Cambridge
O Level

Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

7891959410

GEOGRAPHY **2217/22**

Paper 2 **October/November 2015**

2 hours 15 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Ruler
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 and 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 4, Figs 8, 11 and 12, Photograph B and Table 1 for Question 7, and Table 2 and Figs 15, 17 and 18 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.

This document consists of **27** printed pages, **1** blank page and **1** Insert.

CAMBRIDGE International Examinations

[Turn over

Section A

Answer **all** questions in this section.

1 Study the 1:50 000 map of Cross Keys, Jamaica.

(a) (i) Identify **six** services in the settlement of Cross Keys in grid square 9638.

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.....[3]

(ii) Identify **three** types of land use in grid square 9835.

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.....[3]

(b) (i) Give the compass direction **from** the trigonometrical station on Rose Hill **to** the crossroads at Cross Keys.

.....[1]

(ii) What is the straight line distance between these two points? Give your answer in metres.

.....[1]

(iii) Give the six figure grid reference of the trigonometrical station on Rose Hill.

.....[1]

(c) Study Fig. 1, which shows a cross section from 980400 to 980330.

Fig. 1

On Fig. 1, use arrows labelled with the given letters, to mark the position of the following features:

- the area of pasture (P);
- the Class B road (R);
- the building by the coast (B);
- the boundary of the mixed and scattered cultivation (C). [4]

(d) Suggest reasons for the route of the Class C road along the coast.

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.....[3]

(e) Look at the whole of the map extract. Suggest reasons for the distribution of settlement.

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.....[4]

[Total: 20 marks]

2 Study Fig. 2, which shows energy use per person in selected countries.

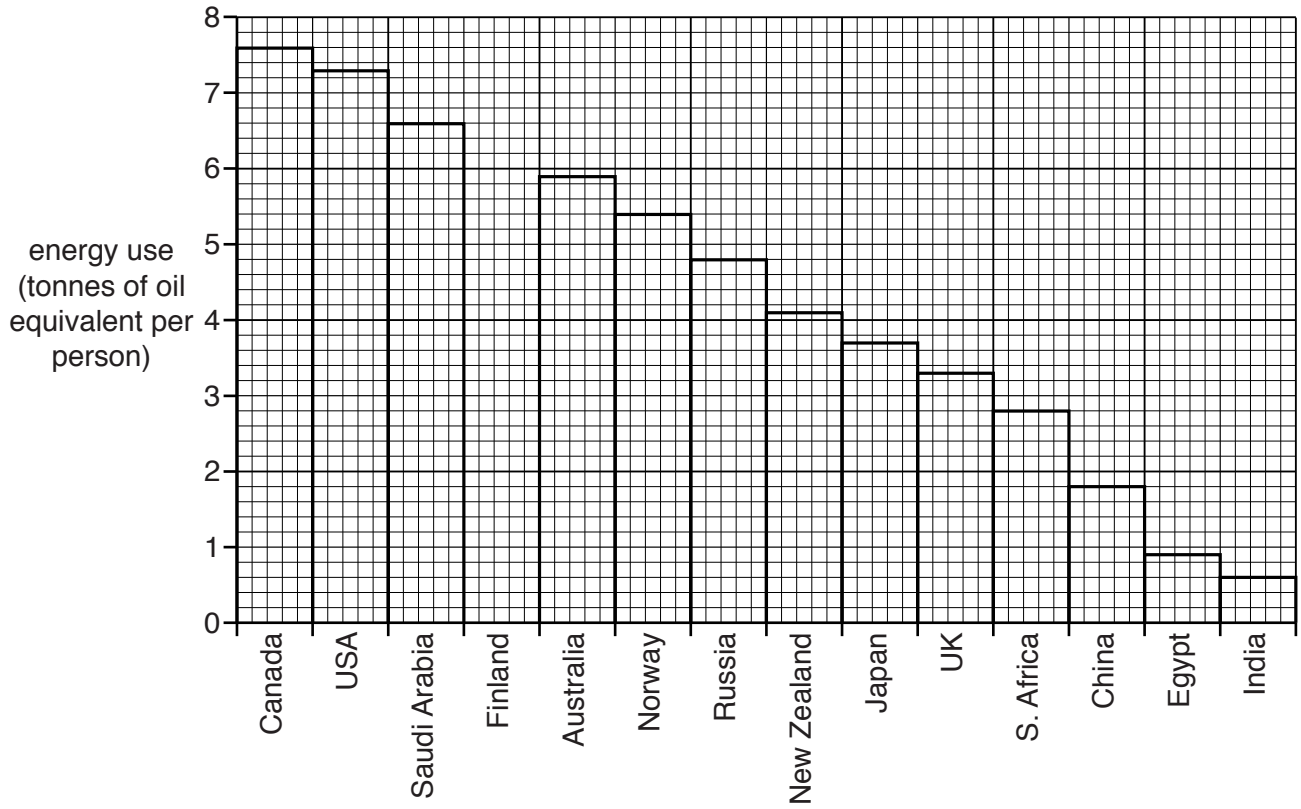

Fig. 2

(a) (i) Complete Fig. 2 to show that Finland has energy use of 6.0 tonnes of oil equivalent per person. [1]

(ii) Suggest why a country with a hot and dry environment, such as Saudi Arabia (an MEDC), could have high energy consumption per person.

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.....[2]

(b) Study Fig. 3, which shows seasonal variation in electricity use in the USA.

