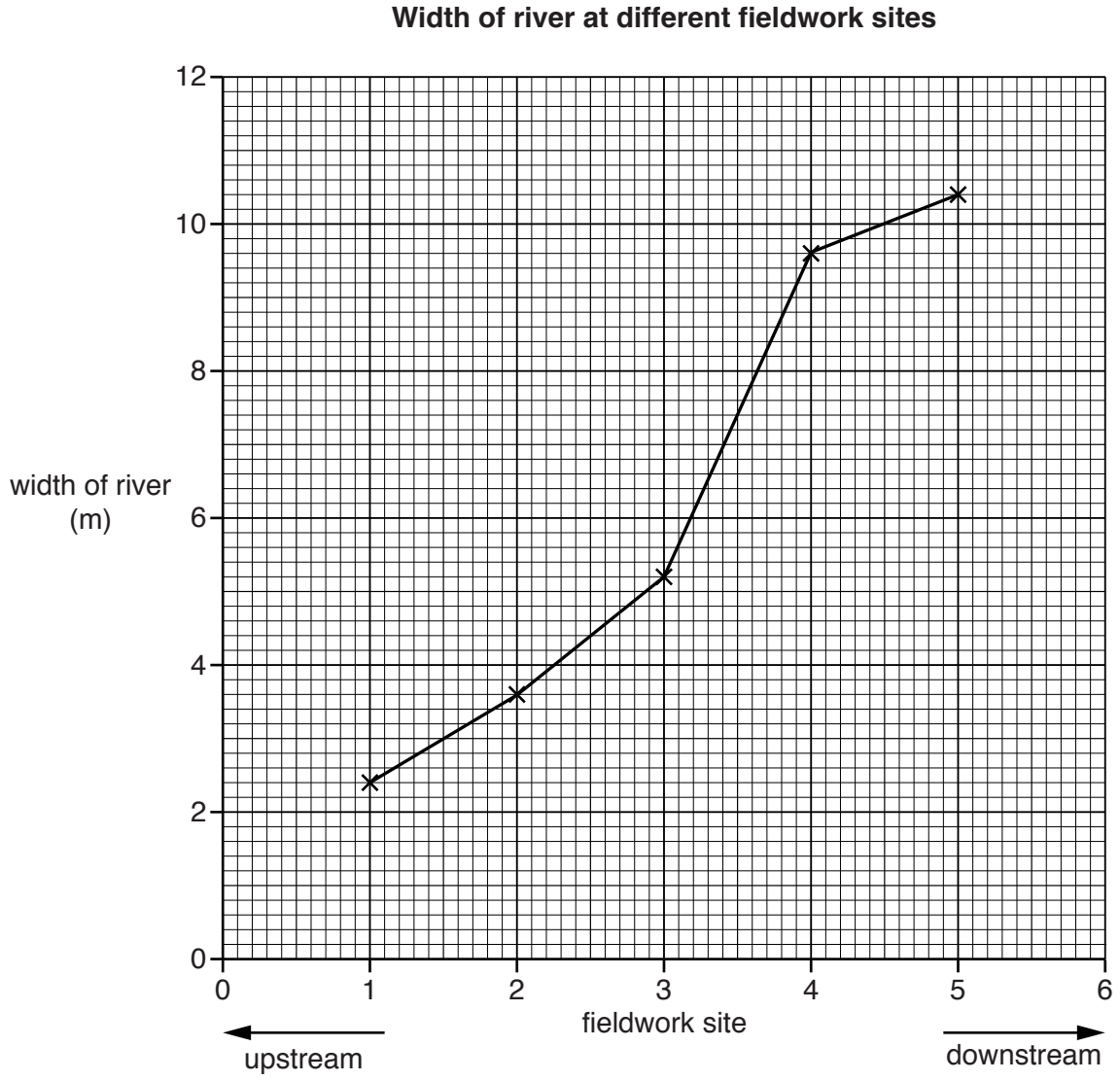

Fig. 7

(iii) Next they measured the depth of the river. In the space below draw an annotated (labelled) diagram to explain how they would do this. [4]

