UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

GEOGRAPHY **2217/22**

Paper 2 **May/June 2011**

2 hours 15 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator
Protractor
Plain paper

1:25 000 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 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.
The Insert contains Figs 10 and 11, Photograph A and Table 2 for Question 7, and Fig. 13 and Table 3 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.

This document consists of **26** printed pages, **2** blank pages and **1** Insert.

Section A

Answer **all** questions in this section.

For Examiner's Use

1 Study the 1:25 000 map of Beau Bassin, Mauritius.

(a) (i) Give the six-figure grid reference of the motorway junction with the A7 road.

.....[1]

(ii) Measure the distance along the A7 road from the motorway junction to the sugar factory at 005970.

..... metres [1]

(b) Study the location of the sugar factory at 005970. Why is this a good location for a sugar factory?

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(c) Name **six** services in grid square 9797.

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.....[3]

(d) Describe the features of the Grand River North West from its confluence with the River Moka at 947981 to the GRNW Bridge in grid square 9402.

For Examiner's Use

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.....[4]

(e) **(i)** Locate the footpath from Roselyn Cottage at 995986 to Les Guibies at 964003. What direction does the footpath take from Roselyn Cottage?

.....[1]

(ii) Describe the physical and human features along the route of the footpath.

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.....[6]

[Total: 20 marks]

[Turn over

2 Study Fig. 1, which shows population growth for selected world regions.

For Examiner's Use

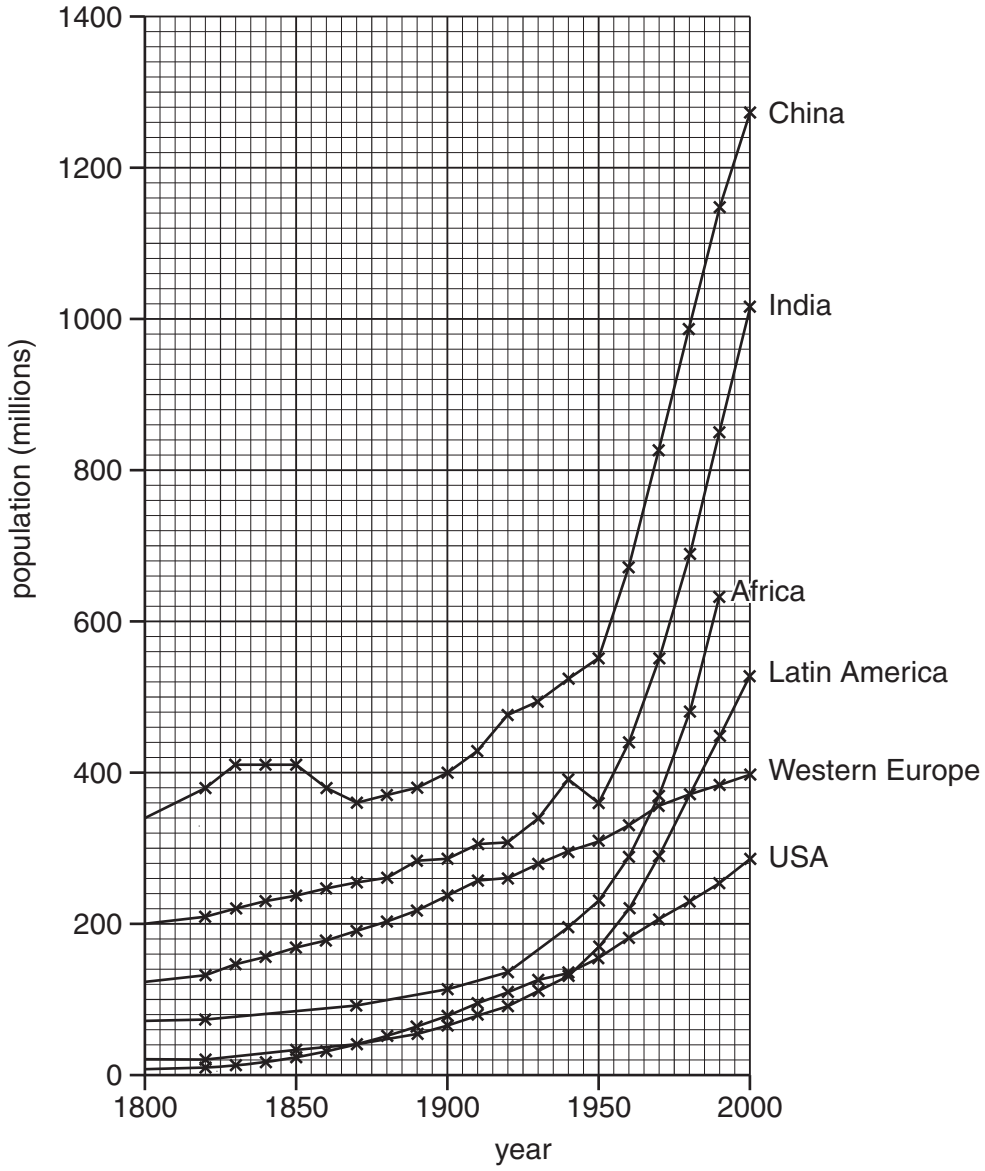

Fig. 1

(a) (i) Complete the graph to show a population of 800 million in Africa in 2000. [1]

(ii) What was the population in Latin America in 1950?

.....[1]

(iii) Which region experienced the slowest growth rate between 1950 and 2000?

.....[1]

(b) State **one** similarity and **one** difference in the population growth of India and the USA.

For Examiner's Use

Similarity .....

.....

Difference .....

.....[2]

(c) Describe the population change in China during the period shown on Fig. 1.

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.....[3]

[Total: 8 marks]

3 Study Fig. 2, a description of the effect of rain in a desert area.

For Examiner's Use

It's amazing the difference a drop of rain can make. Millions of seeds have been lying dormant waiting for water. Overnight dew has kept the Desert Thorn alive but now it has sprouted new growth. Land that had been parched and barren now supports a wide variety of vegetation.

