UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

GEOGRAPHY **2217/02**

Paper 2 **May/June 2009**

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 a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE ON 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 4.
Insert 2 contains Table 2 and Fig. 13 for Question 7, and Table 3 and Figs 15 and 19 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 **25** printed pages, **3** blank pages and **2** Inserts.

UNIVERSITY of CAMBRIDGE International Examinations

Section A

Answer **all** questions in this section.

For Examiner's Use

1 Study the 1:50 000 map extract of Grange Hill, Jamaica.

(a) Give the six figure grid reference for the factory in Frome, a small town in the centre of the map extract.

.....[1]

(b) Give the bearing from grid north of the church in Torrington (320770) from the church in Banbury (320798).

.....[1]

(c) How far is it by road from the bridge over the Cabarita River (280833) to the factory in 2978? Give your answer in metres.

.....[1]

(d) List **six** services available in Little London (2177).

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.....[3]

(e) Describe the relief and drainage found in grid square 2386.

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.....[3]

(f) Study the area of the map within the limits shown on Fig. 1.

For Examiner's Use

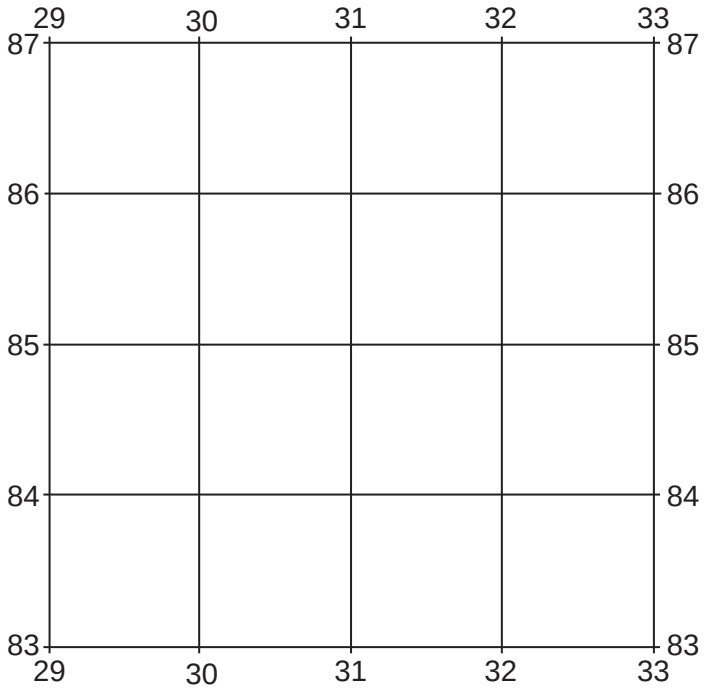

Fig. 1

(i) Describe the land use pattern in this area.

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.....[5]

(ii) State and give a reason for **two** of the settlement patterns shown in this area.

Pattern Reason

1. ....

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2. ....

.....[2]

(g) Study the area of the map within the limits shown on Fig. 2.

For Examiner's Use

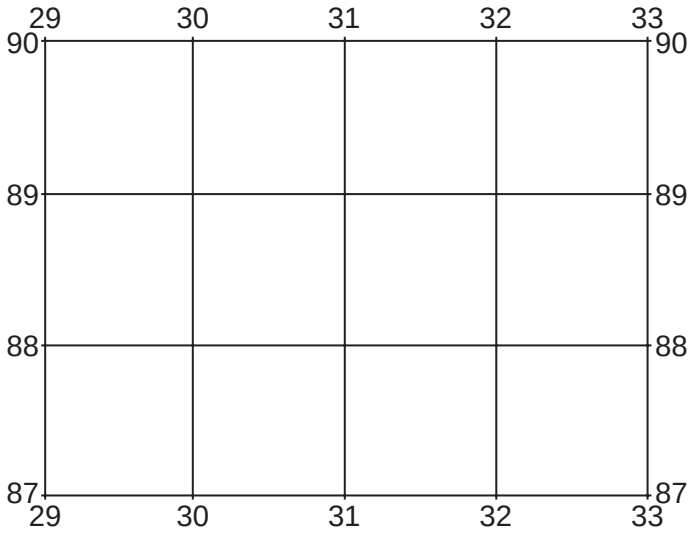

Fig. 2

Suggest why this area is sparsely populated.

