Cambridge
O Level

Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

6431428735

GEOGRAPHY **2217/23**

Paper 2 **May/June 2014**

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 3, Photograph B, Figs 9, 10 and 11 and Tables 2 and 3 for Question 7, and Tables 4 and 5 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.

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CAMBRIDGE
International Examinations

[Turn over

Section A

Answer **all** questions in this section.

1 The 1:50 000 map is of Ceres, Zimbabwe.

(a) Study the area of the map shown in Fig. 1.

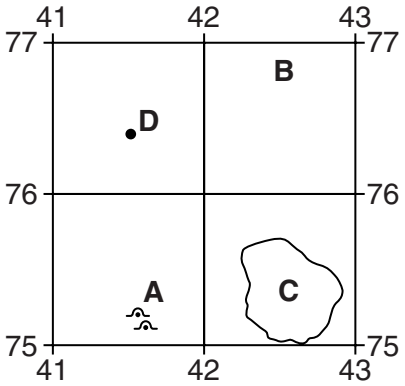

Fig. 1

Using the map and Fig. 1, identify:

(i) the features at **A**;

..... [1]

(ii) the land-use at **B**;

..... [1]

(iii) the type of land in area **C**;

..... [1]

(iv) feature **D**.

..... [1]

(b) Give the six figure grid reference of the Pen in the north-east of the map.

..... [1]

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(c) (i) Identify the type of road found in grid square 4374.

.....[1]

(ii) Describe the route of this road from the western edge of grid square 4374 to the southern edge of the map. Use the following headings.

Direction .....

.....

Distance along the road ..... metres

Features of the physical landscape .....

.....

.....

.....

.....

.....

.....

Features of the human landscape .....

.....

.....

.....

.....

.....

.....[7]

(d) What is the height of the trigonometrical station on Masimbe hill (470734)?

.....[1]

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(e) Study the area of the map shown in Fig. 2

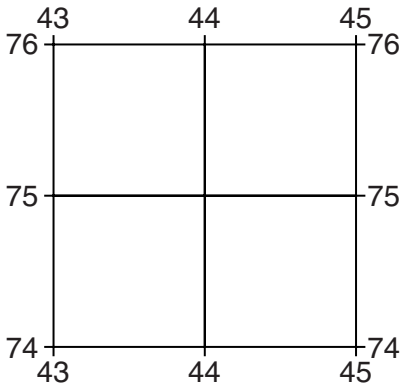

Fig. 2

Describe the relief and drainage of this area

.....

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.....

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.....

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.....[6]

[Total: 20 marks]

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2 Study Fig. 3, which shows surface weathering of marble tombstones, in an area of Sydney, Australia, where acid rain occurs.

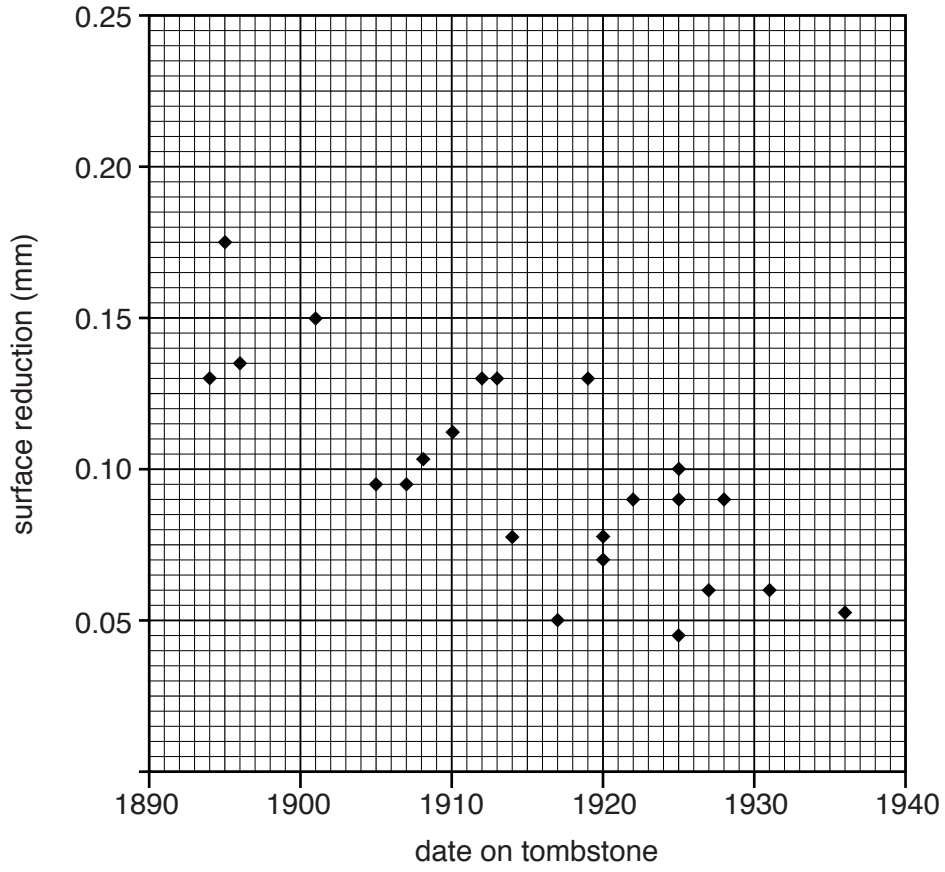

Fig. 3

(a) (i) Draw a best fit line on the scattergraph in Fig. 3. [1]

(ii) Describe the relationship suggested by the graph.

.....

..... [1]

(b) The marble is weathered by carbonation. Describe this process.

.....