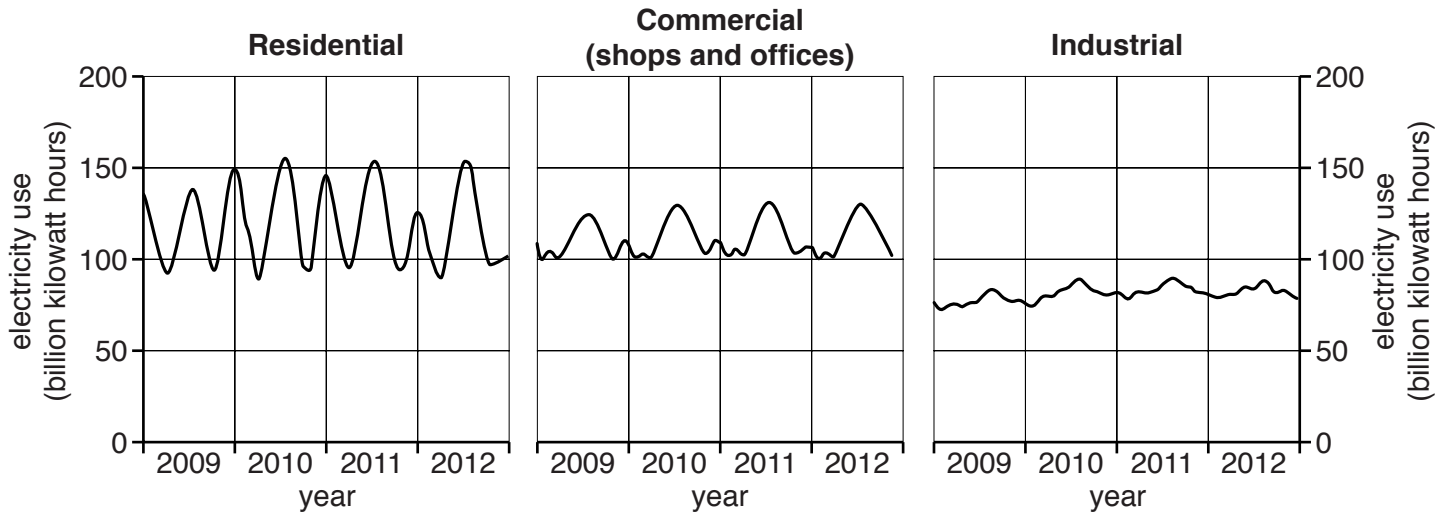

Fig. 3

(i) Which graph shows the smallest variation in electricity usage?
Circle your answer below.

Residential Commercial (shops and offices) Industrial [1]

(ii) Describe the electricity use pattern shown on the commercial graph.

.....

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.....[2]

(iii) Suggest reasons for the variation shown on the residential graph.

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.....[2]

[Total: 8 marks]

3 Study Fig. 4, a climate graph for Tombouctou, at the edge of the Sahara Desert.

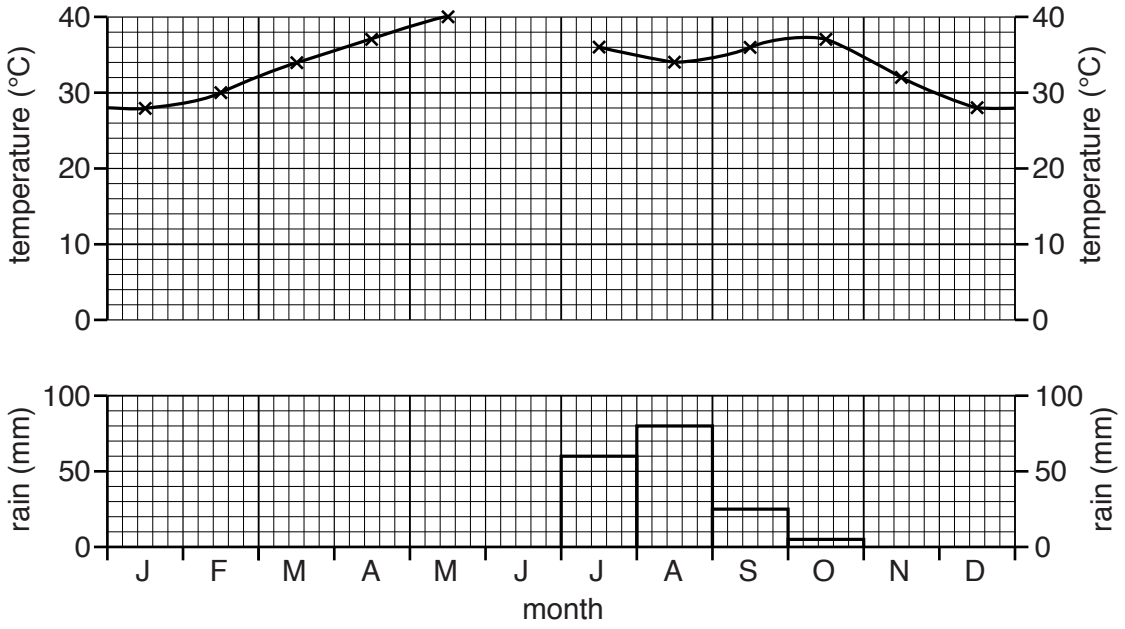

Fig. 4

(a) (i) Complete Fig. 4 to show 60 mm of rain and a temperature of 40°C in June. [2]

(ii) Using Fig. 4, describe the climate of Tombouctou in January.

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.....[2]

(iii) Using Fig. 4, calculate the annual temperature range for Tombouctou.

.....[1]

(iv) Suggest why the temperature in Tombouctou decreases during the rainy season.

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.....[1]

(b) Study Fig. 5, which shows the distribution of tropical deserts.