Depressions in the landscape have retained moisture and now have a thick carpet of bright yellow Pulicaria flowers. Ground-hugging plants are spreading rapidly. Even wheel ruts criss-crossing the landscape now contain long lines of pale, silvery-green tasselled grasses.

Bushes are blooming. Arabian Tamarisk, with spikes of pale pink, is interspersed with the yellows, greens and purples of the Zygophyllum plants, while the Caper plant, with its large white blossoms, is looking spectacular.

Fig. 2

(a) (i) Identify **two** types of plants described in the passage.
Use **two** ticks on Table 1.

Table 1

Example: Ground-hugging	✓
Bushes	
Coniferous trees	
Deciduous trees	
Grasses	

[2]

(ii) How have existing plants responded to the moisture?

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.....[2]

(iii) Why do depressions contain the most vegetation?

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.....[1]

(b) Study Fig. 3, which shows the climate of Doha, Qatar.

For Examiner's Use

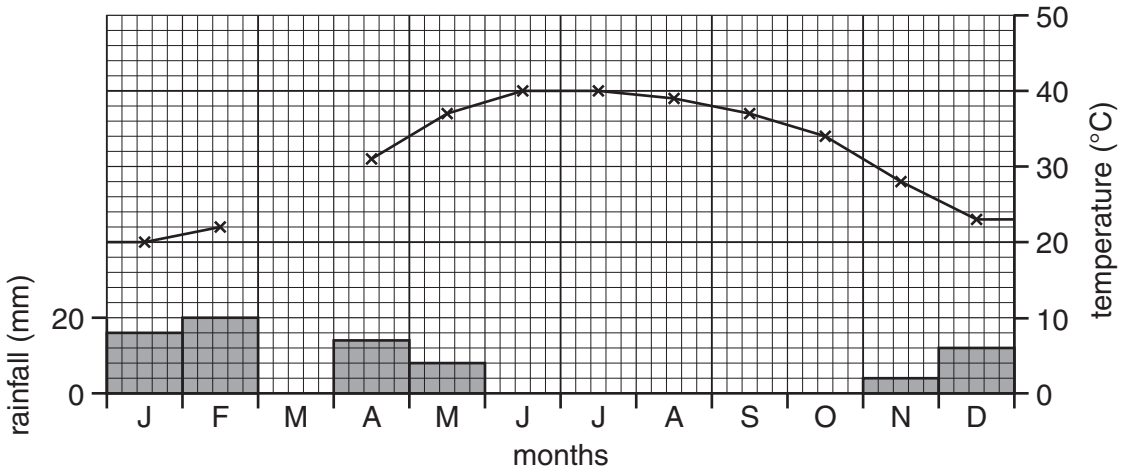

Fig. 3

(i) Complete Fig. 3 to show a temperature of 25 °C and 15 mm of rain in March. [2]

(ii) From the list below, circle **two** months when the plants described in Fig. 2 could be seen.

February July October December [1]

[Total: 8 marks]

4 Study Fig. 4, which shows factors affecting movement of sediment load in rivers.

For Examiner's Use

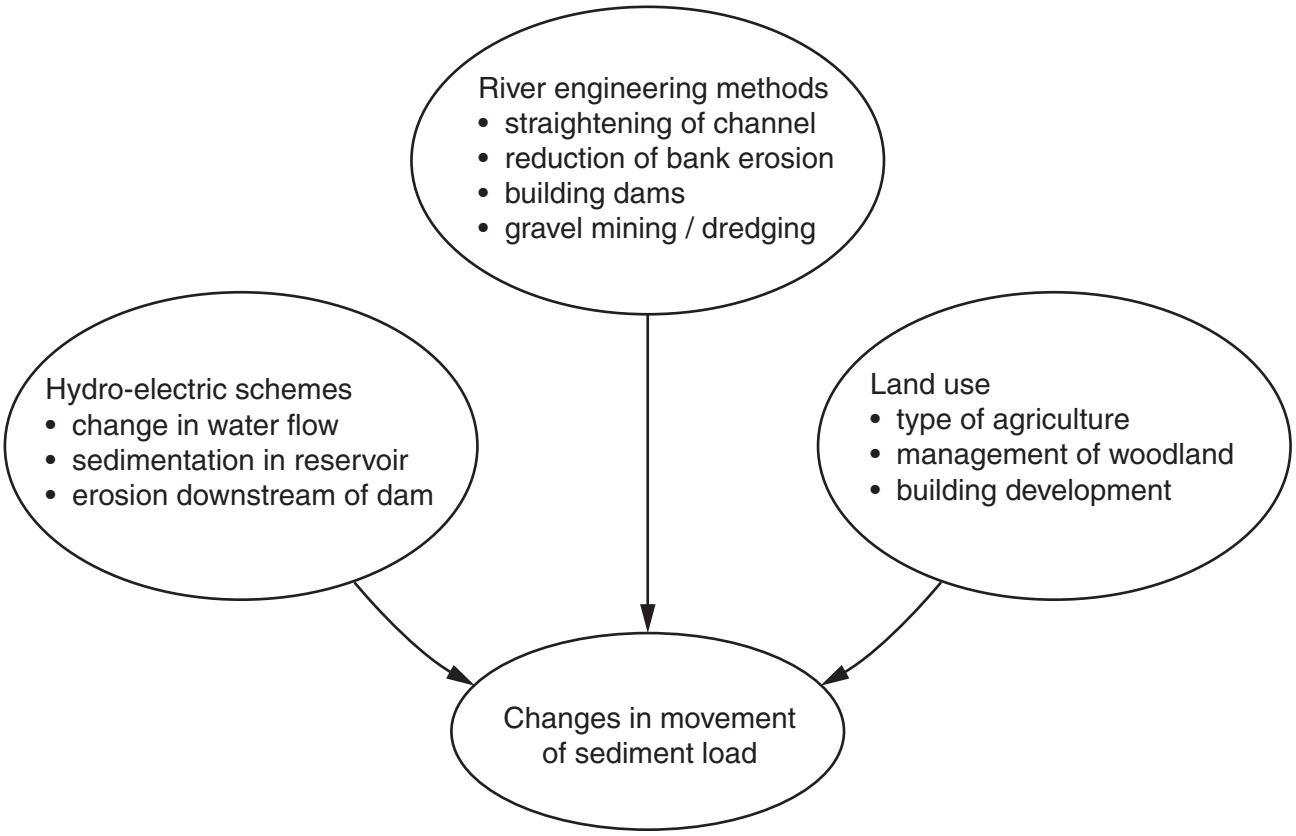

Fig. 4

(a) Choose **either** arable **or** pasture land use. How will your chosen land use cause sediment to reach the river?