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.....[4]

[Total: 20 marks]

2 Study Fig. 3, which shows a maximum-minimum thermometer.

For Examiner's Use

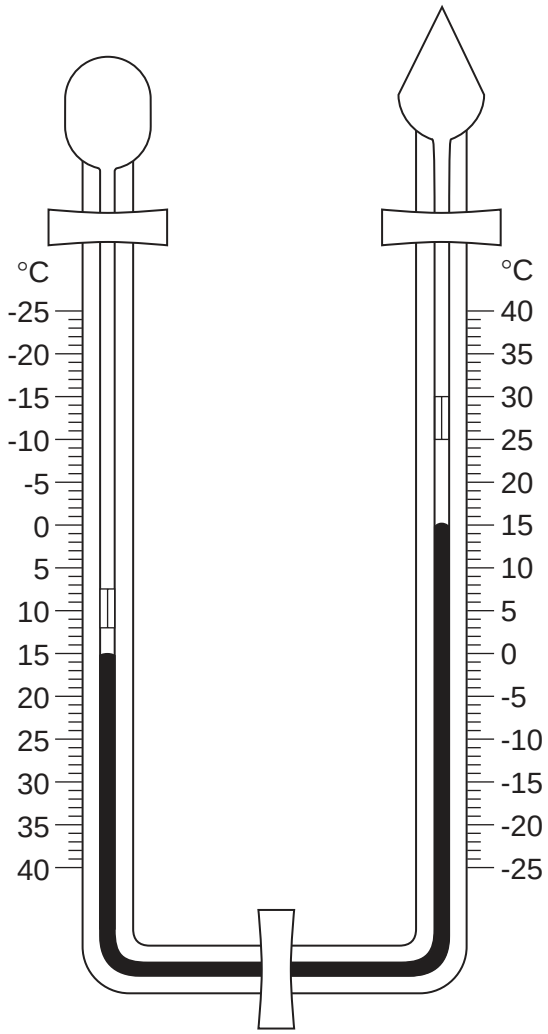

Fig. 3

(a) The maximum temperature has been recorded as 25 °C.

(i) State the minimum temperature.

.....[1]

(ii) Calculate the diurnal (daily) temperature range.

.....[1]

(b) Study Fig. 4, which is a graph of some readings taken using the instrument shown in Fig. 3.

For Examiner's Use

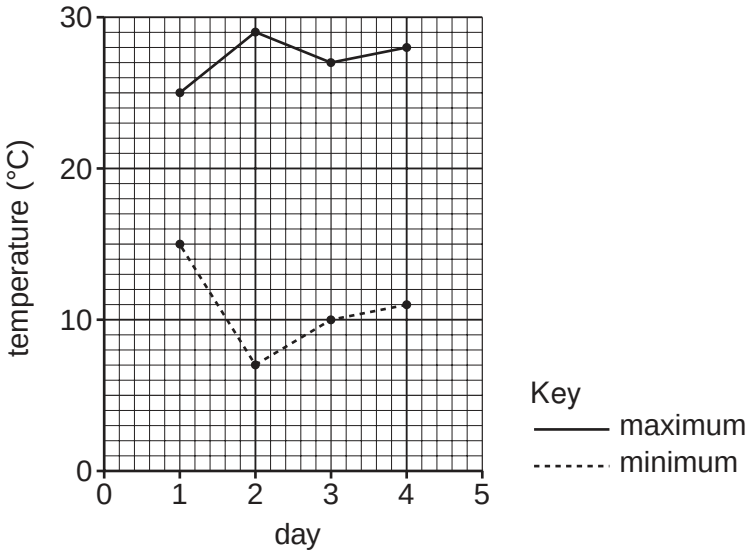

Fig. 4

(i) On Day 5, the maximum was 24 °C and the minimum was 12 °C. Plot this data on the graph. [1]

(ii) Which of the five days was most likely to have had cloudless skies throughout?

.....[1]

(c) Study Fig. 5, which shows a Stevenson Screen.

For Examiner's Use

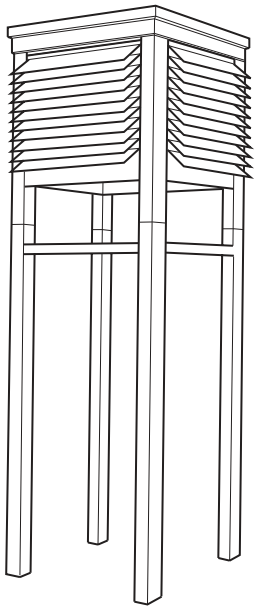

Fig. 5

Explain why a maximum-minimum thermometer is kept in a Stevenson Screen rather than in the open air.

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.....[4]

[Total: 8 marks]

3 Study Fig. 6, which shows an extract from the Mercalli scale of earthquake intensity, used to measure the observable effects of an earthquake.

For Examiner's Use

Level 5
- Almost everyone feels movement.
- Sleeping people are awakened.
- Doors open or close.
- Dishes are broken.
- Pictures on the wall move.
- Small objects move or are turned over.
- Trees might shake.
- Liquids might spill out of open containers.

Level 6
- Everyone feels movement.
- People have trouble walking.
- Objects fall from shelves.
- Pictures fall off walls.
- Furniture moves.
- Plaster in walls might crack.
- Trees and bushes shake.
- Slight damage to poorly-built buildings.

Level 7
- People have difficulty standing.
- Drivers feel their cars shaking.
- Some furniture breaks.
- Loose bricks fall from buildings.
- Slight to moderate damage in well-built buildings.
- Considerable damage in poorly-built buildings.