.....

.....

..... [2]

(c) (i) Use the data in Table 1 to plot, on Fig. 3, the four data points for tombstones at Wollongong, Australia.

Table 1

Date on tombstone	Surface reduction (mm)
1940	0.13
1930	0.20
1905	0.18
1893	0.21

[2]

(ii) Which location, Sydney or Wollongong, has more acidic rain?

.....[1]

(iii) Suggest why the rainfall might be more acidic.

.....

.....[1]

[Total: 8 marks]

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3 Study Photograph A (Insert) of a coastal location.

(a) Identify the different features labelled on Photograph A.

A .....

B .....

C .....

D .....

E ..... [5]

(b) For any one of the features **A**, **B**, **C**, **D** and **E** explain how it changes to one of the other features as a result of erosional processes.

Feature chosen ..... changing to.....

.....

.....

.....

.....

.....

.....[3]

[Total: 8 marks]

4 Study Fig. 4, which shows a small farm in Zimbabwe.

(a) **(i)** Which crop occupies the largest land area?

.....[1]

(ii) What **two** tree crops are grown?

.....[1]

(b) Taking the most direct route, what is the distance and direction from the entrance of the compound, to the river to collect water?

Distance .....

Direction ..... [2]

(c) Using evidence from Fig. 4, suggest what prevents all of the land on the farm from being cultivated.

.....

.....

.....

.....[2]

(d) Suggest why chickens and goats are kept in the fenced compound.

.....

.....

.....

.....[2]

[Total: 8 marks]

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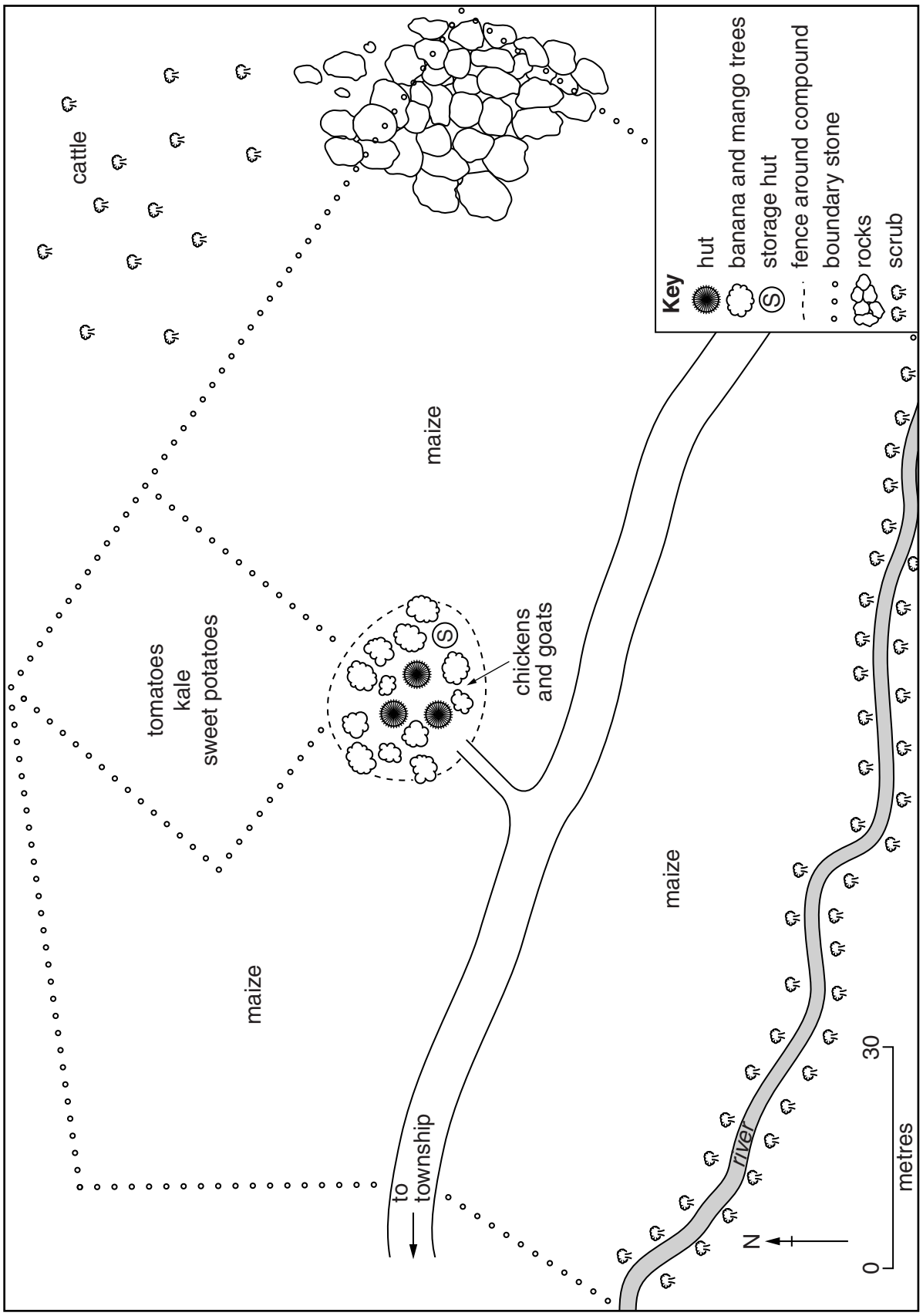

Key
hut
banana and mango trees
storage hut
fence around compound
boundary stone
rocks
scrub
cattle
maize
tomatoes
kale
sweet potatoes
maize
chickens
and goats
maize
to
township
river
N
0
30
metres

Fig. 4

5 Study Fig. 5, which shows the Canary Islands in the Atlantic Ocean, and Fig. 6, which gives population data for the islands.