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.....[2]

(b) Study Fig. 5, which shows a sketch map of a river channel where a dam has been constructed.

For Examiner's Use

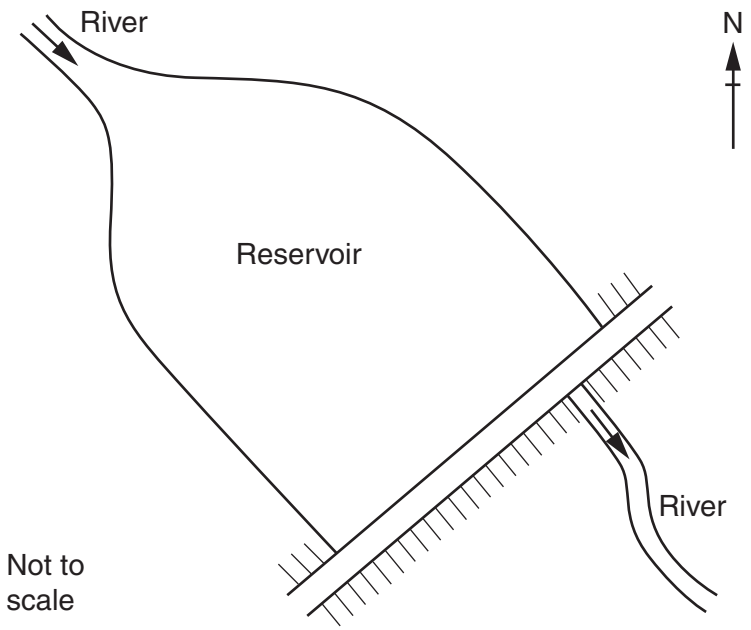

Fig. 5

On Fig. 5 label using the given letters:

- the dam wall (W)
- where deposition will occur (D)
- where erosion will occur (E) [3]

(c) Study Fig. 6, which shows a sketch of a river before and after an engineering scheme to change it.

For Examiner's Use

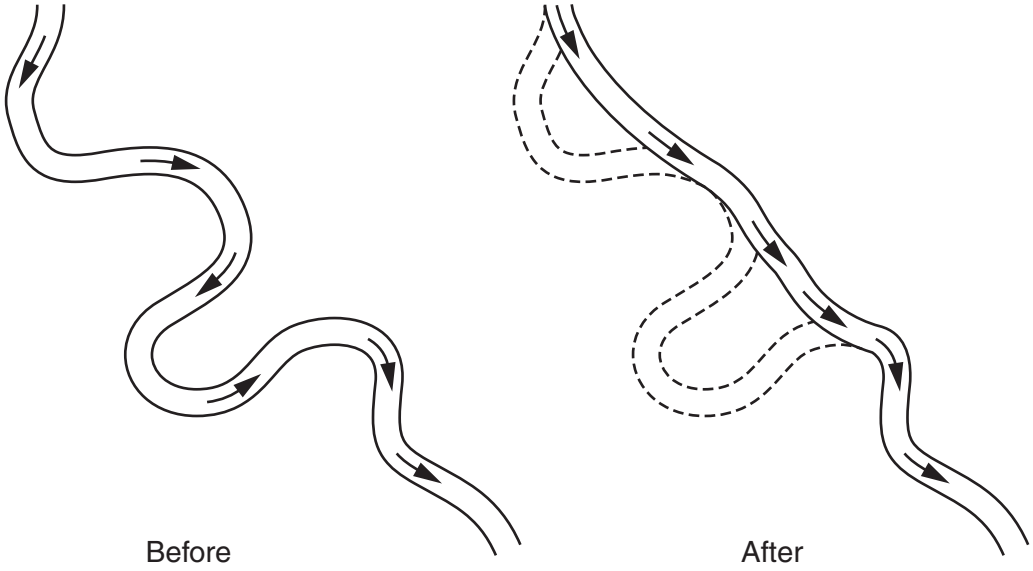

Fig. 6

(i) Which engineering method, from Fig. 4, has been used here?

.....[1]

(ii) Suggest how this engineering method has changed the movement of sediment in the river. Give a reason for your answer.

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.....[2]

[Total: 8 marks]

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PLEASE TURN OVER FOR QUESTION 5