Level 8
- Drivers have trouble steering.
- Houses that are not bolted down might shift on their foundations.
- Tall structures such as towers and chimneys might twist and fall.
- Well-built buildings suffer moderate damage.
- Poorly-built buildings suffer severe damage.
- Tree branches break.
- Hillsides might crack if the ground is wet.
- Water levels in wells might change.

Fig. 6

(a) Study Fig. 7, which shows the level of intensity of an earthquake which took place in California in 1989.

For Examiner's Use

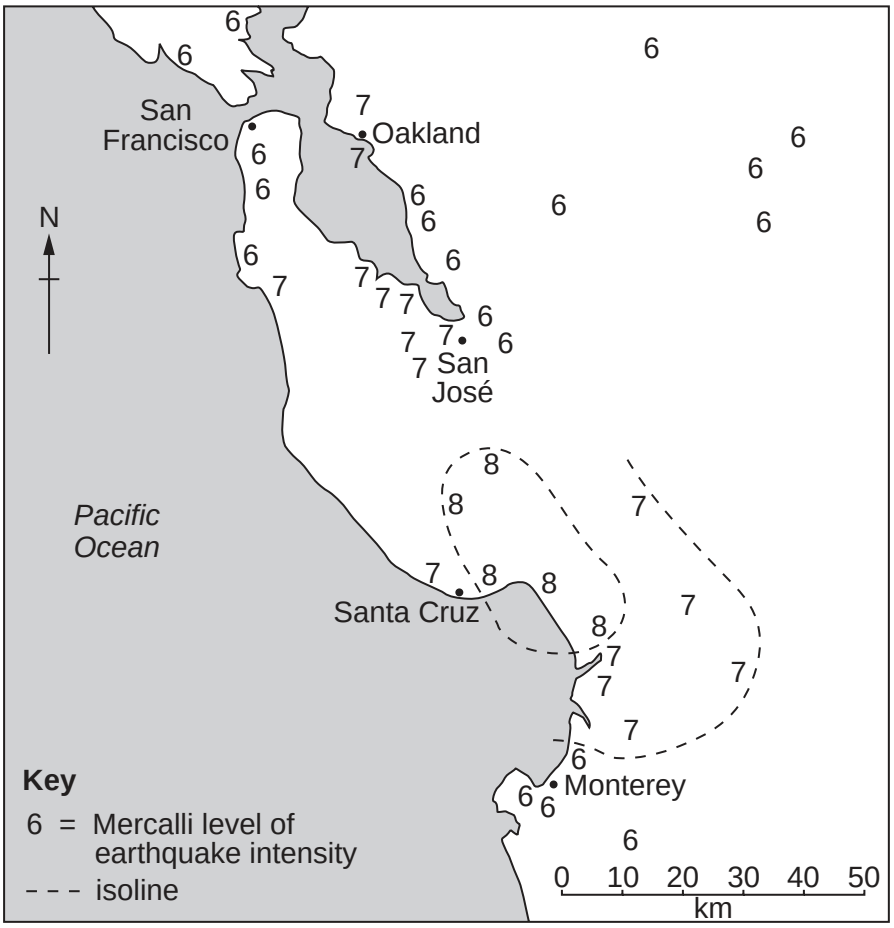

Fig. 7

(i) On Fig. 7, complete the isoline enclosing the area that experienced an intensity of level 7 or more. [1]

(ii) Put an X at the probable location of the epicentre. [1]

(b) For each of the following headings, describe **one** of the earthquake's effects at Monterey on:

people; .....

.....

moveable objects; .....

.....

fixed objects. .....

.....[3]

(c) Fig. 8 is a diary extract describing an earthquake.

For Examiner's Use

The start was like children running overhead in a house. By the time I got into the doorway, the sound of breaking glass rose above the low-frequency rumble. I was holding my dog by the collar and we were both having trouble walking.

After the shaking was gone for a few seconds we began to assess the damage. Dozens of pictures fell. Most of the appliances 'walked' – the TV was close to toppling, the stove had moved 13cm, the refrigerator had shifted. There was broken glass and pots everywhere. Several things broke because something heavier fell on top of them.

Fig. 8

What level on the Mercalli scale was experienced by this person? Give reasons for your answer.

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.....[3]

[Total: 8 marks]

4 Study Photograph A (Insert 1), which shows a city in New Zealand, an MEDC.

For Examiner's Use

(a) Using evidence from Photograph A only, name **three** environments which could be used for outdoor leisure activities. For each of these environments state **one** possible leisure activity.

Environment	Activity
1	.....
2	.....
3	.....[3]

(b) Identify the urban land use zones labelled A, B and C. Choose from Central Business District, Industrial Area, Housing Area. State evidence from the photograph to justify your answer.

A is .....

Evidence .....

.....

B is .....

Evidence .....

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C is .....

Evidence .....

.....[3]

(c) Fig. 9 is a diagram of typical land use zones in a city in an MEDC.