(iv) At each site the students measured the depth at five points across the channel. The results of their measurements at each site are shown in Table 4 (Insert).
The students drew cross sections of the channel at each site. These are shown in Fig. 8 opposite. Use the information in Table 4 to complete the cross section and shade in the river channel at site 4. [3]

(v) The method used to calculate the area of the cross section at each site is shown below. Insert the correct figures from Table 4 in the calculation for site 1 below. [1]

Calculation of the area of the cross section at site 1

Area of the cross section = width of river (metres) × average depth of river (metres)

=

= 0.65 sq metres

(vi) The results of the students' calculations of the area of the cross sections are shown in Table 5 (Insert). To what extent do the results support **Hypothesis 1:** *The area of the cross section of the river channel increases downstream*? Circle your decision below and support your decision with evidence from Table 5 and Fig. 8.

completely partially not at all

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.....[3]

Cross sections of the river channel

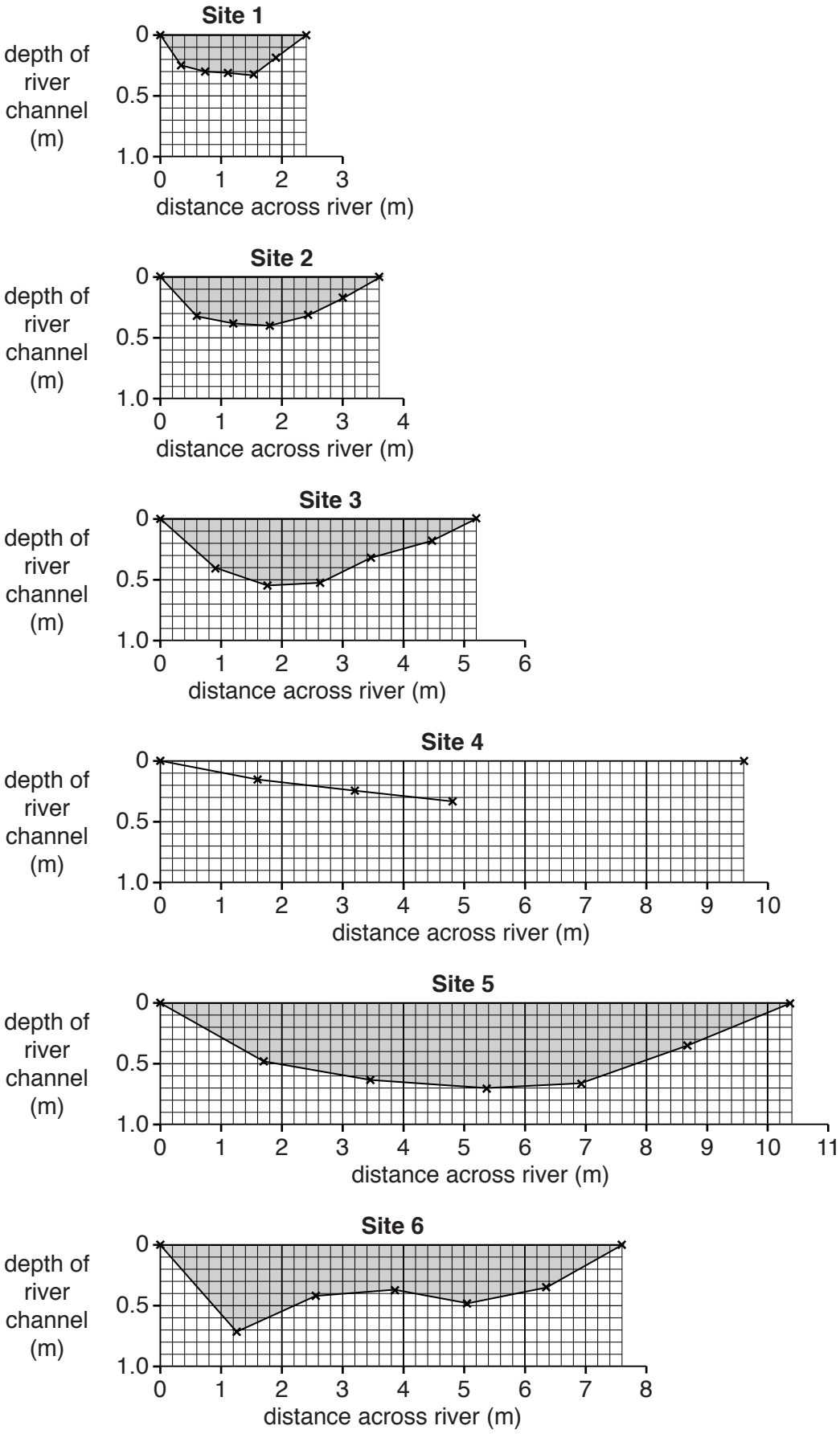

Fig. 8

(c) (i) To investigate **Hypothesis 2:** *Average velocity of river flow increases downstream*, the students measured the velocity at each site using the equipment shown in Fig. 9 (Insert). Describe how they measured velocity.

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.....[4]

(ii) The students calculated the average velocity of flow at each site. Their results are shown in Table 5 (Insert). Plot the result for site 6 on Fig. 10 below. [1]

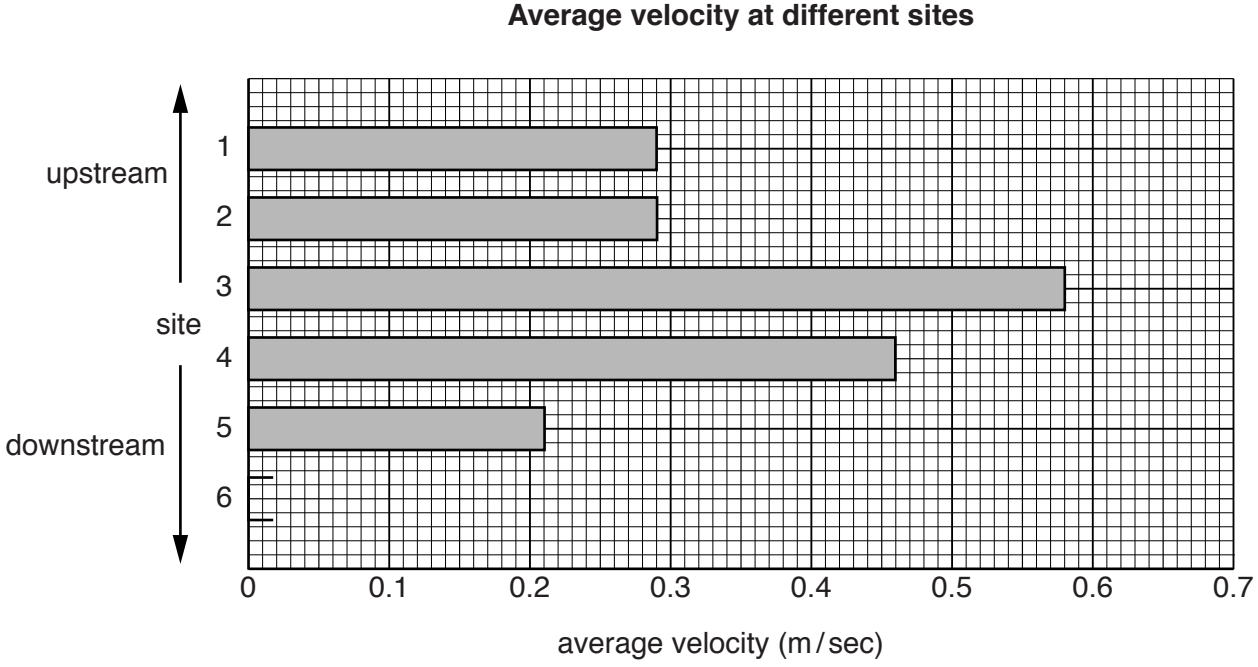

Fig. 10

(iii) The students' conclusion was that their results did not support **Hypothesis 2:** *Average velocity of flow increases downstream*. Use evidence from Table 5 and Fig. 10 to explain why they reached this conclusion.