5 Study Fig.7, which shows traffic flows for a 24 hour period on a weekday.

For Examiner's Use

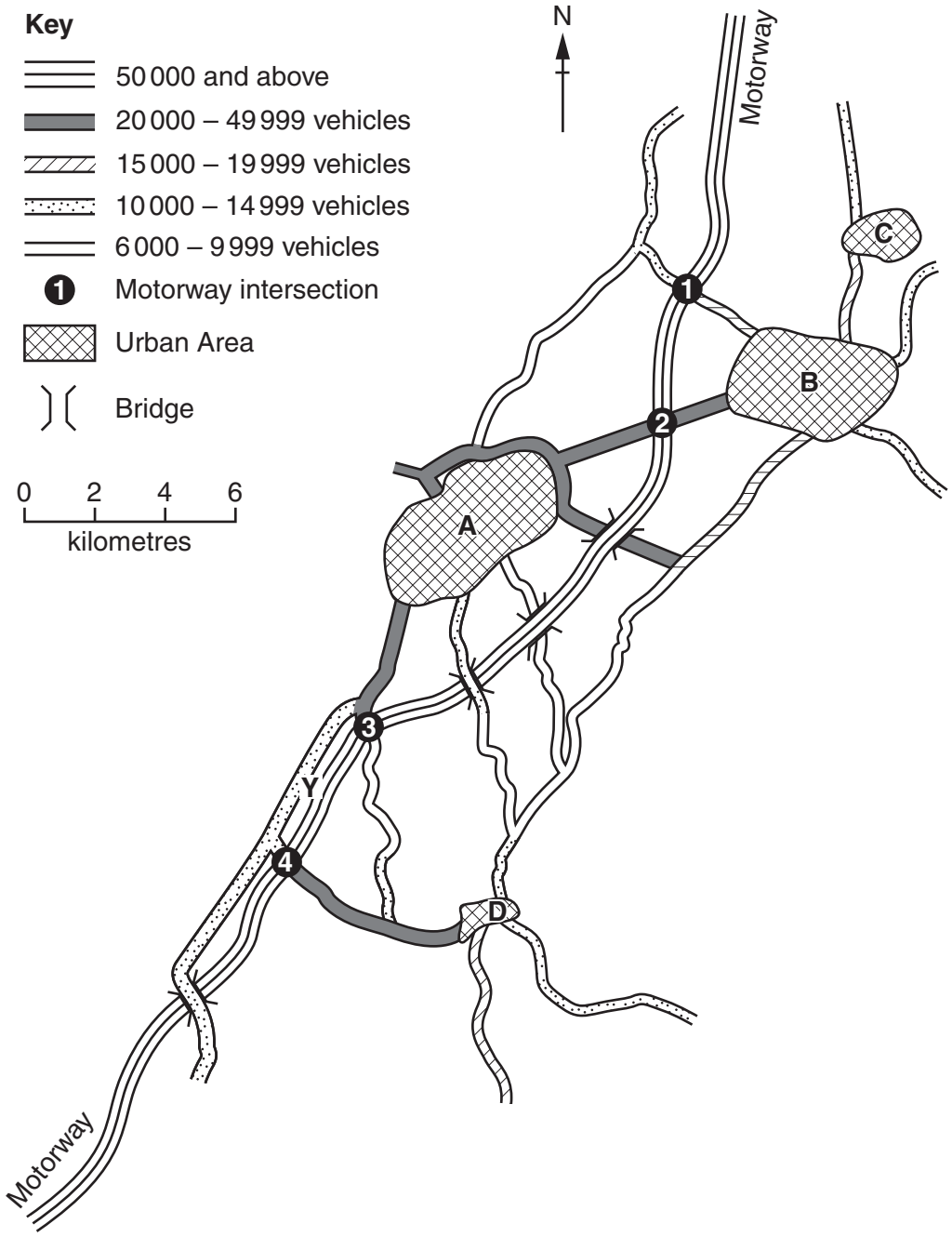

Fig. 7

(a) (i) How many vehicles use the motorway in 24 hours?

.....[1]

(ii) At which intersection would a driver leave the motorway to use the least congested route into urban area **B**?

.....[1]

(iii) Which urban area has a northern bypass?

.....[1]

(b) (i) What direction is urban area **D** from urban area **B**?

.....[1]

For Examiner's Use

(ii) Describe the variations in traffic flow along the road that is the direct route from **B** to **D**.

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.....[2]

(c) The two roads at **Y** run parallel but have very different amounts of traffic. Suggest a reason for this.

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.....[1]

(d) Which urban area has the least vehicles entering in the 24 hour period?

.....[1]

[Total: 8 marks]