For Examiner's Use

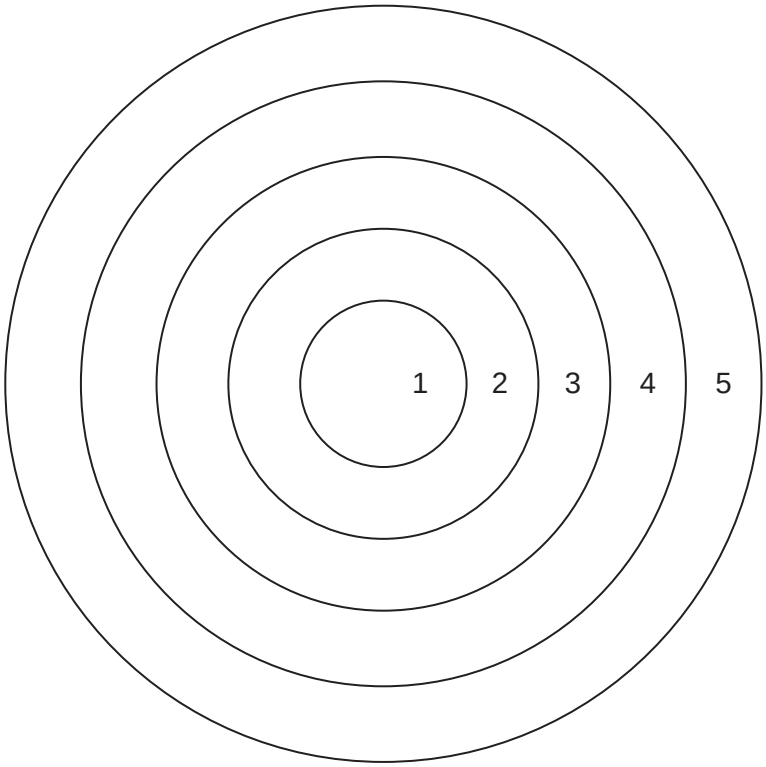

Fig. 9

Suggest why the city in Photograph A does not match the diagram.

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.....[2]

[Total: 8 marks]