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.....[3]

(d) (i) One student wondered if there was any relationship (correlation) between the area of the river channel cross section and average velocity at the six sites. These results are shown in Table 5 (Insert). The student plotted these results on a scatter graph, Fig. 11 below.

Use the data in Table 5 to plot the results of site 6 on Fig. 11 below. [1]

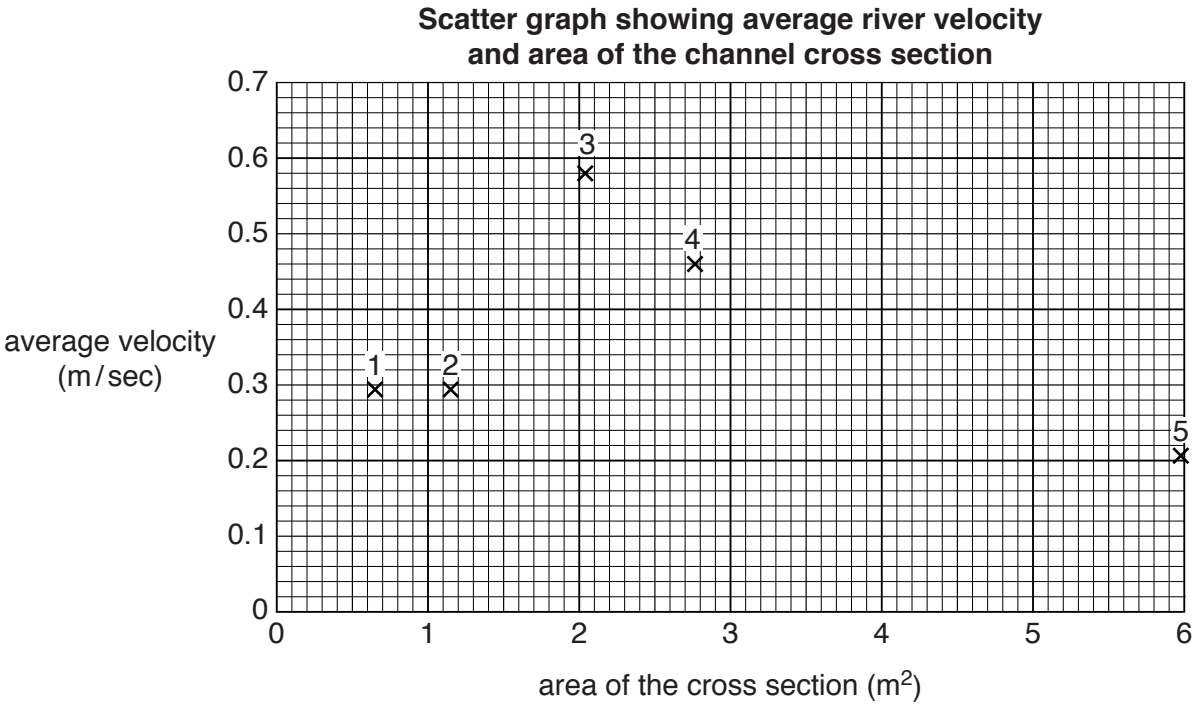

Fig. 11

(ii) The student decided that there was a partial relationship (correlation) between the area of the river channel cross section and average velocity.
Support this decision with evidence from Table 5 and Fig. 11.

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.....[3]

(iii) Explain why the area of the river channel cross section may affect average velocity.