6 Study Fig. 8, which shows the percentage of workforce employed in manufacturing in 48 states of the USA.

For Examiner's Use

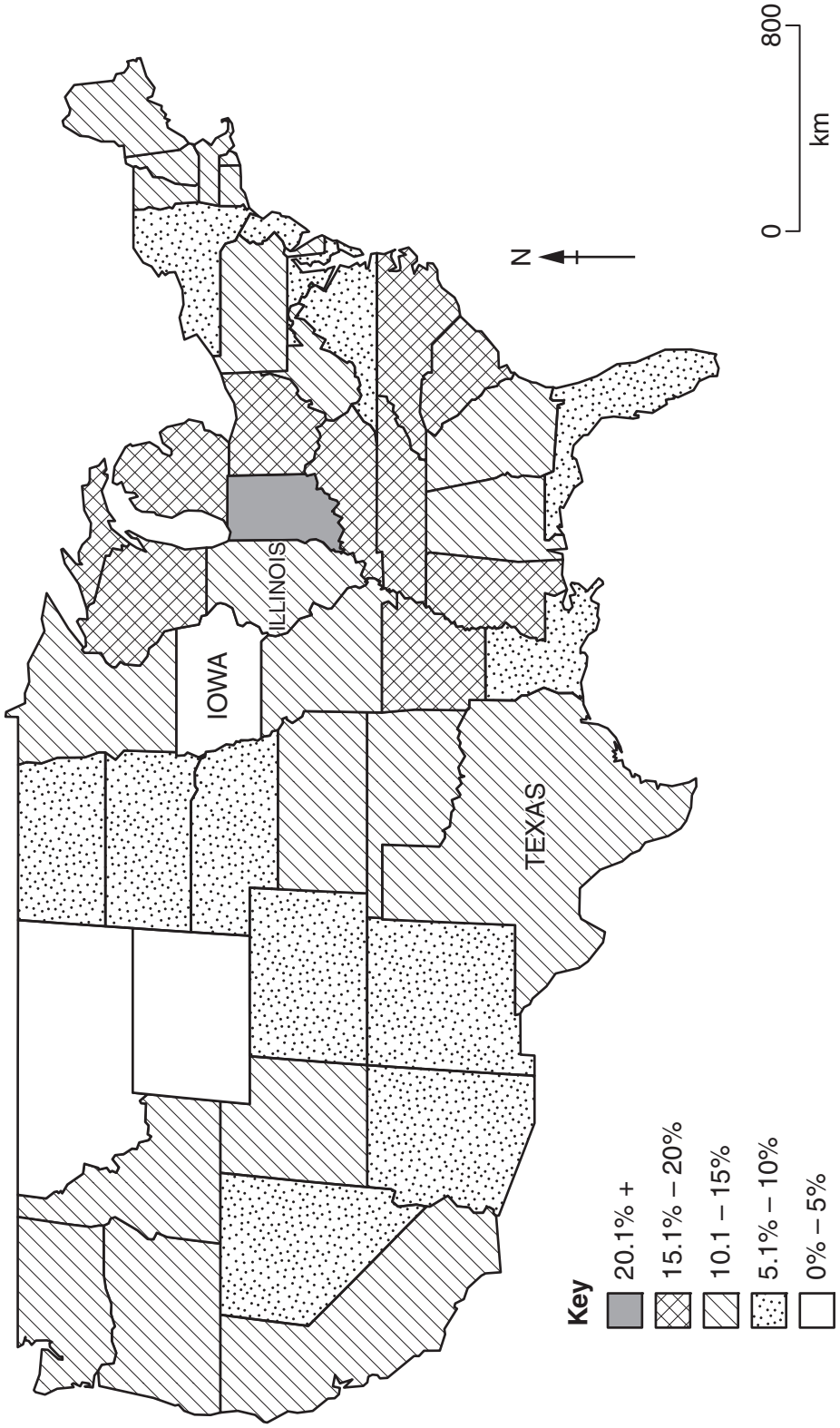

Fig. 8

(a) (i) Complete Fig. 8 to show that Iowa has 15.9% of the workforce employed in manufacturing industry. [1]

(ii) Describe the distribution of areas with 10.1–15% employed in manufacturing industry.

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.....[3]

(b) Study Fig. 9, which shows the numbers employed in selected manufacturing industries in Illinois and Texas.

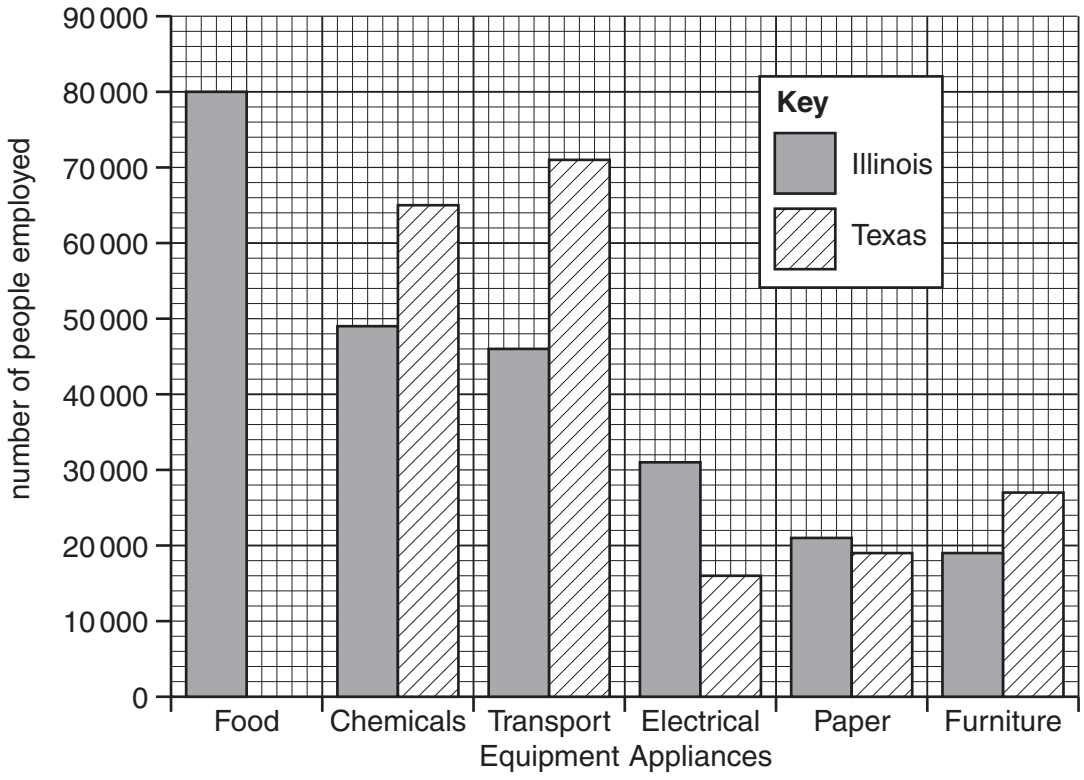

Fig. 9

(i) Complete Fig. 9 to show that Texas has 83 000 people employed in food manufacturing.

.....[1]

(ii) How many people in Illinois are employed in transport equipment manufacture?

.....[1]

(iii) Complete the ranking of the industries, in terms of the numbers employed, for the state of Texas.

For Examiner's Use

Greatest — Food

Transport Equipment

.....

.....

.....

Least — ..... [1]

(iv) Which type of manufacturing industry has the greatest difference in the numbers employed, between these two states?

.....[1]

[Total: 8 marks]

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PLEASE TURN OVER FOR SECTION B

Section B

For Examiner's Use

Answer **one** question in this section.

7 Some students, who lived in Rio de Janeiro in Brazil, wanted to do some fieldwork in a local forest. It was a tropical rainforest but some parts had been deforested for plantation farming and to use the timber for building houses. Many types of vegetation grow naturally in the forest.

(a) Use arrows to match the 'heads' and 'tails' in the table below to describe **three** ways that vegetation adapts to the climate in the tropical rain forest. An example has been completed for you. [3]

Heads	Tails
Drip tips on leaves	to extract soil nutrients
Shallow roots	to make the tree more stable
Large leaves	to remove heavy rainfall
Buttress roots	to allow more transpiration

The students decided to do their investigation at three areas in the forest. These are described in Fig. 10 (Insert).
The students decided to investigate vegetation cover in the three areas. They agreed on the following hypotheses:

Hypothesis 1: *There are fewer types of vegetation where water infiltrates (soaks) into the ground more quickly.*

Hypothesis 2: *Where water infiltrates into the ground more quickly, vegetation cover is greater.*

(b) The students decided to record data on infiltration at five sites in each area. The sites were spaced every 10 metres along a transect line.