5 Study Fig. 10, which shows population pyramids for Morocco and Spain for the year 2000.

For Examiner's Use

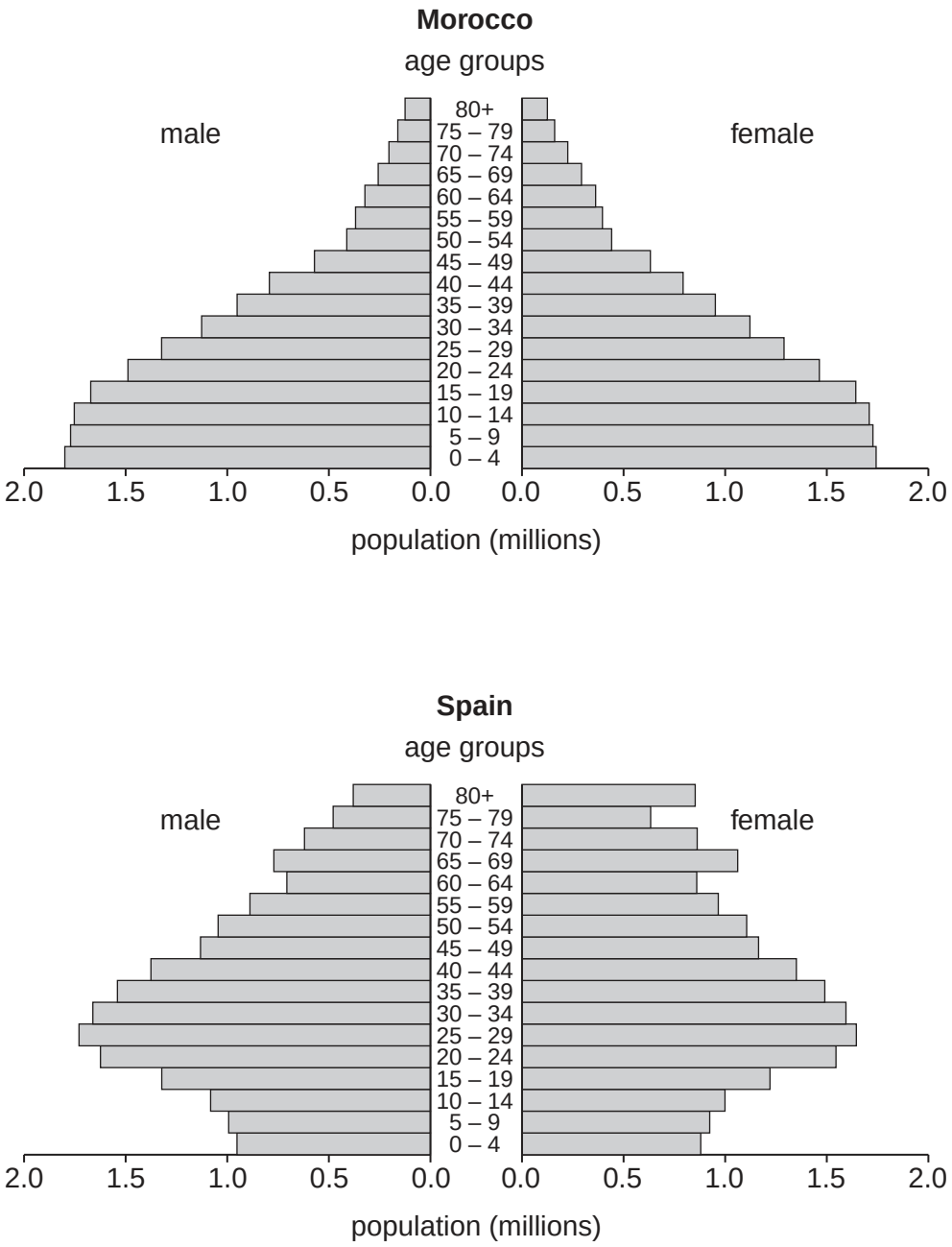

Fig. 10

(a) In Spain, how many males are in the 5–9 age group?

.....[1]

(b) For each country, state which age group contains the largest proportion of the population.

- Morocco .....
- Spain ..... [2]

(c) Table 1 shows the different age groups for Morocco and Spain which have been grouped from the population pyramids in Fig. 10.

For Examiner's Use

Table 1

	Morocco	Spain
0–14	35%	15%
15–64	60%	68%
65+	5%	17%

Describe the differences in the size and nature of the dependent populations of Morocco and Spain.

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.....[3]

(d) Compare life expectancy in the two countries.

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.....[2]

[Total: 8 marks]

6 Study Fig. 11, which shows data about land use and vegetation in three countries.

For Examiner's Use

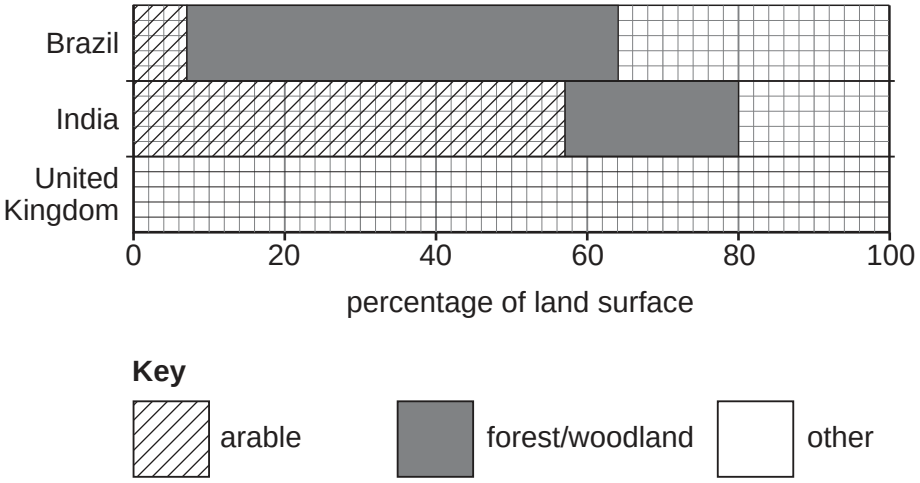

Fig. 11

(a) Complete Fig. 11 to show that United Kingdom has 23% arable, 12% forest/woodland and 65% other. [2]

(b) Compare the land use and vegetation in Brazil and India, as shown in Fig. 11.

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.....[3]

(c) What could be represented by 'other' on the graph?

1. .....

2. .....

3. ..... [3]

[Total: 8 marks]

Section B

For Examiner's Use

Answer **one** question in this section.