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.....[2]

[Total: 30 marks]

TURN PAGE FOR QUESTION 8

8 Students were doing fieldwork in their local town centre. They wanted to find out how the main shopping street had changed and what people who came to shop in the town centre thought about shopping here. They tested the following hypotheses:

Hypothesis 1: *Shops and services on the main shopping street have changed between 1981 and 2012.*

Hypothesis 2: *Most people in the local area have positive opinions about shopping in the town centre.*

(a) First the students completed a land use map along the main shopping street. This map is shown in Fig. 12 opposite.

(i) Which **one** of the following shops or services occupies building **X** on Fig. 12?
Tick your choice.

	Tick (✓)
bookshop	
clothes and shoe shop	
grocery store	
solicitor	
supermarket	

[1]

(ii) On Fig. 12, use the key to show a bank at building **Y**. [1]

(iii) What type of shop or service is located 58 metres north of the church?

.....[1]

(iv) Describe the distribution of houses shown on Fig. 12.

.....

.....[1]

(v) Identify **one** difference between the distribution of food and specialist non-food shops shown on Fig. 12.

.....

.....[1]

Land use map of town centre in 2012

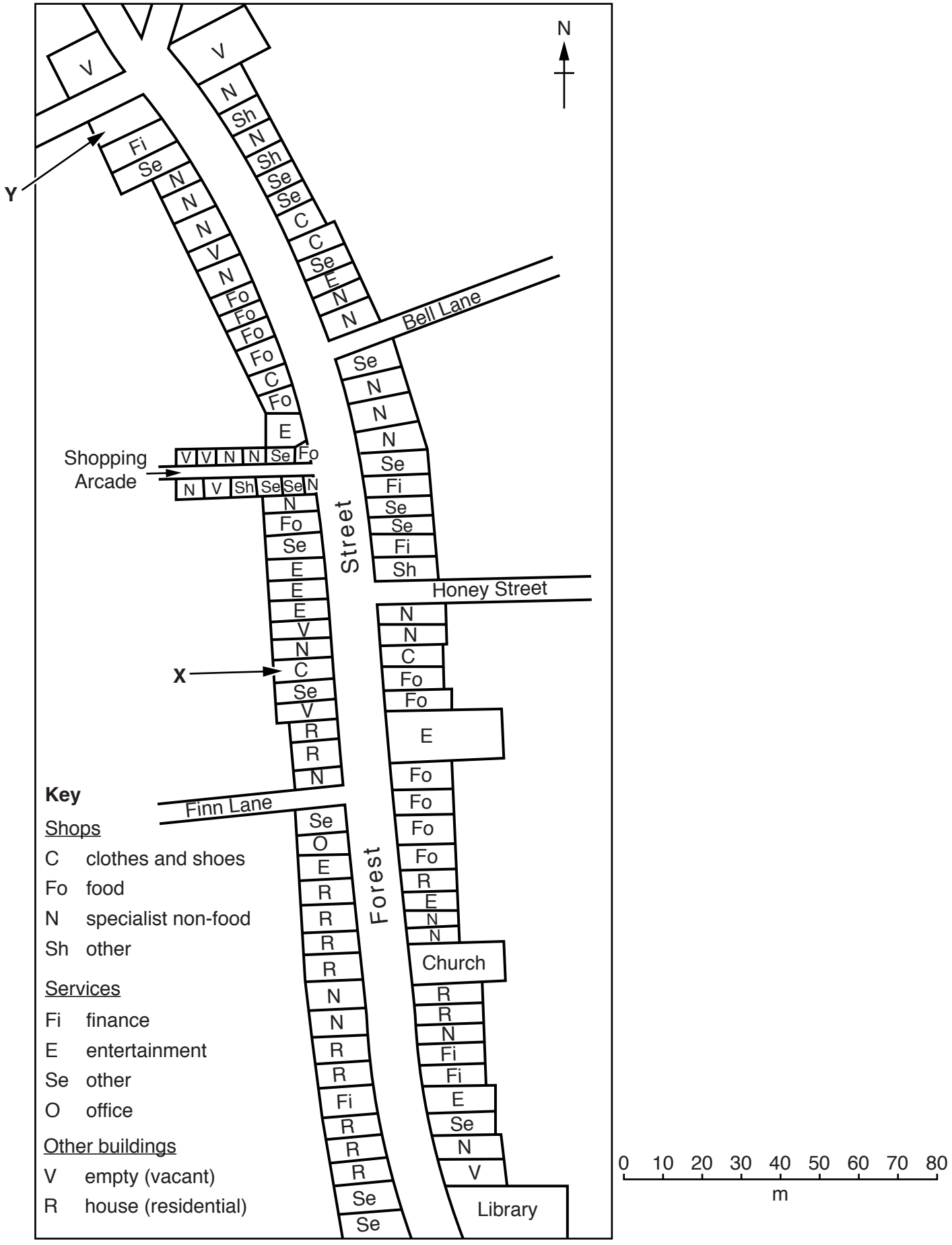

Fig. 12

[Turn over

(b) To compare the different shops and services in 1981 and 2012 the students produced Table 6 below.

Table 6

Number of shops, services and other buildings located on the main shopping street

Category	1981	2012
Shops		
Clothes and shoes	8	5
Food	20	13
Specialist non-food (including bookshop, wool shop, chemist, mobile or cell phones, gift shop)	29	26
Other shops	3	4
Services		
Finance (including banks)	9	7
Entertainment (including restaurant, café, bar)	5	9
Other services (including doctors' surgery, estate agent, optician, shoe repairs, solicitor)	17	17
Office	2	1
Other buildings		
Empty (vacant) building	4	9
House (residential)	12	14
Total	**109**	**105**

(i) The students obtained the data for 1981 from an old map of the area.
Which **one** of the following is the correct description of this old map?
Tick (✓) your choice. [1]

	Tick (✓)
primary source of data	
secondary source of data	
tertiary source of data	

(ii) The students used Table 6 to draw the graph, Fig. 13, below.
Complete the graph to show the changes in the number of food shops and entertainment services. [2]