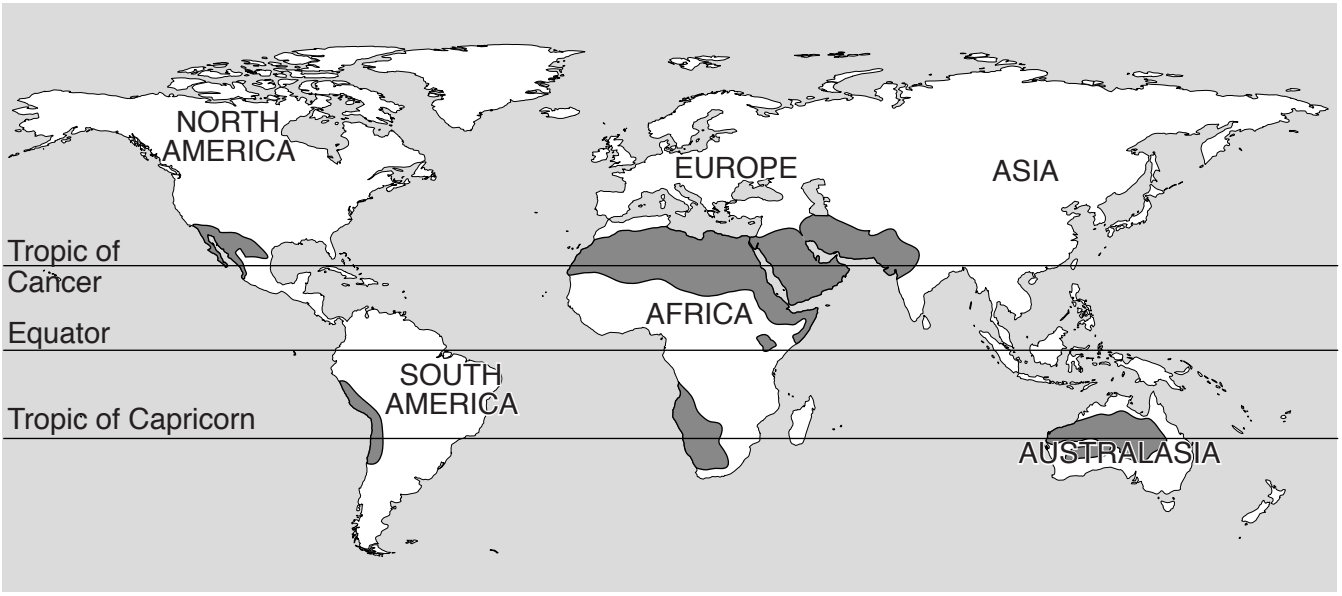

Fig. 5

Describe the distribution of tropical deserts.

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.....[2]

[Total: 8 marks]

4 Study Photograph A (Insert).

Describe the features of Photograph A using the following headings.

Vegetation; .....

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Landforms. .....

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.....[8]

[Total: 8 marks]

5 Study Fig. 6, which shows an urban area and its surroundings.

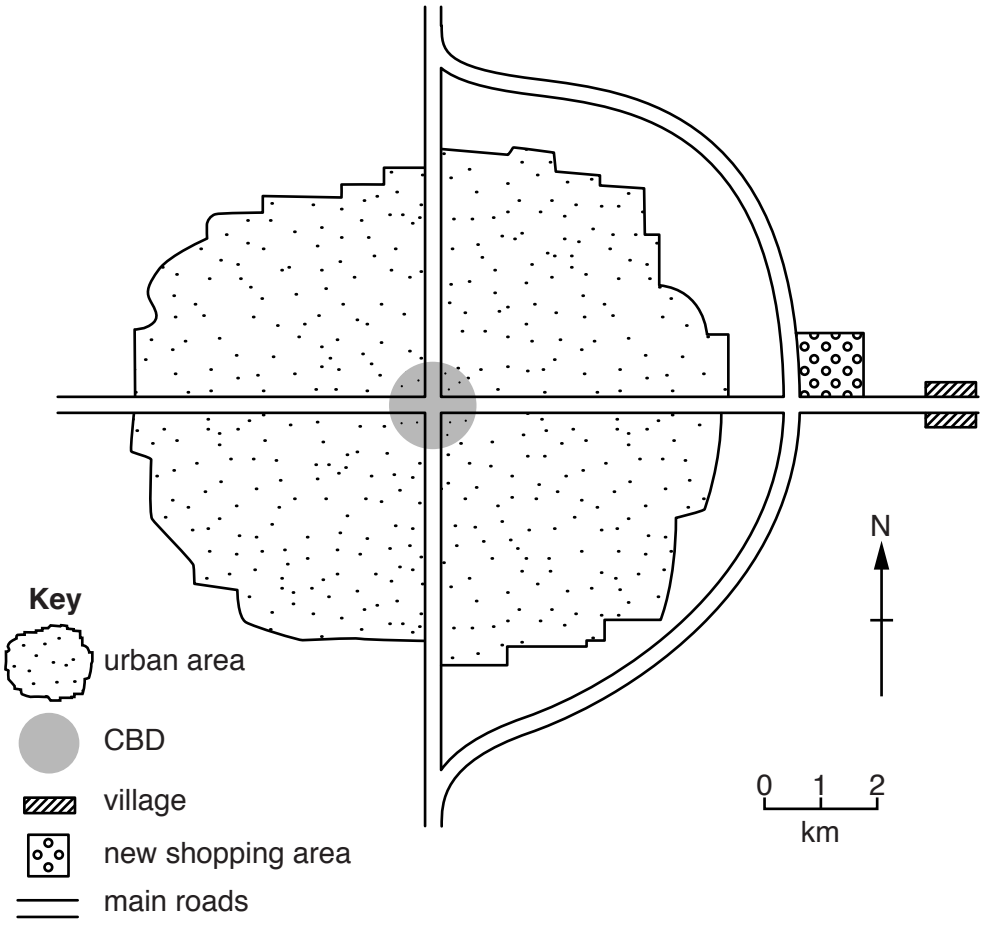

Fig. 6

(a) What does *CBD* stand for?

.....[1]

(b) Many people who live in the village, shown on Fig. 6, travel to the nearby CBD for work.

(i) Suggest why people work in the CBD and not the village.

.....

.....[1]

(ii) Suggest why people live in the village and not the CBD.

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.....[2]

(c) A new shopping area is to be built on the by-pass road, shown on Fig. 6. Some shop owners in the CBD will move to the new shopping area.

(i) Suggest **two** advantages for a shop owner of moving to the new shopping area.

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.....[2]

(ii) Suggest **one** advantage of the new shopping area for people who live in the village.

.....

.....[1]

(iii) Suggest **one** disadvantage of the new shopping area for a person living in the village who works in the CBD.