7 Some students were studying traffic flow in and around a town centre. A map of the area studied is shown in Fig. 12.

Number of vehicles going into and out of a town centre

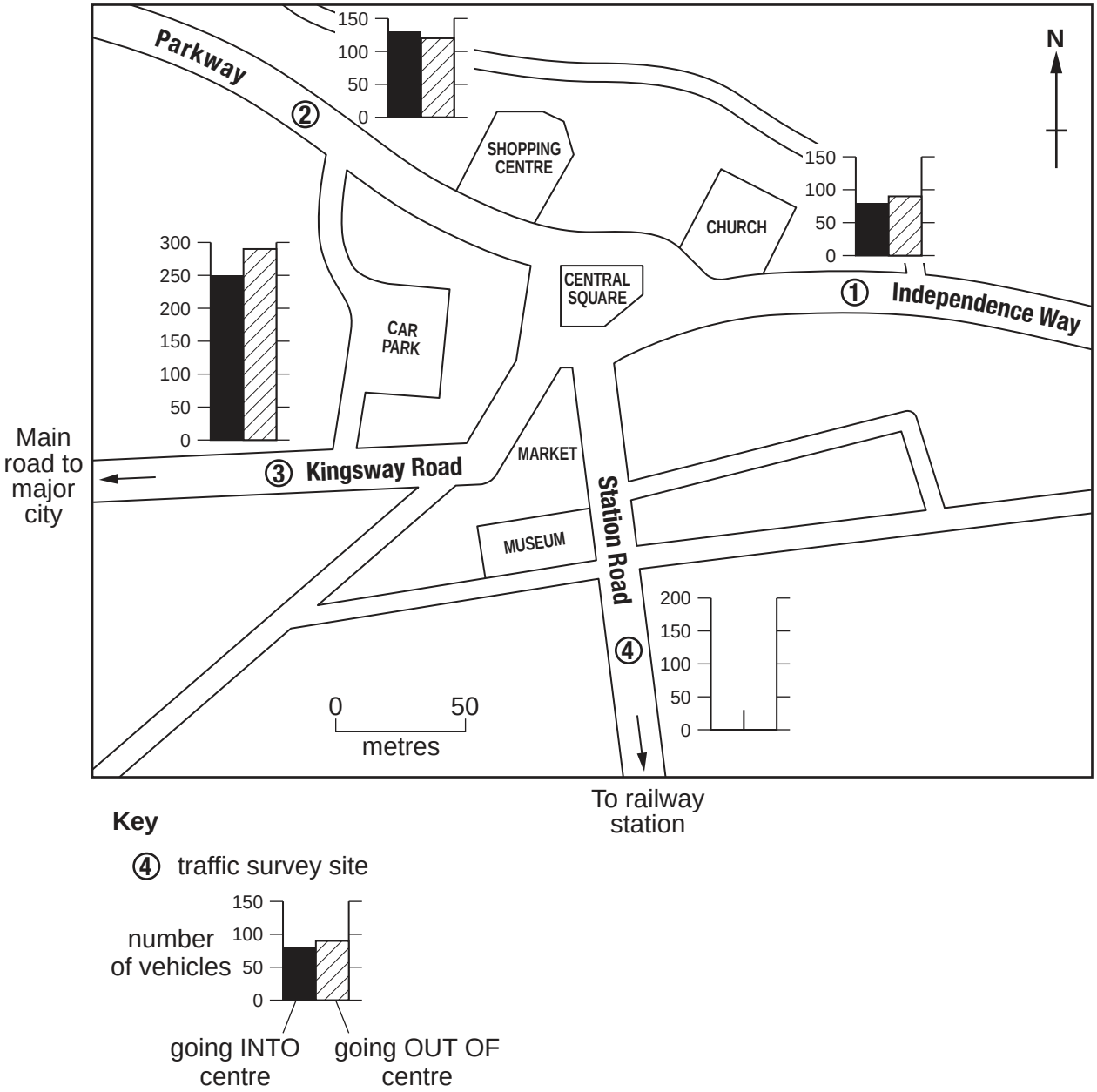

Fig. 12

The students decided to investigate the following hypotheses:

Hypothesis 1 *Traffic flows will vary in different directions from the town centre*

Hypothesis 2 *Traffic flows will vary at different times of the day*

Four sites were chosen to conduct traffic surveys. These are shown on Fig. 12. The students decided to do traffic counts three times during a weekday. The times chosen were 08.00, 12.30 and 17.00. They agreed to work in pairs, in order to count the number of vehicles travelling past the four survey sites. They decided that each traffic count would last for 10 minutes.

(a) (i) Describe how each pair of students would carry out their traffic count.

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.....[4]

(ii) Suggest why the students decided to conduct each traffic count for 10 minutes.

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.....[2]

(b) The results of the students' work are shown in Table 2 (Insert 2).

(i) Use the data in Table 2 to complete the empty bar graph on Fig. 12, to show the total number of vehicles travelling into and out of the town centre along Station Road. [2]

(ii) Use the data in Table 2 to rank the four sites in order of total number of vehicles. Rank from high to low.

Rank	Name of road
Highest ↕ Lowest	

[1]

(iii) Describe the pattern of the total number of vehicles going into and out of the town centre.

For Examiner's Use

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.....[3]

(iv) What would be the students' conclusion to **Hypothesis 1**, based on their results? What reasons might the students give to support their conclusion?