(a) (i) Which island is the furthest west?

.....[1]

(ii) The area of Lanzarote is 846 km^2. Estimate the size of La Graciosa, off its north coast. Tick (✓) the correct answer below.

8 km^2 ☐

30 km^2 ☐

170 km^2 ☐

250 km^2 ☐ [1]

(b) Complete Fig. 6 (opposite) to show that La Palma has an average population density of 120 people per km^2. [1]

(c) (i) Using Fig. 6, what is the population density of Gran Canaria?

.....[1]

(ii) Using Fig. 6, which island has the highest total population?

.....[1]

(d) (i) On Fig. 6, complete the **population density** ranking. [1]

(ii) Describe the relationship between population total and average population density.

.....

.....

.....

.....[2]

[Total: 8 marks]

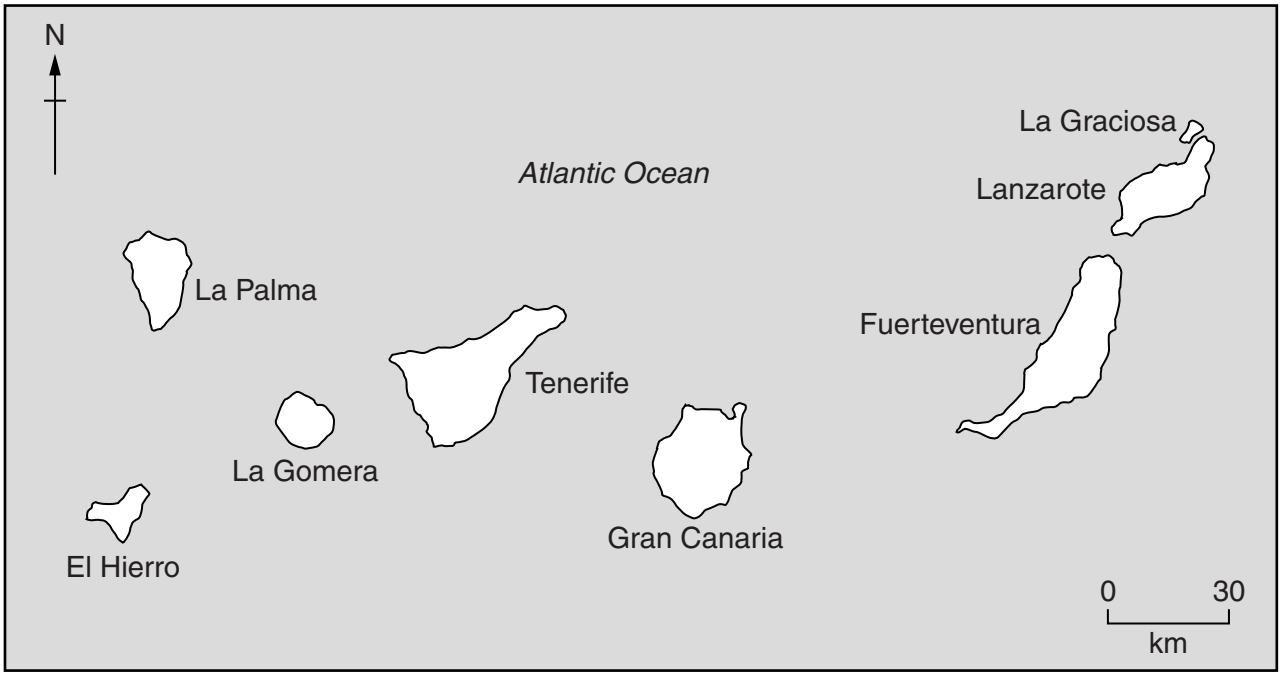
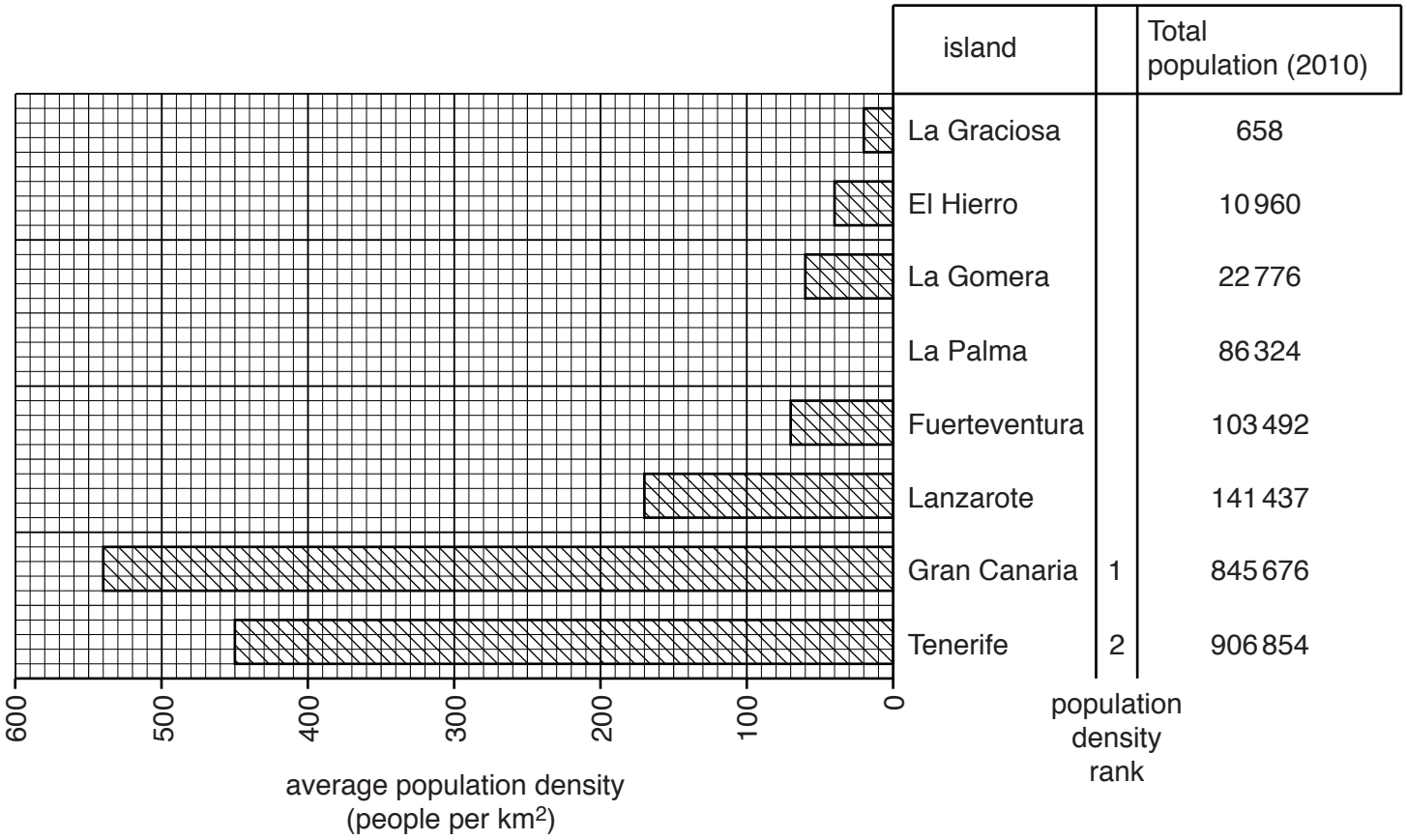