(i) Suggest why the students decided to record data at five sites in each area.

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.....[1]

(ii) Suggest why a transect line was used to locate the five sites in each area.

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.....[2]

For Examiner's Use

(c) (i) At each of the five sites along the transect the students measured the speed of infiltration. Fig. 11 (Insert) shows the equipment they used. Explain how they made their measurements.

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.....[3]

(ii) The students placed a quadrat on the ground at each measuring site. A quadrat is shown in Photograph A (Insert). Using the quadrat they estimated the percentage of vegetation cover and the percentage of bare ground. They also recorded the number of types of vegetation in the area of the quadrat.
The results of these measurements are shown in Table 2 (Insert).

Which area contains the highest number of vegetation types? Circle your answer.

A B C [1]

(iii) The measurements taken at one site are shown below.

Infiltration time = 25 seconds
Number of vegetation types = 5
Percentage of vegetation cover = 80
Percentage of bare ground = 20

At which site and in which area were these measurements taken?

Site ……....

Area ……... [1]

(iv) Calculate the average infiltration time in area B. Show your calculation below.

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Answer: ……... seconds [2]

(d) Using their results from Table 2 (Insert) the students plotted the graphs shown in Fig. 12 below.

For Examiner's Use

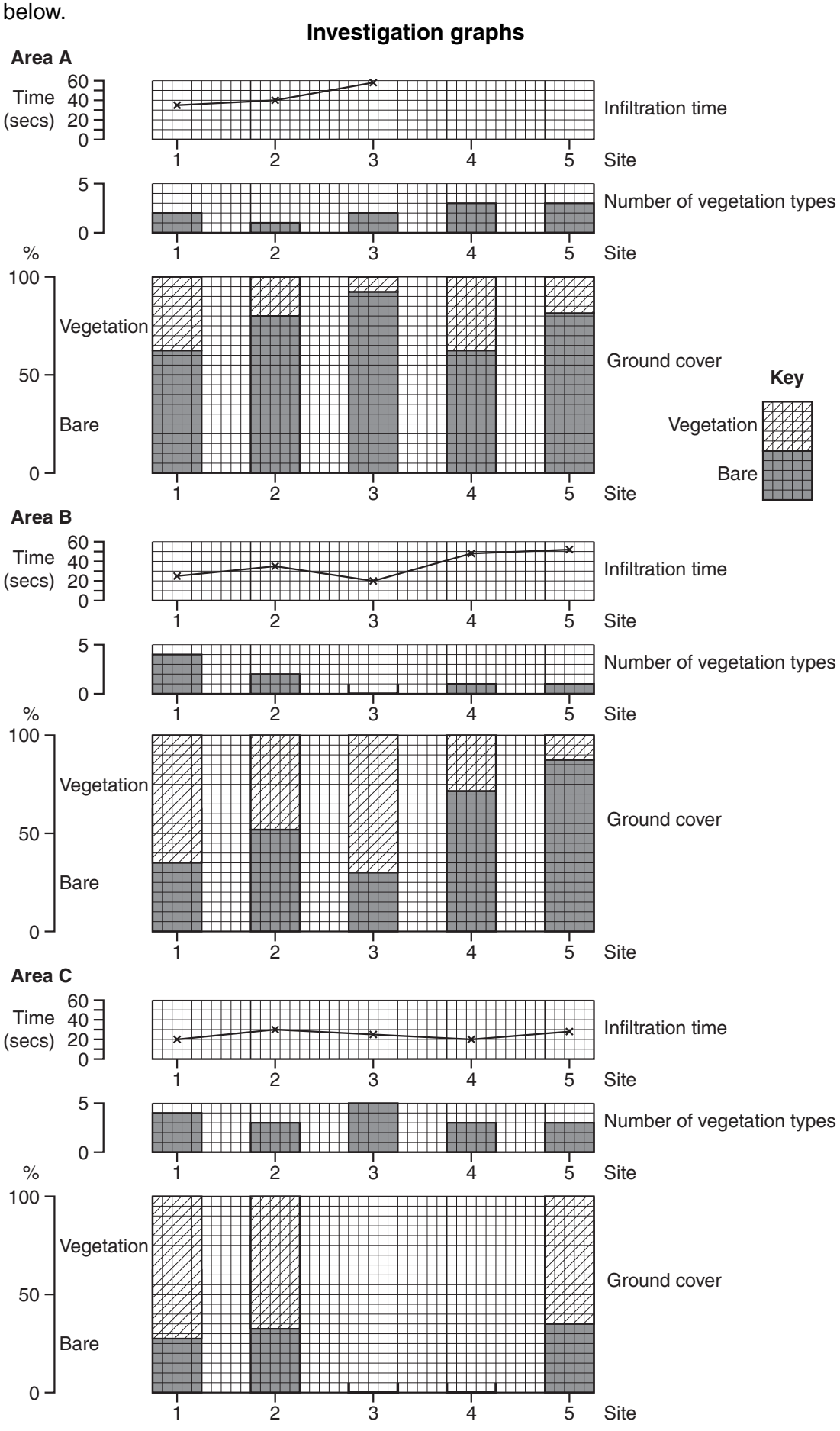

Fig. 12

(i) Use the information in Table 2 (Insert) to plot the following on Fig. 12.

- the infiltration times for sites 4 and 5 at site A.
- the number of types of vegetation found at site 3 in area B.
- the percentage of vegetation cover and the percentage of bare ground at sites 3 and 4 in area C. [5]

(ii) Use the information in Table 2 and Fig. 12 to reach a conclusion about **Hypothesis 1:** *There are fewer types of vegetation where water infiltrates into the ground more quickly.* Support your conclusion with evidence.