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.....[1]

[Total: 8 marks]

6 Study Fig. 7, which shows the continents of origin of immigrants to Australia in 1991 and 2006.

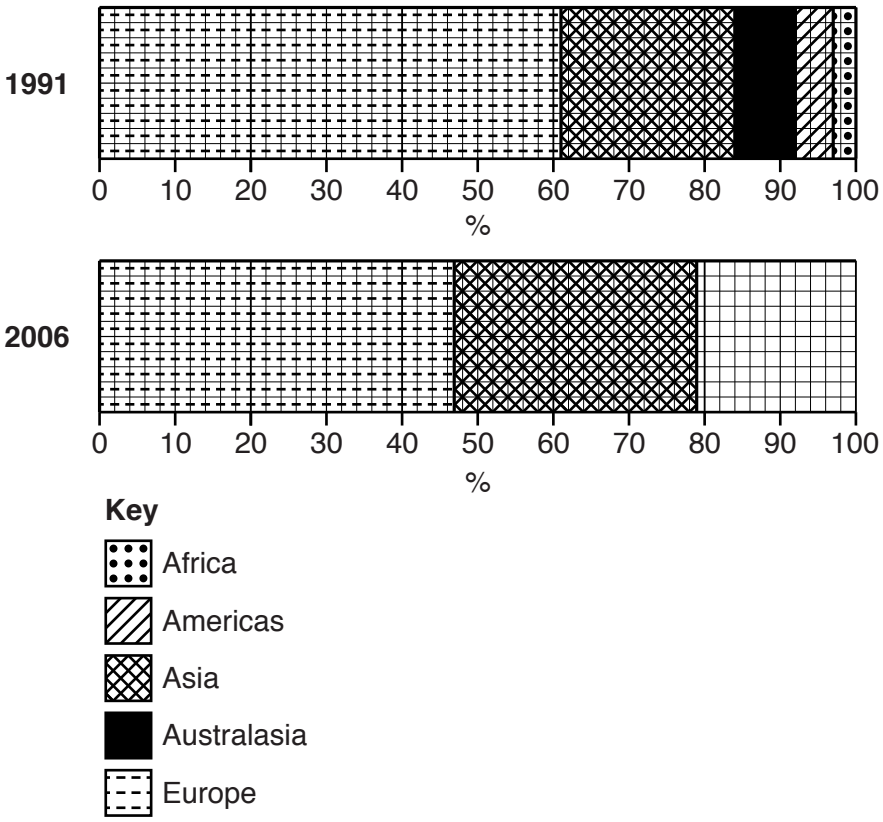

Fig. 7

(a) What is an *immigrant*?

.....

.....[1]

(b) **(i)** Complete Fig. 7 for 2006, using the data in the table and the key provided.

Africa	6%
Americas	4%
Australasia	11%

[3]

(ii) In 1991, what percentage of immigrants came from Europe?

.....[1]

(c) Describe the changes in origin of immigrants between 1991 and 2006.

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.....[3]

[Total: 8 marks]

TURN PAGE FOR QUESTION 7

Section B

Answer **one** question from this section.

7 Students at Princeton University in the USA investigated temperature differences around the campus. One group studied the effect of buildings on temperature and tested the following hypotheses.

Hypothesis 1: *Temperature will be highest next to buildings.*

Hypothesis 2: *Temperature will be higher on the south side of a building (the side facing the sun).*

Fig. 8 (Insert) shows a sketch map of the study area. The students decided to measure temperatures near to two buildings at six times of the day during one day in July (summer).

(a) To measure temperature they used a digital thermometer. This is shown in Photograph B (Insert).

(i) Give **three** advantages of the digital thermometer over a maximum-minimum thermometer.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(ii) How could the students check that their temperature readings were accurate?

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..... [2]

(b) The results of the students' measurements are shown in Table 1 (Insert).

(i) What was the highest temperature recorded on the north facing side of the Guyot building?

..... °C [1]

(ii) At what distance from the Guyot building was the largest variation in temperature?

..... metres (m) [1]

(iii) Use the results in Table 1 to complete **Fig. 9B on page 16**. [2]