Fig. 5



island	population density rank	Total population (2010)
La Graciosa		658
El Hierro		10 960
La Gomera		22 776
La Palma		86 324
Fuerteventura		103 492
Lanzarote		141 437
Gran Canaria	1	845 676
Tenerife	2	906 854

Fig. 6

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[Turn over

6 Study Fig. 7, which describes an industrial system.

When the sacks of cocoa beans reach the factory, they are sampled to check quality.

The first step in processing is **cleaning**. The beans are then **roasted** and **cracked** open to extract the cocoa nibs. The nibs are then ground. The **grinding** process produces heat which causes the fatty portion of the nibs to liquefy. The liquid part is called cocoa butter; the dry part is cocoa powder.

The next step is **pressing** the powder from the butter. The fat is squeezed out, **filtered** to purify it and allowed to cool into yellowish blocks of cocoa butter. The remaining cocoa is then **ground** up.

At this point, various ingredients are added, depending on the type of chocolate desired. These include sugar, cocoa butter, vanilla and milk.

The next step is **conching**. This is a stirring and kneading process to reduce the size of the crystals embedded in the chocolate. The longer the conching, the less likely you are to notice the slightly rough feel. The finest quality chocolate should feel totally smooth on the tongue.

When the conching is complete, the molten chocolate is cooled down slowly to prevent re-crystallisation.

Fig. 7

(a) Name the main input.

.....[1]

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(b) (i) Fig. 8 is a flow chart of the processes in the factory. Complete Fig. 8 by inserting **two** processes. [2]

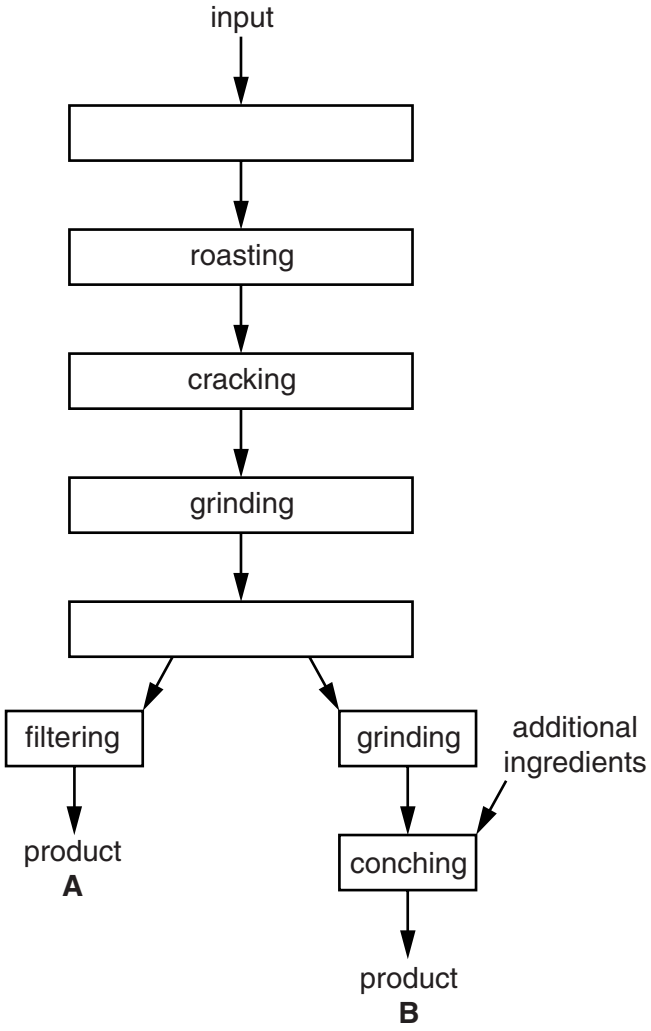

Fig. 8

(ii) How is the conching process different for the finest quality chocolate?