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.....[3]

(iii) The students decided that **Hypothesis 2:** *Where water infiltrates into the ground more quickly, vegetation cover is greater* was correct. What evidence from Fig. 12 supports their conclusion?

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.....[3]

(iv) Suggest why water infiltrates into the ground more quickly where vegetation cover is greater.

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.....[2]

[Turn over

(e) Suggest why infiltration times are different between the three areas A, B and C in Fig. 10.

For Examiner's Use

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[Total: 30 marks]

For Examiner's Use

8 Students were studying shopping services in their local town. The students decided to investigate the following hypotheses:

Hypothesis 1: *People travel further to bigger shopping centres.*

Hypothesis 2: *The most common way to travel to shopping centres is by car.*

The three shopping centres which the students chose were:

- the Central Business District (CBD) located in the town centre;
- a Secondary Shopping Centre located along a main road into the town centre;
- a small Neighbourhood (Suburban) Shopping Centre located in a housing estate.

(a) To investigate their hypotheses the students produced a sphere of influence questionnaire to use in the shopping centres. This is shown in Fig. 13 (Insert).

(i) To gain information about **Hypothesis 1:** *People travel further to bigger shopping centres* the students wanted to ask people they interviewed: Where do you live? Their teacher suggested that they remove the question. Suggest **two** reasons why.

1 .....

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2 .....

.....[2]

(ii) The students decided to use systematic sampling for the questionnaire. What is systematic sampling?

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.....[1]

(iii) Give an advantage of systematic sampling.

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.....[1]

(iv) The students interviewed 30 people at each shopping centre. Do you think that this is an appropriate sample size? Explain your answer.

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.....[2]

(b) The results of the students' survey for Question 1 on their questionnaire are shown in Table 3 (Insert).

(i) Calculate the average distance travelled to the Neighbourhood (Suburban) Shopping Centre. Show your calculation in the space below.

[2]

(ii) What is the most common distance travelled to the Secondary Shopping Centre? Insert your answer into the table below. [1]

Shopping centre	Most common distance travelled (km)
Central Business District	8
Secondary Shopping Centre	
Neighbourhood (Suburban) Shopping Centre	1

(c) The students plotted the results of Question 1 on their questionnaire onto the dispersion graphs (Fig. 14) below.

Dispersion Graphs

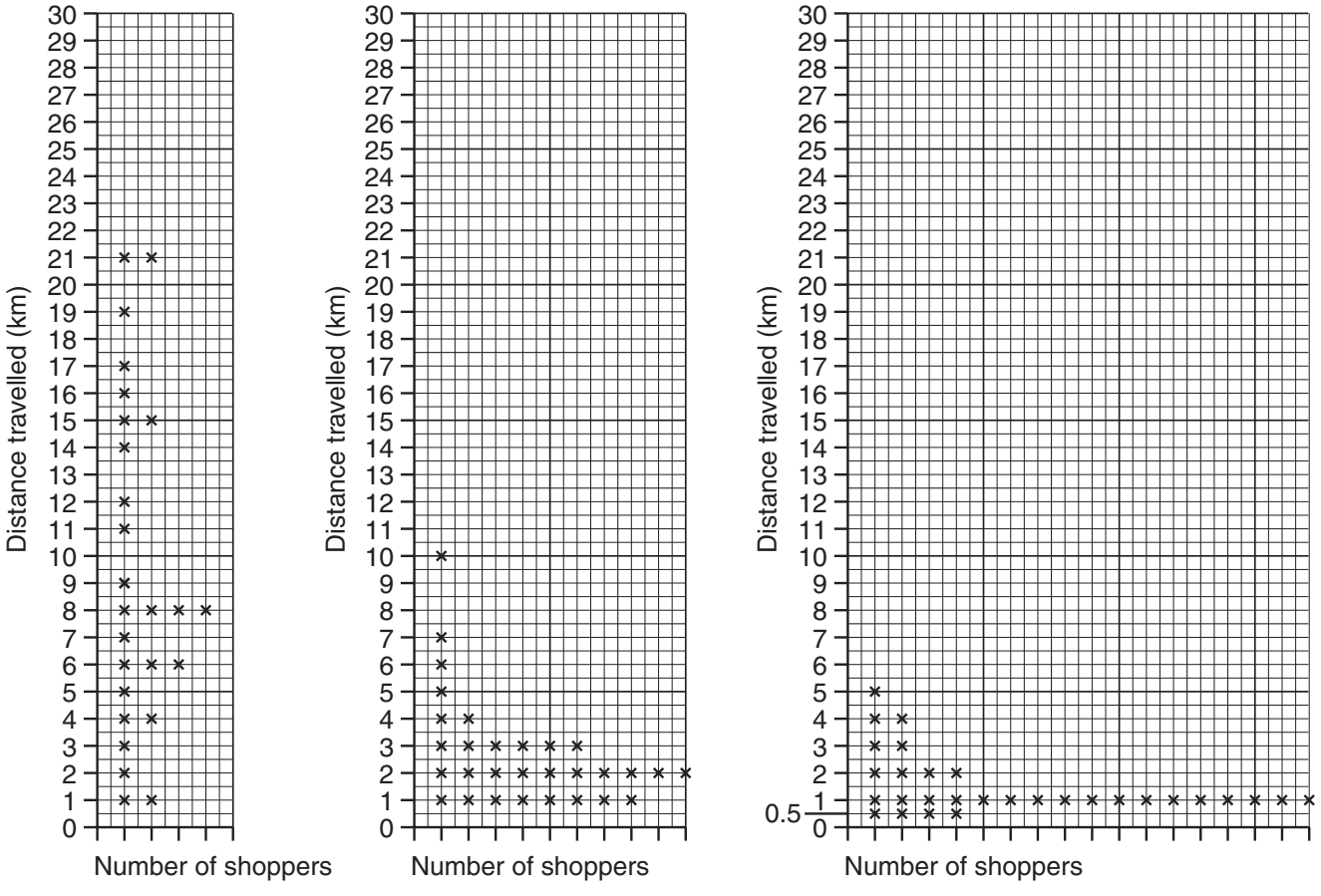

Fig. 14

(i) Use the information from Table 3 (Insert) to plot on Fig. 14 the four people who travelled more than 21 km to the CBD. [2]

For Examiner's Use

(ii) Do you agree with **Hypothesis 1:** *People travel further to bigger shopping centres*? Support your conclusion with evidence from Fig. 14.