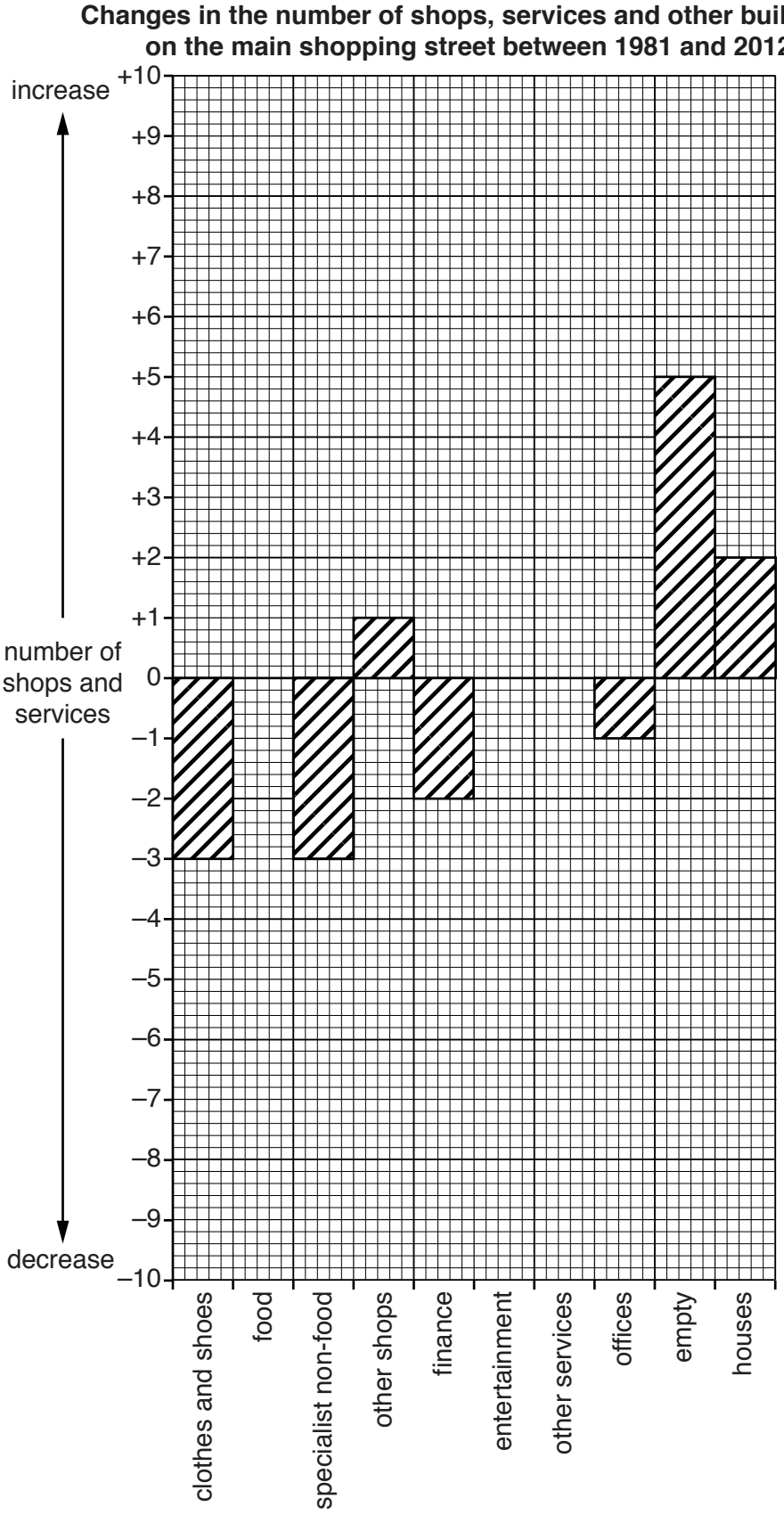

Fig. 13

(iii) What conclusion would the students make about **Hypothesis 1:** *Shops and services on the main shopping street have changed between 1981 and 2012*? Support your decision with evidence from Table 6 and Fig. 13.

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.....[4]

(c) To investigate **Hypothesis 2:** *Most people in the local area have positive opinions about shopping in the town centre*, the students used a questionnaire with people on the main shopping street. The questionnaire is shown in Fig. 14 (Insert).

(i) The students asked people to complete their questionnaire between 10.00 hours and 12.00 hours on a working day. The results of the age group survey are shown in Table 7 below.

Table 7

Ages of people surveyed

Age group	Number of people completing the questionnaire
under 16	0
16–30	14
31–45	11
46–60	33
over 60	42

Suggest **two** reasons why the number of people in the different age groups varied.

1 .....

.....

2 .....

.....[2]

(ii) How could the students have got a more even distribution of age groups to survey?

.....

.....[1]

(d) (i) Table 8 below shows the results of Question 1 in the questionnaire.

Table 8

Results of Question 1: How often do you shop in the town centre?

Frequency	Number of answers
Every day	11
Once a week	52
Once a month	20
Less than once a month	17

Use the results from Table 8 and the key below to complete the pie graph, Fig. 15, below. [2]

Results of Question 1: How often do you shop in the town centre?