.....

.....[1]

(iii) Using Fig. 8, name product **A** and product **B**.

Product **A** .....

Product **B** ..... [2]

(c) Name **two** factors that would affect the location of the chocolate factory.

1 .....

2 .....[2]

[Total: 8 marks]

Section B

Answer **one** question in this section.

7 Students at two schools in South Africa planned an investigation using weather stations. The two schools are in Pretoria and Cape Town which are located on Fig. 9 (Insert).

(a) Students in Pretoria used traditional instruments to measure and record weather and the students in Cape Town used digital instruments.

(i) Give **two** advantages of using digital instruments rather than traditional instruments.

1 .....

.....

2 .....

..... [2]

(ii) The students in Pretoria used a Stevenson Screen in their weather station. Photograph B (Insert) shows a Stevenson Screen.
Describe **three** features of a Stevenson Screen and explain why each is important.

1 .....

.....

.....

.....

2 .....

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.....

.....

3 .....

.....

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..... [6]

(iii) Which **one** of the following measuring instruments would the students put inside a Stevenson Screen? Circle your answer. [1]

Anemometer Rain gauge Thermometer Wind vane

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(iv) Students in Pretoria collected data on the following weather elements:

maximum temperature, minimum temperature, precipitation, relative humidity, atmospheric pressure.

Name **one** other weather element the students could have measured.

.....[1]

(v) What traditional instrument did they use to measure:

A relative humidity; .....

B atmospheric pressure? .....[2]

(b) Study Figs 10 and 11 (Insert), which show a maximum-minimum thermometer and a rain gauge.

(i) Explain how the thermometer is used to measure maximum and minimum temperatures.

.....

.....

.....

.....

.....

.....[3]

(ii) Explain how rainfall is measured using the rain gauge shown in Fig. 11.

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.....

.....[3]

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[Turn over

The students collected data about different elements of weather during July. They then decided individually on two hypotheses to test. One student in Cape Town chose the following hypotheses:

Hypothesis 1: *The diurnal variation in temperature is greater in Pretoria than in Cape Town.*
The diurnal variation in temperature is the difference between the highest temperature and the lowest temperature in a day.

Hypothesis 2: *In Cape Town rainfall increases as the maximum temperature increases.*

(c) The results which the student used to test **Hypothesis 1** are shown in Table 2 (Insert).

(i) Use these results to complete the minimum temperature line for Pretoria on 30th and 31st July in Fig. 12 below. [2]