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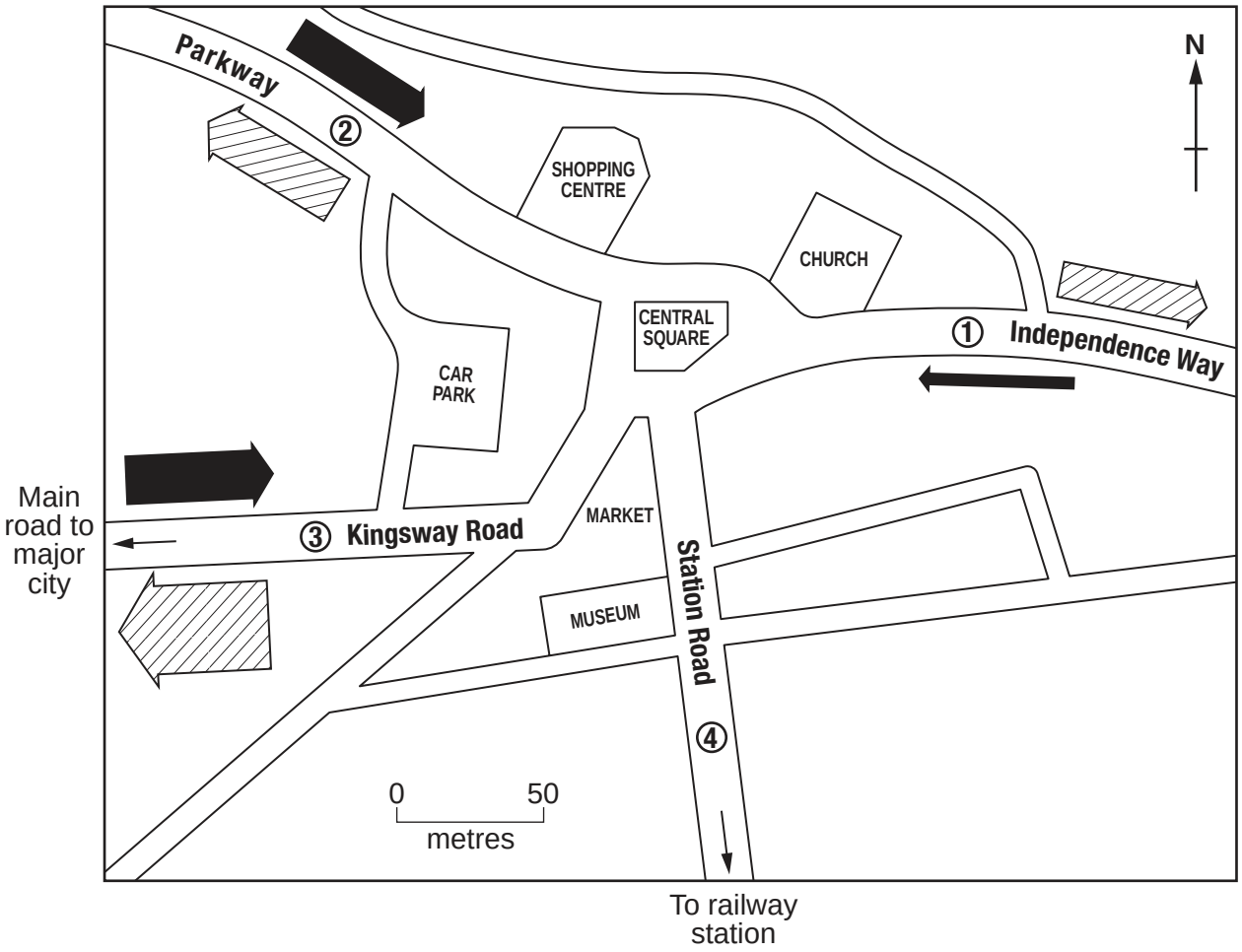
.....[4]

(c) Look at Fig. 13 (Insert 2) and Fig. 14. They show the different traffic flows at 08.00 and 17.00 at the four survey sites.

For Examiner's Use

Traffic flow at 17.00



Key

④ traffic survey site

100 / 50 / 0 number of vehicles

going INTO centre

going OUT OF centre

Fig. 14

(i) Use the data from Table 2 (Insert 2) to draw in the flow lines on Fig. 14, which show the number of vehicles travelling along Station Road at 17.00. [2]

(ii) Use the information on Fig. 13 (Insert 2) and Fig. 14 to describe the variation in traffic at the two survey times of 08.00 and 17.00 along Independence Way.

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..... [2]

For Examiner's Use

(iii) What would be the students' conclusion to **Hypothesis 2**, based on their results? What reasons might the students give to support their conclusion?

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(d) (i) Suggest improvements to the data collection methods used in the students' investigation.

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.....[4]

(ii) State **two** other features of traffic in towns that could be investigated at the four traffic survey sites.

1 .....

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2 .....

.....[2]

[Total: 30 marks]

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TURN OVER FOR QUESTION 8

For Examiner's Use

8 A group of students studied how the characteristics of a river change downstream. A sketch map of the river is shown in Fig. 15 (Insert 2). They wanted to see if the river was typical of most rivers. To do this they decided to test the following hypotheses:

Hypothesis 1 *Velocity increases downstream*

Hypothesis 2 *Size and shape of the bedload changes downstream*

(a) The students selected six sampling sites along the course of the river.
The distance of each site from the river's source is shown in Table 3 (Insert 2).
Suggest **three** factors the students should have considered in choosing the sampling sites.

1 .....

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2 .....

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3 .....

.....[3]

(b) At each site, the students measured the velocity of the river. The results of this test for sampling site 1 are shown in Fig. 16.