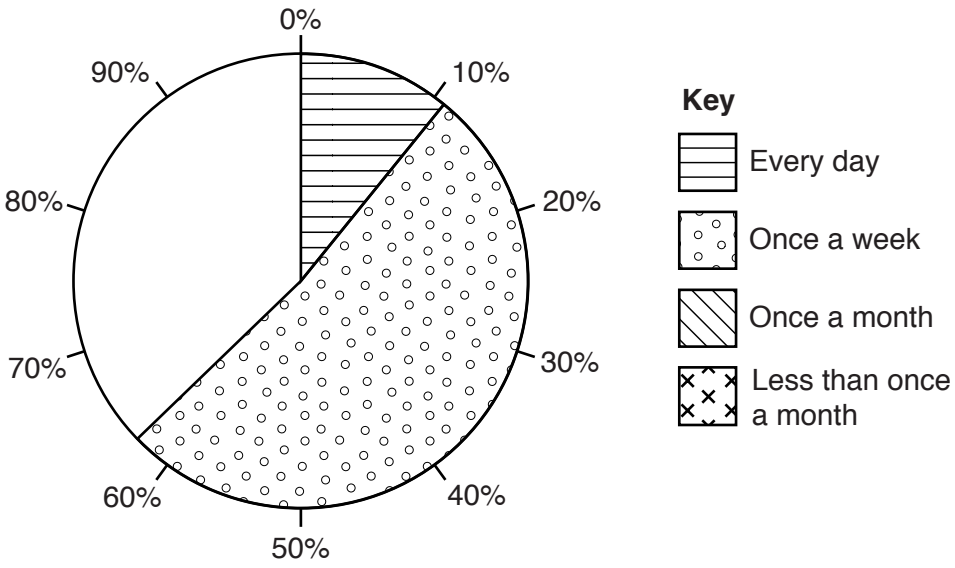

Fig. 15

(ii) Table 9 below shows the results of Question 2 in the questionnaire.

Table 9

Results of Question 2: Where do you usually shop?

Location	Number of answers
Town centre shops	12
Local supermarket	26
Retail park on the edge of town	40
Other town or city	22

Use the results from Table 9 and the key below to complete the divided bar graph, Fig. 16, below. [2]

Results of Question 2: Where do you usually shop?

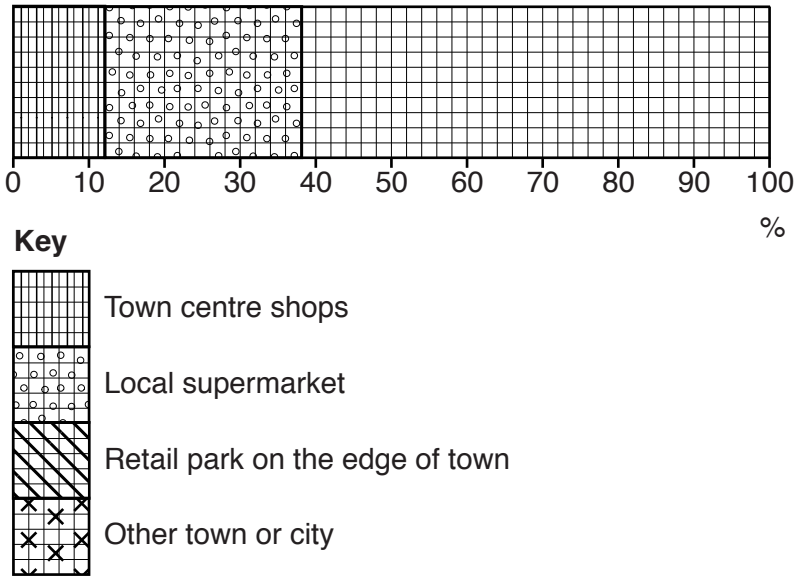

Fig. 16

(iii) The students put the answers to Questions 3 and 4 in the questionnaire into groups. These results are shown in Table 10 (Insert).

Under which advantage or disadvantage in Table 10 would the following answers be included?

1 I often visit the shop which sells rare books and antiques.

Heading .....

2 I prefer to shop in another city where there are department stores and more shops which sell clothes and jewellery.

Heading .....[2]

(iv) The students reached the conclusion that **Hypothesis 2:** *Most people in the local area have positive opinions about shopping in the town centre* was false. Support this conclusion with evidence from the results of the questionnaire.

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.....[4]

(e) Some students also included the question 'Where do you live?' in their questionnaire.

(i) How could they use the answers to this question to extend their fieldwork?

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.....[3]

(ii) Why might people object to being asked this question?

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.....[2]

[Total: 30 marks]

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.

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