Temperatures in Pretoria and Cape Town

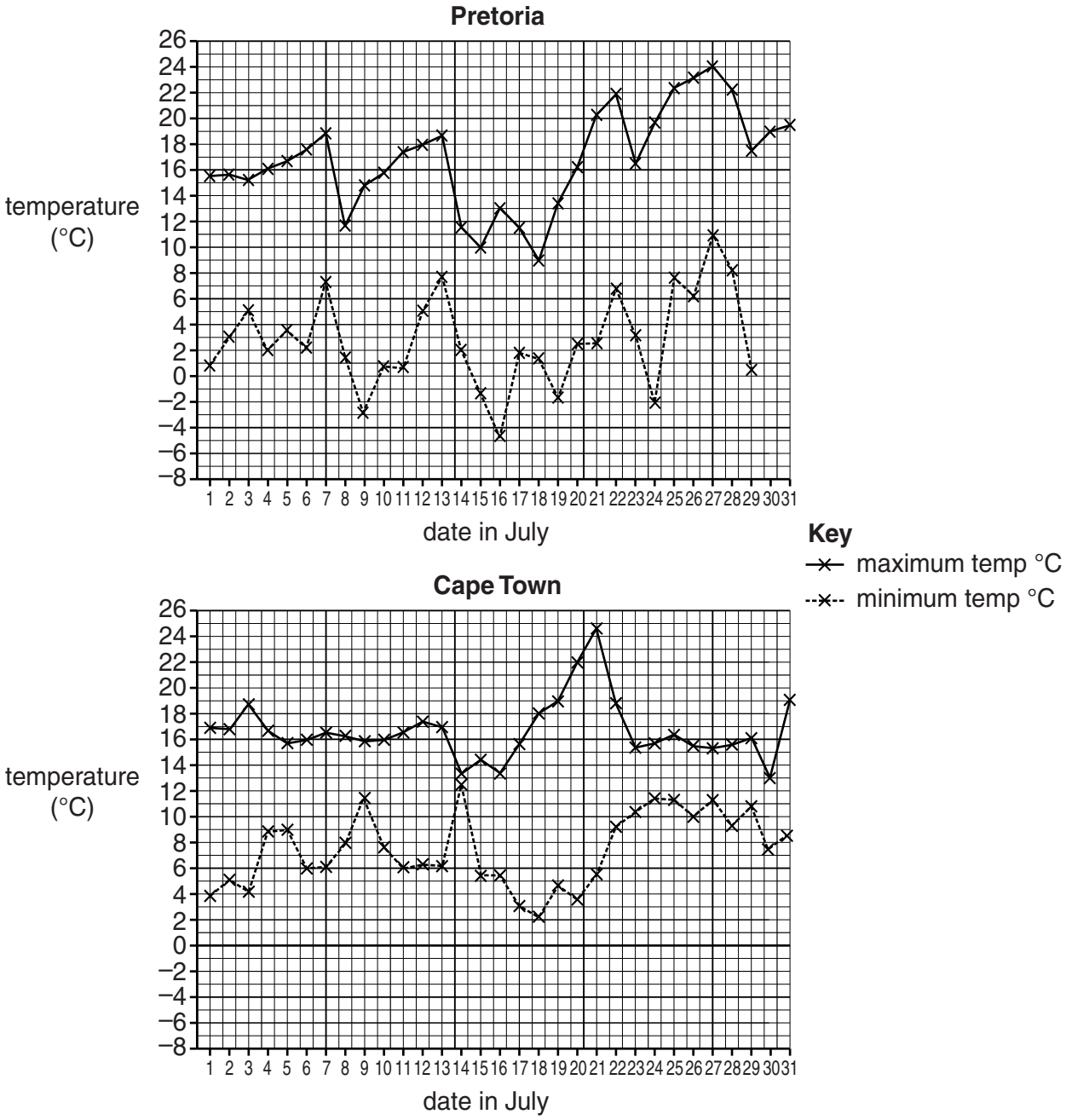

Fig. 12

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(ii) What conclusion did the student come to about **Hypothesis 1:** *The diurnal variation in temperature is greater in Pretoria than in Cape Town?*
Support your conclusion with evidence from Table 2 and Fig. 12.

.....

.....

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.....

.....

.....

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.....[4]

(d) The results which the student used to test **Hypothesis 2:** *In Cape Town rainfall increases as the maximum temperature increases*, are shown in Table 3 (Insert).

(i) Use these results to complete the rainfall bars for 28th and 29th July on Fig. 13 below. [2]

Maximum temperature and daily rainfall for July in Cape Town

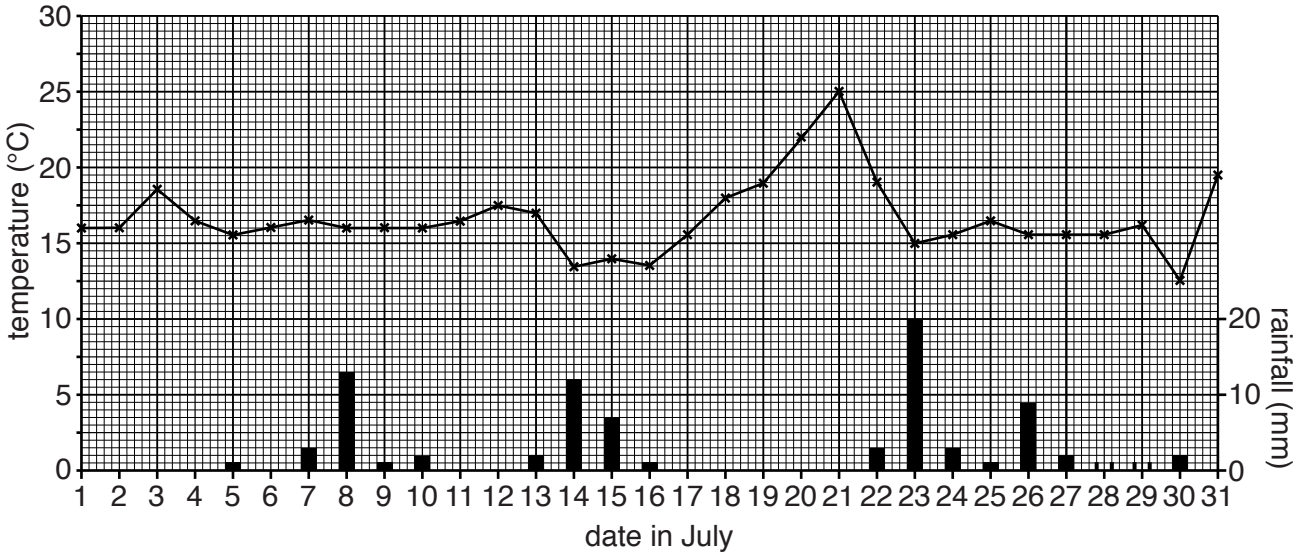

Fig. 13

(ii) What conclusion would the student come to about **Hypothesis 2:** *In Cape Town rainfall increases as the maximum temperature increases*? Support your answer with evidence from Table 3 and Fig. 13.

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.....[4]

[Total: 30 marks]

8 Students in Gaborone, the capital city of Botswana, were studying land-use in urban areas. They did fieldwork to examine differences between land-use in the CBD (Central Business District) and other parts of the city. They wanted to test the following hypotheses:

Hypothesis 1: *The height of buildings decreases as distance from the CBD increases.*

Hypothesis 2: *The land-use in the CBD is different from that in the rest of the city.*

To collect data the students were divided into four groups. Each group followed a different transect from the city centre outwards. The transect routes went north, east, south and west of the CBD.

(a) At selected distances along each transect the students counted the number of storeys of six different buildings. They then calculated the average number of storeys. Their results are shown in Table 4 (Insert).

(i) Suggest why the four groups got different results in the CBD.

.....

.....

.....