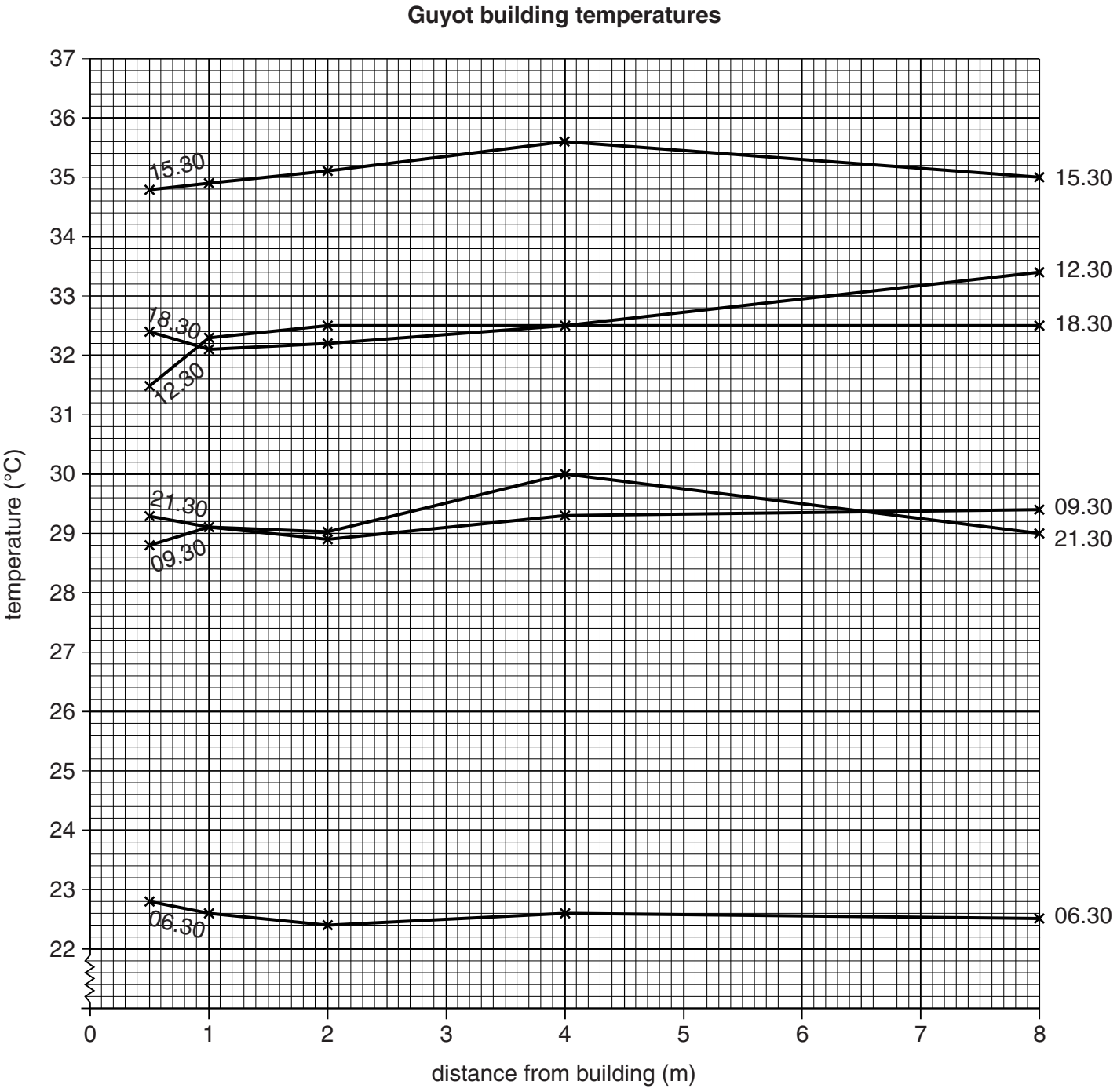

Fig. 9A

Eno building temperatures

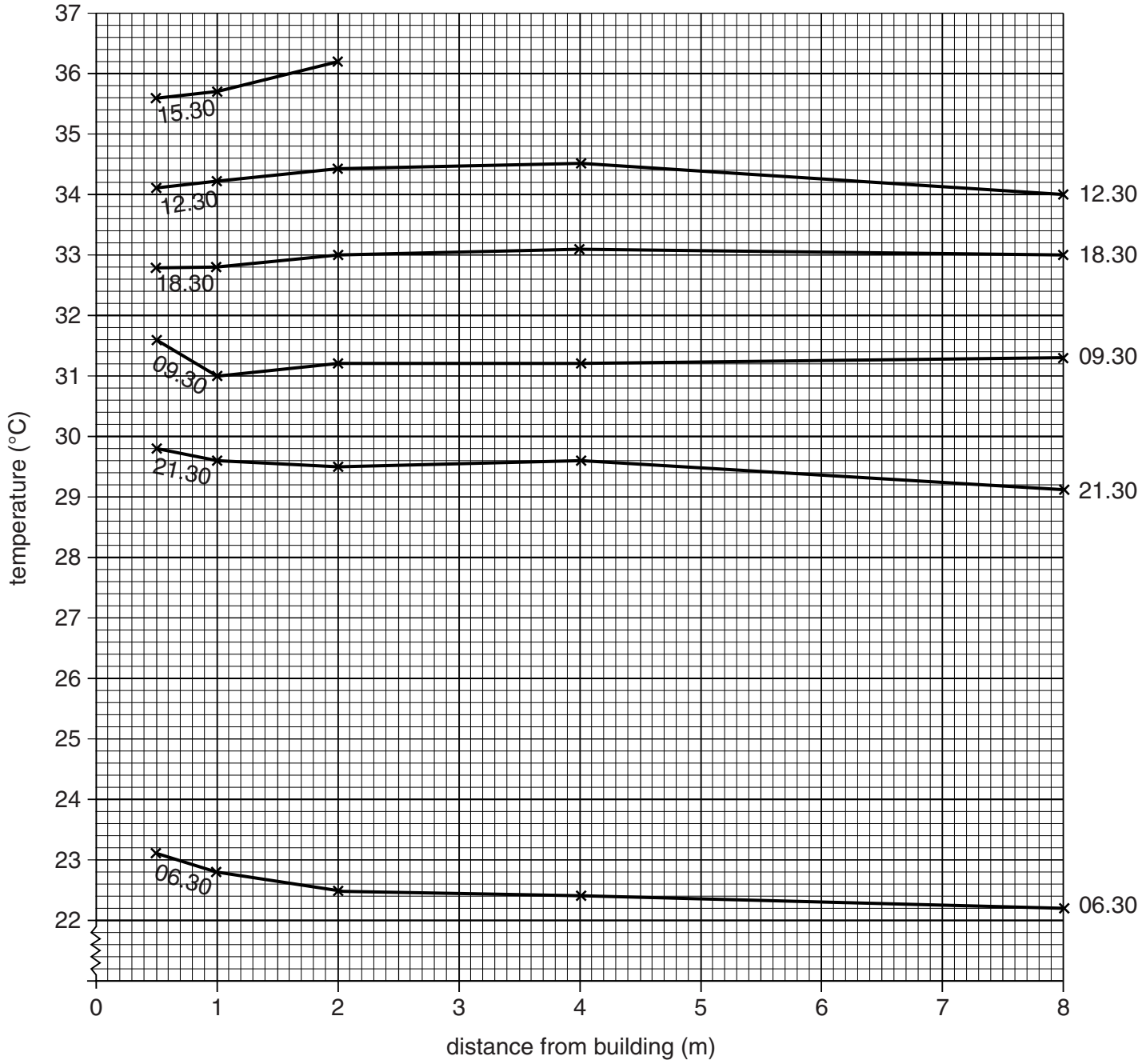

Fig. 9B

(iv) At which location do the temperature measurements better support **Hypothesis 1**: *Temperature will be highest next to buildings*?

Circle your chosen location below.

• The Guyot building • The Eno building

Support your choice with evidence from Table 1 and Figs 9A and 9B.

.....

.....

.....

..... [3]

(v) Suggest why temperatures may be higher nearer to a building.

.....

..... [1]

(vi) One student noticed that a tree was partially shading one measuring site near the Eno building. Look again at Table 1 and circle below the measuring site where the tree was located.

Distance of sites from the Eno building:

0.5m 1.0m 2.0m 4.0m 8.0m [1]

(c) To investigate **Hypothesis 2:** *Temperature will be higher on the south side of a building (the side facing the sun)*, the students calculated the average temperature at each time of day at the two locations. These are shown in Table 1 (Insert).

(i) Calculate the average temperature at 12.30 at the Eno building and write your answer on the line below.