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.....[4]

(iii) Suggest why people travel further to some of these shopping centres than others.

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.....[3]

(d) The results of the students' survey for Question 2 on their questionnaire (*How did you travel to the shops today?*) are shown in Table 4 below.

For Examiner's Use

Table 4

Results of Question 2 in Questionnaire

	Car	Cycle	Walk	Bus
CBD	18	1	1	10
Secondary Centre	12	3	5	10
Neighbourhood Centre	4	4	21	1
Total	34	8	27	21

(i) Use information from Table 4 to complete the pie graph for the Secondary Centre in Fig. 15 on page 27 (opposite). Use the key provided. [2]

(ii) To what extent do the results of the students' survey support **Hypothesis 2:** *The most common way to travel to shopping centres is by car*? Support your conclusion with evidence from Table 4 and Fig. 15.

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.....[3]

(iii) Suggest **three** factors which may affect people's method of travel to shopping centres.

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2 .....

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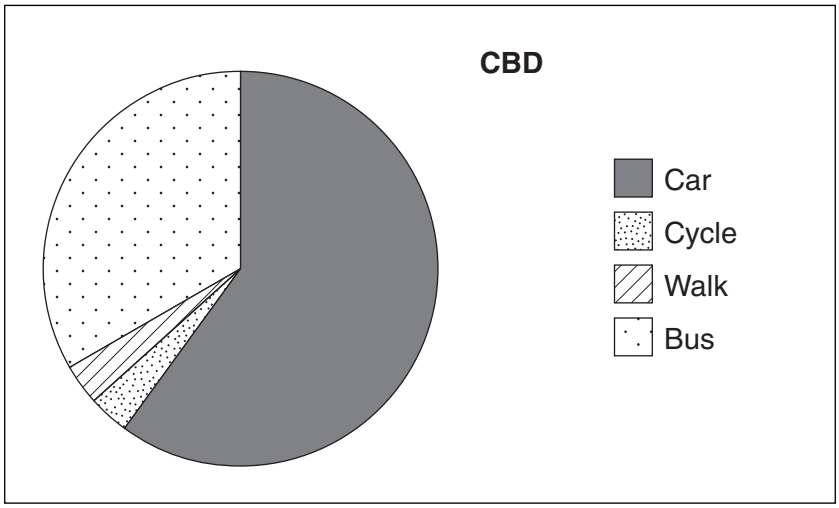
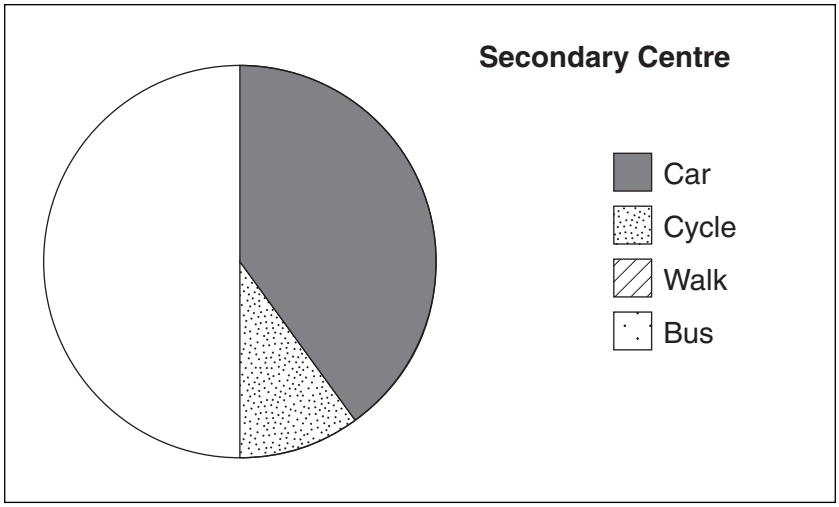
3 .....

.....[3]

Pie graphs





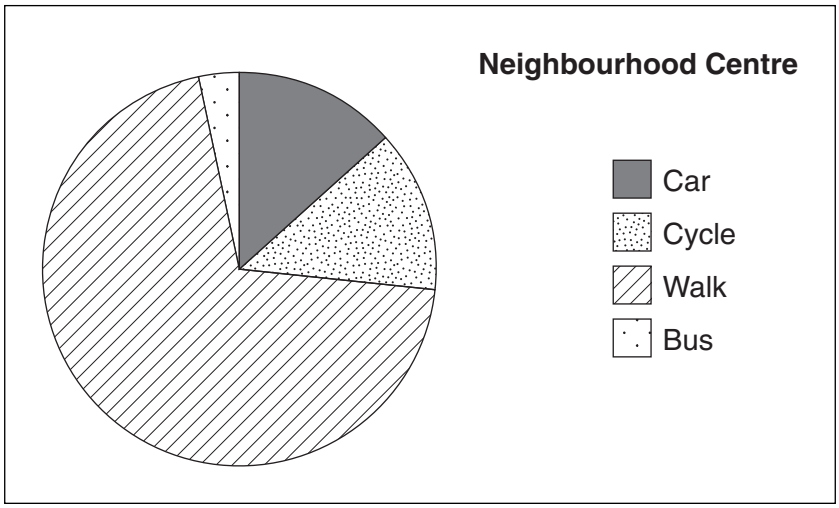


Fig. 15

[Turn over

(e) To extend their investigation the students wanted to find out about the sphere of influence of different shops. The sphere of influence is the area around a shopping centre where people who use the shops live. Explain how the students might do this.

For Examiner's Use

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[Total: 30 marks]