.....[2]

(ii) The students plotted their results on the diagram shown in Fig. 14 below.
Use the data in Table 4 to complete the results of the West and North transects in Fig. 14.
[2]

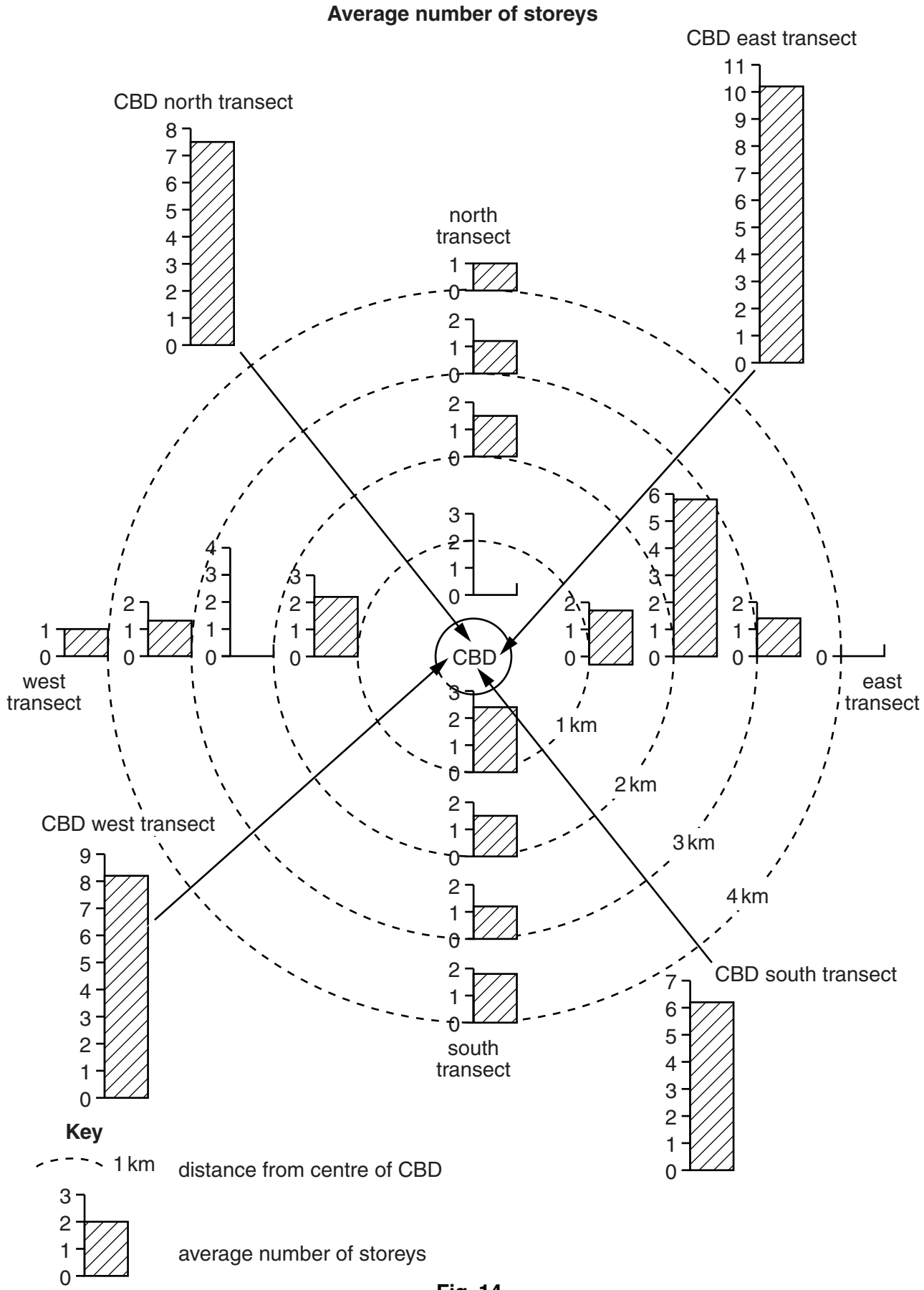

Fig. 14

(iii) To what extent is **Hypothesis 1:** *The height of buildings decreases as distance from the CBD increases* true? Explain your answer with data from Table 4 and Fig. 14.

.....

.....

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.....

.....

.....

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.....[4]

(iv) Explain why building height varies in different areas of a city.

.....

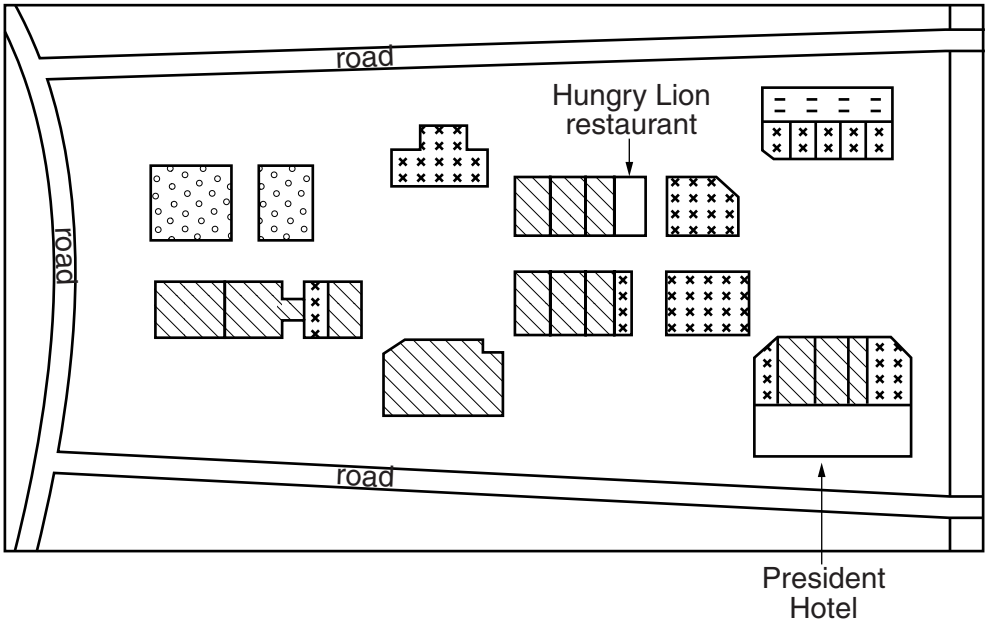
.....