River recording sheet – Sampling site 1

Sampling site: 1

Measurement of velocity

Length of time for a small floating object to travel 10 metres;

Test 1 17 seconds
Test 2 23 seconds
Test 3 20 seconds

Mean length of time to float 10 metres = $\frac{60}{3}$ seconds = 20 seconds

Velocity = $\frac{\text{distance}}{\text{time}}$

= $\frac{10 \text{ metres}}{20 \text{ seconds}}$

= 0.5 metres per second

Fig. 16

(i) Use the information in Fig. 16 to describe how the students measured the velocity. Refer to equipment they would use.

For Examiner's Use

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.....[4]

(ii) Before the students began their fieldwork, their teacher worked with them on a pilot study. The results of the study are shown in Fig. 17.
Complete Fig. 17 to calculate the mean velocity of the river at this sampling site. Show your calculations.

Pilot survey river recording sheet

Sampling site:

Measurement of velocity

Length of time for a small floating object to travel 10 metres;

Test 1 27 seconds
Test 2 20 seconds
Test 3 28 seconds

Mean length of time to float 10 metres =

$$\text{Velocity} = \frac{\text{distance}}{\text{time}}$$

=

=

Fig. 17

[3]

(iii) The results which the students obtained at the sampling sites are shown in Table 3 (Insert 2). Use these results to complete Fig. 18 to show how velocity changes downstream.

For Examiner's Use

Changes in velocity downstream

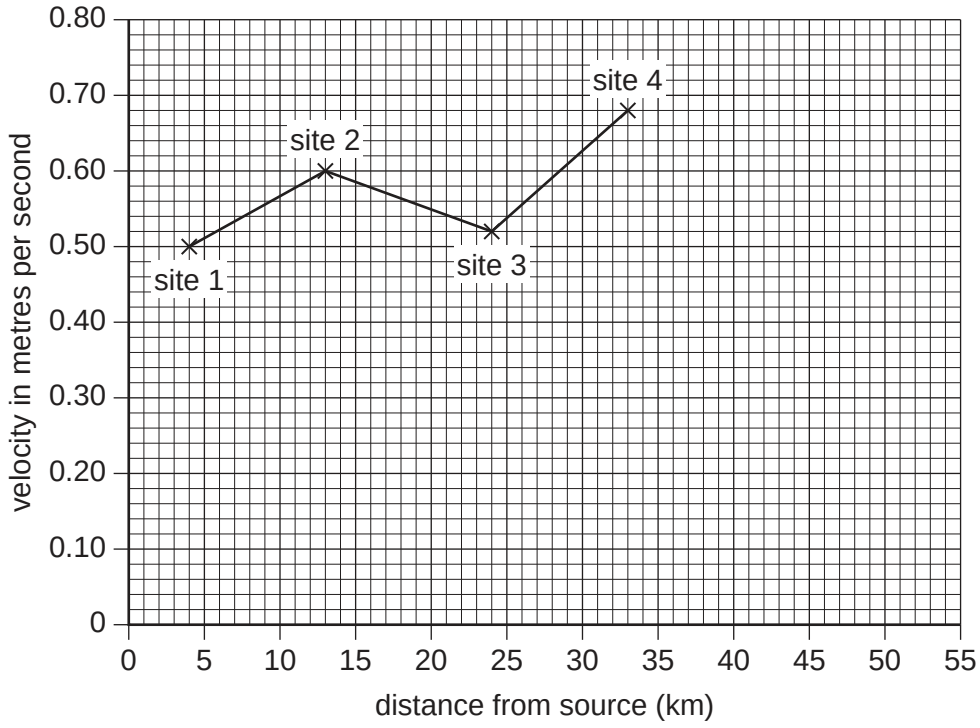

Fig. 18

[2]

(iv) By looking at their results, what conclusion could the students make about **Hypothesis 1** (*Velocity increases downstream*)?

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.....[2]

(c) At each site, the students also sampled and measured stones on the river bed (bedload).

(i) Describe a sampling technique they could use to get an accurate sample of bedload material.

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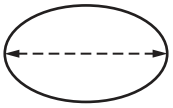
.....[2]

(ii) Having collected their sample, the students wanted to find out the size and 'roundness' of each stone. Using the equipment shown in Fig. 19 (Insert 2) they decided to make two simple measurements:

- the longest axis, as shown below



- the roundness of the stone

Describe how they made the measurements.

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.....[2]

(iii) The results of this investigation are shown in Table 3 (Insert 2). From these results, what conclusions could the students make about how the size and shape of bedload changes downstream (**Hypothesis 2** – *Size and shape of the bedload changes downstream*)?

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.....[2]

(iv) Explain why the size and shape of bedload changes downstream.

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.....[2]

(d) Suggest improvements the students could have made to the data collection methods to make the results more reliable.

For Examiner's Use

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(e) In order to extend their fieldwork, the students could have investigated the impact of people on the river. State **one** impact people could have had on a river. Describe how the impact could be investigated.

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[Total: 30 marks]

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