..... °C [1]

(ii) Plot the average temperature calculated in **c(i)** on Fig. 10 below. [1]

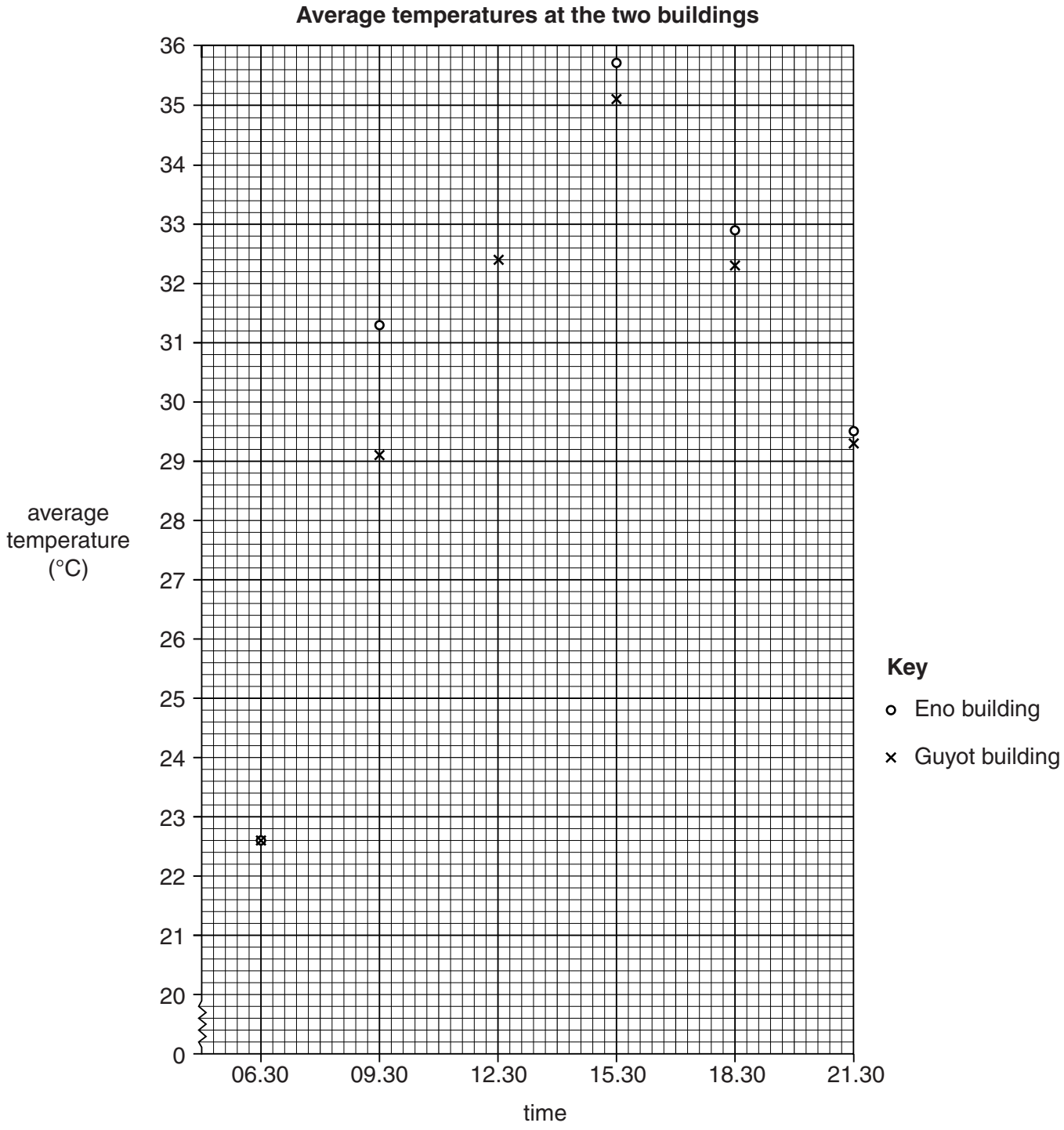

Fig. 10

(iii) The students decided that **Hypothesis 2:** *Temperature will be higher on the south side of a building (the side facing the sun)* was true. Support their conclusion with evidence from Fig. 10 and Table 1.

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..... [3]

(iv) Look again at Table 1 (Insert).

Why is there a difference in temperature between the two buildings at 09.30?

.....

..... [1]

(v) Suggest **one** other factor that could cause temperature variation in a small area.

.....

..... [1]

(vi) The students discussed how they could improve their investigation to make it more reliable. Suggest **two** ways to improve the reliability of their investigation.

1 .....

.....

2 .....

..... [2]

(d) Another feature of weather which may vary over a small area is relative humidity.

(i) Which **one** of the following is the correct definition of relative humidity?

Tick your answer in the box below. [1]

Definition	Tick (✓)
The amount of water vapour held in the air during the day.	
The amount of moisture in the air as a percentage of the total moisture it could hold at that temperature.	
The minimum amount of water vapour in the air when it is warmed up.	
The percentage of moisture in the air after heavy rainfall.	

(ii) Relative humidity is calculated by using a wet and dry bulb thermometer (hygrometer). This is shown in Fig. 11 (Insert). Explain why the two thermometers show different temperatures.

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..... [4]

(iii) Read the temperature of the wet bulb thermometer shown in Fig. 11 and use the relative humidity table shown in Fig. 12 (Insert) to calculate the relative humidity of the example shown.

Dry bulb temperature = 24 °C

Wet bulb temperature = ... °C

Temperature difference = ... °C

Relative Humidity = ... % [2]

[Total: 30 marks]

8 Students who lived on a Mediterranean island in Europe were studying tourism. They decided to compare two local places to see why tourists came to visit. Badesi is a popular beach resort with hotels and apartments. Valledoria is a natural beach without hotels and apartments.

The students tested the following hypotheses:

Hypothesis 1: *More tourists visit Badesi than Valledoria because it is more attractive.*

Hypothesis 2: *The main reason for tourists visiting Badesi and Valledoria varies in importance.*

(a) To test whether more tourists visit Badesi than Valledoria the students did a visitor count near the beach at both places.

Visitor count

Location	Time	Day	Month
Badesi	09.30 – 09.45	Sunday	January (winter)
Valledoria	12.30 – 12.45 16.30 – 16.45	Monday	July (summer)
Tally chart of number of visitors			

Fig. 13

(i) Complete Fig. 13, which is an example of a recording sheet, to show the information below. The location has been done for you.