.....

.....[2]

(b) To investigate **Hypothesis 2:** *The land-use in the CBD is different from that in the rest of the city*, the students recorded the ground floor land-use of buildings in the CBD and along the four transect lines. One group's land-use map of part of the CBD is shown in Fig. 15 below.

Sketch map of land use in part of the CBD



Key

residential
(apartments + houses)

commercial
(shops + restaurants)

offices
(including banks)

services
(including hotels,
sport venues
+ religious buildings)

Fig. 15

(i) Use the key to shade in the Hungry Lion restaurant and the President Hotel in Fig. 15 above. [2]

(ii) How many offices are shown in the map shown in Fig. 15?

..... [1]

(iii) Suggest why the students only recorded the ground floor land-use of buildings.

.....

.....[1]

(iv) In order to compare the different areas of the city the students calculated percentage figures of different types of land-use. These results are shown in Table 5 (Insert).
Use the data in Table 5 to complete the pie chart for the CBD in Fig. 16 below. [3]

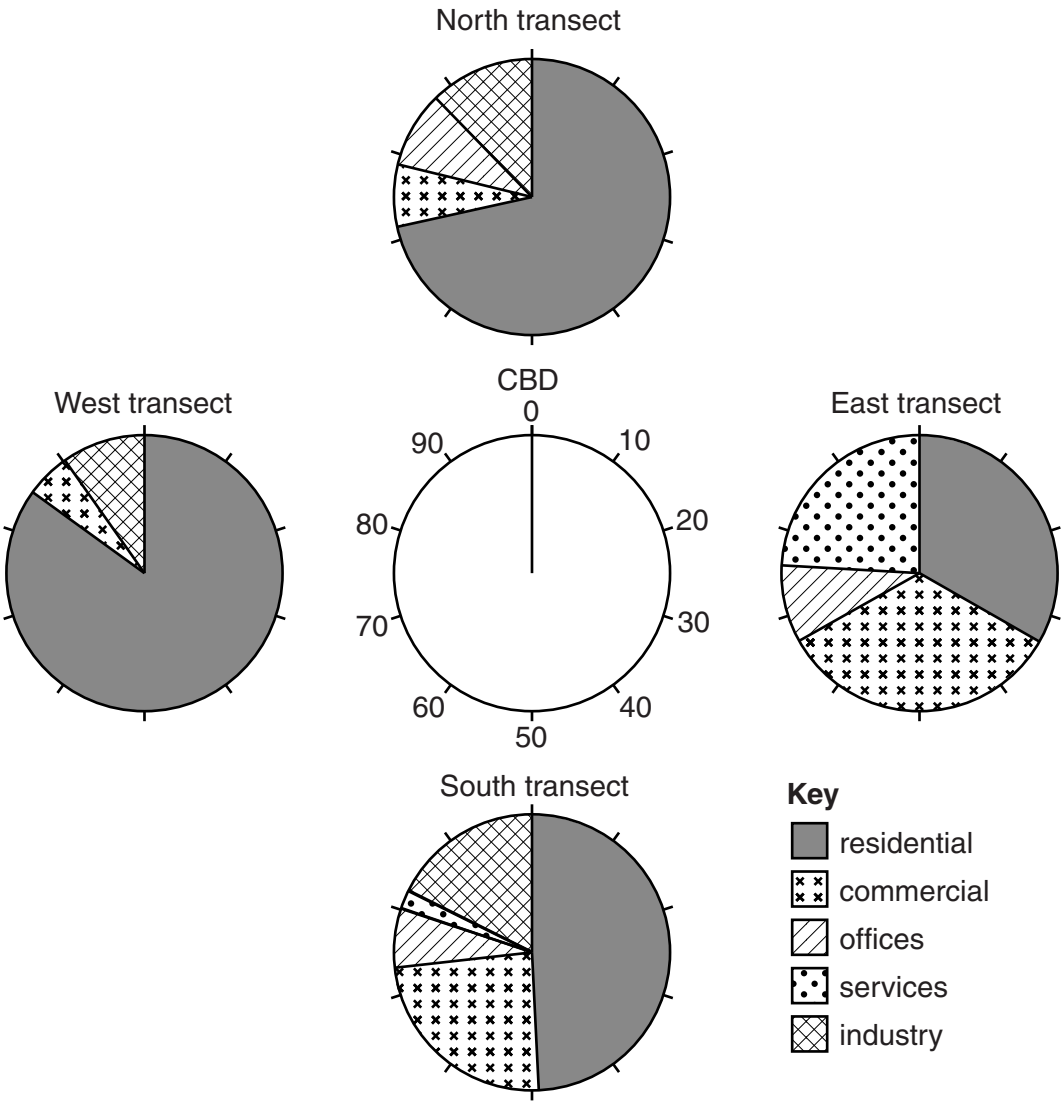


Fig. 16

(v) Describe one **major** difference in land-use between each of the following pairs of transects shown on Fig. 16.

north transect and south transect

.....

.....

east transect and west transect

.....

.....[2]

(vi) What conclusion would the students come to about **Hypothesis 2:** *The land-use in the CBD is different from that in the rest of the city*? Use evidence from Table 5 and Fig. 16 to support your decision.

.....

.....

.....

.....

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.....

.....

.....[4]

(c) Why does land-use vary in different parts of a city?

.....

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.....

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.....

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.....[4]

(d) When the students returned to school they discussed with their teacher how they could improve their data collection methods. Suggest **three** improvements they could have made.

1 .....

.....

2 .....

.....

3 .....

.....[3]

[Total: 30 marks]

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