Location	Valledoria
Time	09.30 – 09.45
Day	Monday
Month (Season)	July (summer)
Number of visitors	27

[2]

(ii) Give **three** instructions the students would have been given by their teacher to make the visitor count accurate.

1 .....

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2 .....

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3 .....

..... [3]

(iii) Explain why the students did the visitor count on Sunday and Monday.

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..... [2]

(iv) Explain how and why their results might have been different if they had done this visitor count in January (winter).

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..... [2]

(v) Table 2 (Insert) shows the results of the visitor counts. Use these results to complete Fig. 14B, below. [2]

Results of visitor counts

Badesi

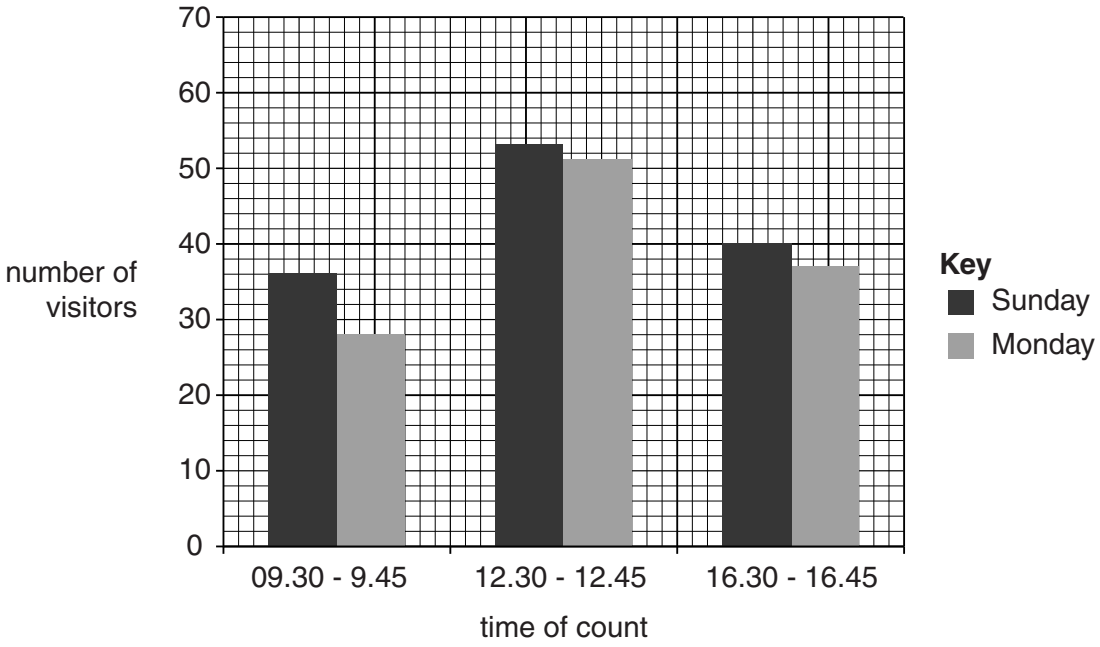

Fig. 14A

Valledoria

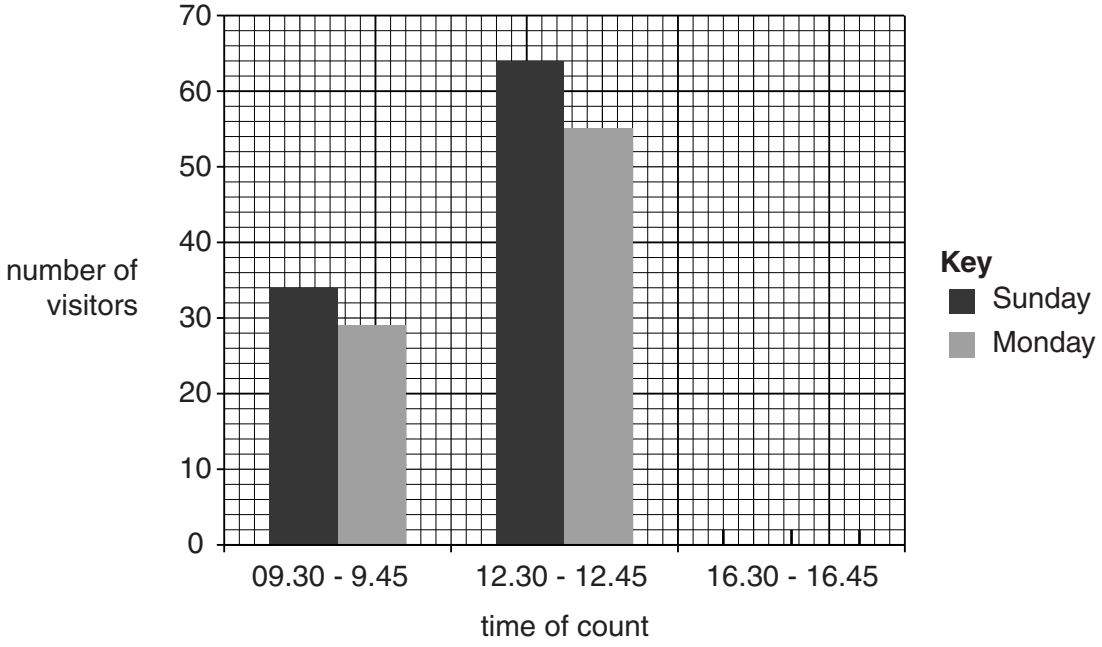

Fig. 14B

(b) To compare the attractiveness of the two locations the students produced a bi-polar scoring index. Fig. 15 (Insert) shows their scoring sheet.

(i) How might the following difficulties of using the bi-polar scoring sheet be overcome?

The scoring is subjective and scores may vary between students.

.....

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The score may vary at different times.

.....

..... [2]

(ii) The results of the bi-polar survey are shown in Table 3, below. Complete Table 3 by calculating the total score for Valledoria. [1]

Table 3

Results of bi-polar survey

	Badesi	**Valledoria**
Beach material	+2	–1
Beach width	+2	+1
Wildlife	–2	+1
Visitor access	+2	0
Car parking	–2	+2
Litter on beach	0	+1
Protection against sea	+1	–1
Beach facilities	+2	–2
View behind beach	–2	+2
Noise	–1	+1
Total	+2	

(iii) Use Table 3 to complete Fig. 16 below for Valledoria [2]

Bi-polar graph

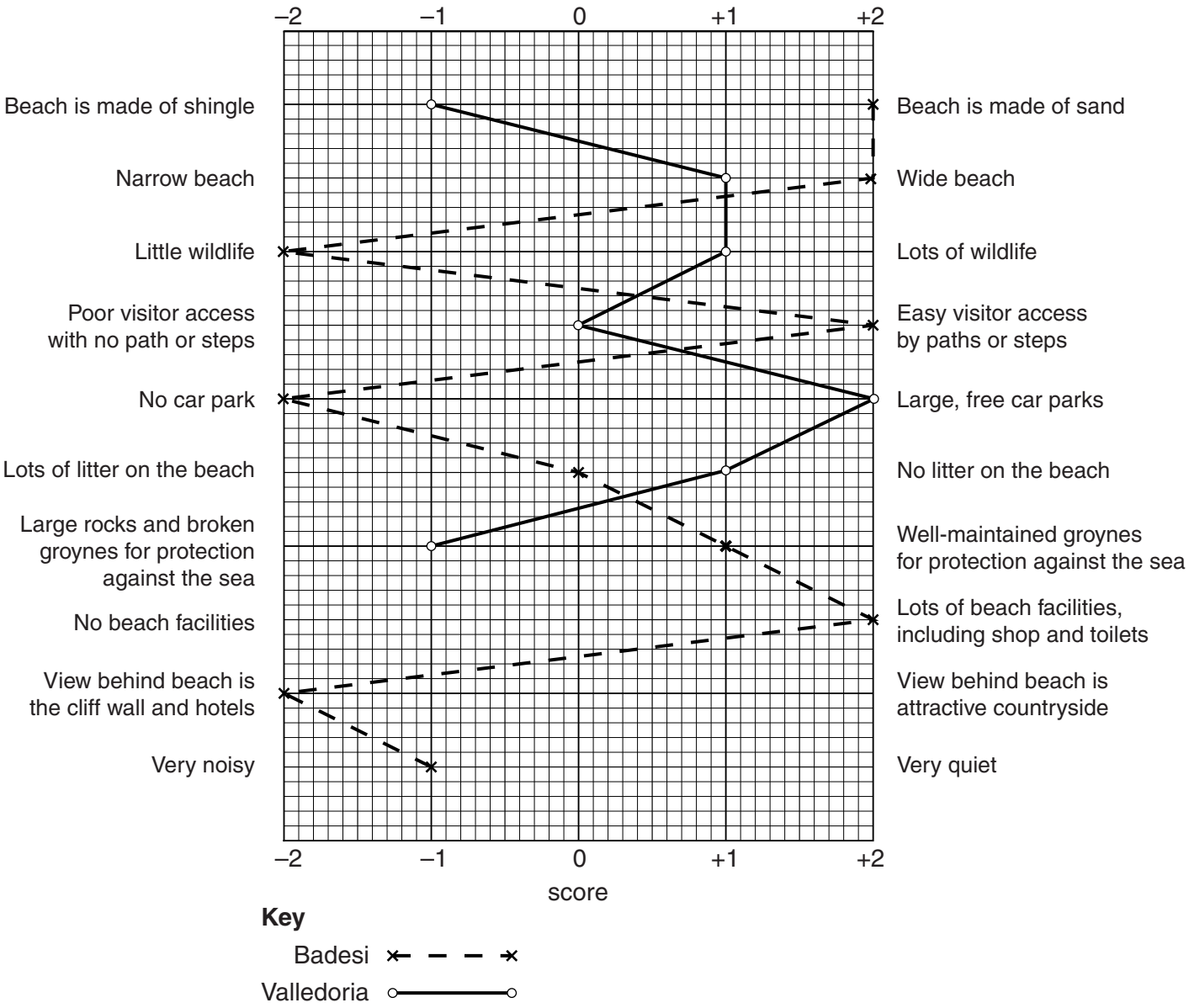

Fig. 16

(iv) When the students studied the results of the pedestrian count and the bi-polar survey they reached the conclusion that the results did **not** support **Hypothesis 1:** *More tourists visit Badesi than Valledoria because it is more attractive.* Support their conclusion with data from Figs 14A and 14B and Tables 2 and Table 3.

Number of visitors

.....

.....

Attractiveness of the location

.....

..... [2]

(c) To investigate **Hypothesis 2:** *The main reason for tourists visiting Badesi and Valledoria varies in importance*, the students used a questionnaire with tourists at both locations. The questionnaire is shown in Fig. 17 (Insert).

(i) The results of Question 2 in the survey are shown in Fig. 18 (Insert).

Use the information in Fig. 18 to complete Table 4 for Valledoria below. [2]

Table 4

Main reasons why tourists visited the two locations

Rank order	Main Reason for visiting Badesi	Percentage of visitors
1	Sunbathing on the beach	23
2	Eating in a restaurant	20
3	Shopping	17
4	Swimming	12
5	Fishing	10
6=	Sailing	8
6=	Windsurfing	8
8	Cycling	2
9	Looking at the scenery	0
9=	Walking	0

Rank order	Main reason for visiting Valledoria	Percentage of visitors
1	Windsurfing	22
2		20
3		17
4		14
5	Fishing	12
6	Swimming	8
7	Cycling	4
8	Sunbathing on the beach	3
9	Eating in a restaurant	0
9=	Shopping	0

(ii) What conclusion would the students make about **Hypothesis 2:** *The main reason for tourists visiting Badesi and Valledoria varies in importance*? Use evidence from Fig. 18 and Table 4 to support your answer.

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..... [4]

(iii) How could the students use the information which they collected on age and gender of visitors to make their conclusion more detailed?

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..... [1]

(iv) The students only asked visitors for the main reason for their visit. Why might this be a weakness of their survey?

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..... [1]

(d) To extend their fieldwork the students decided to investigate more hypotheses about tourism.

Suggest **two** questions which the students could have added to their questionnaire on tourism shown in Fig. 17 (Insert). Give a different reason why they might add each question.

Question 1 .....

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Reason .....

.....

Question 2 .....

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Reason .....

..... [4]

[Total: 30 marks]

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