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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

6894851605

GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **October/November 2012**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler

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.

Answer **all** questions.

The Insert contains Figs 1 and 2 and Tables 1 and 2 for Question 1 and Fig. 5 for Question 2.
The Insert is **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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Q1	
Q2	
Total	

This document consists of **11** printed pages, **1** blank page and **1** Insert.

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1 Geography students in two schools in Manama, Bahrain and Jakarta, Indonesia planned a joint fieldwork investigation using email and a video-link between the two schools. They wanted to test if atmospheric pressure varied during the year and if it affected wind speed. The climate in Manama is tropical desert and in Jakarta is tropical rainforest.

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They agreed the following hypotheses:

Hypothesis 1: *As atmospheric pressure increases wind speed decreases.*

Hypothesis 2: *Atmospheric pressure is different in January and July in both Manama and Jakarta.*

(a) Complete the table below to show the characteristics of high and low pressure conditions.
Circle your chosen answers. [3]

	High pressure	**Low pressure**
Air is	rising / sinking	rising / sinking
Weather conditions change	rapidly / slowly	rapidly / slowly
Expected weather is	wet / dry	wet / dry

(b) The students in each school used a barometer, shown in Fig. 1 (Insert), to record the atmospheric pressure at 12.00 hours (midday) for a period of 10 days.

(i) Describe how a barometer is used to measure atmospheric pressure.

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.....[2]

(ii) The students checked that their barometer was giving a correct reading before they began their fieldwork. The pressure reading of their test is shown in Fig. 1 (Insert).

What is the atmospheric pressure reading shown in Fig. 1?

..... mb [1]

(iii) What does 'mb' stand for?

.....[1]

(iv) Why was it important that the students took the pressure reading at 1200 hours (midday) each day?

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.....[1]

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(v) To measure wind speed the students in Jakarta used an anemometer, shown in Fig. 2 (Insert). Explain how an anemometer is used to measure wind speed.

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.....[2]

(c) The results of the measurements made in the two schools are shown in Table 1 (Insert).

(i) Use the results in Table 1 to plot the atmospheric pressure and wind speed recorded on 13th and 19th January in Manama on the scatter graph, Fig. 3 below. [2]

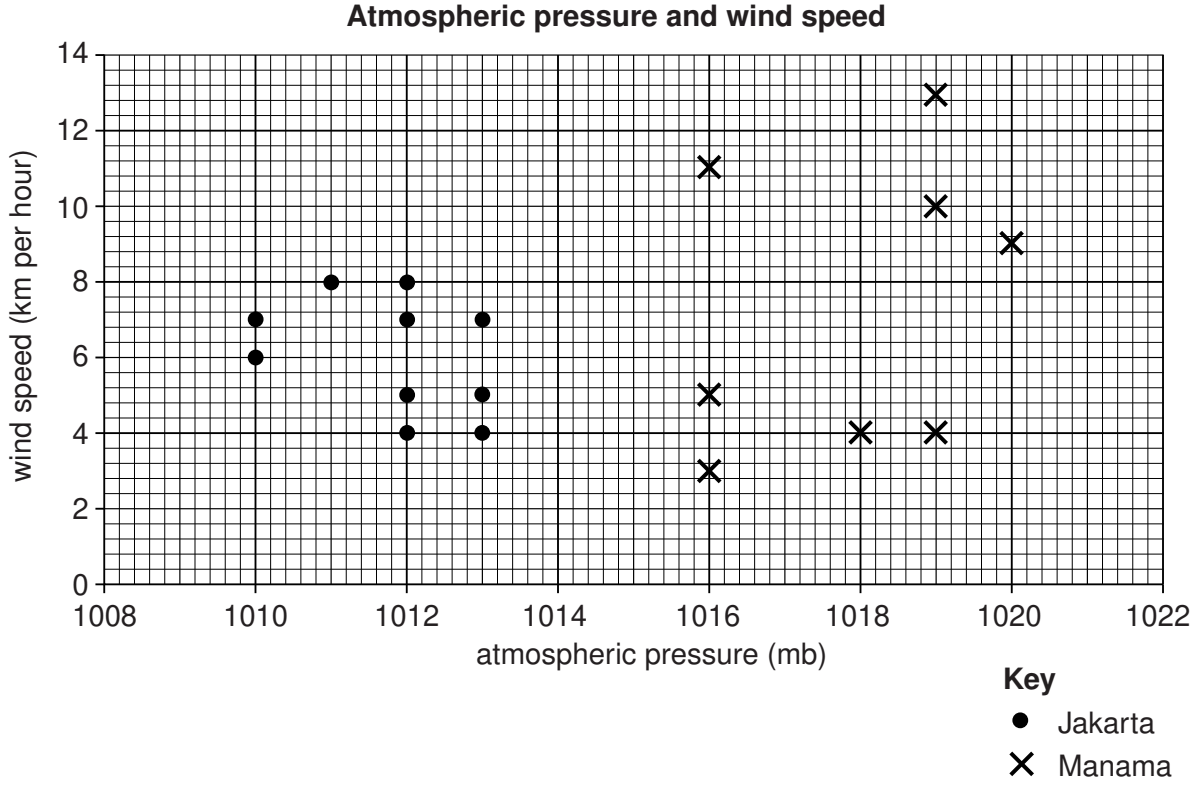

Fig. 3

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(ii) What conclusion would the students make about **Hypothesis 1:** *As atmospheric pressure increases wind speed decreases*? Support your answer with evidence from Fig. 3.

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.....[4]

(d) To investigate **Hypothesis 2:** *Atmospheric pressure is different in January and July in both Manama and Jakarta,* the students at both schools obtained atmospheric pressure data for the previous July from their local meteorological office. The secondary data for July and the primary data for January are shown in Table 2 (Insert).

(i) Students often get both primary and secondary data to investigate a hypothesis. Complete the table below, which shows both types of data, by putting the following methods under the correct heading.

Researching on the internet
Using a rain gauge
Measuring the speed of river flow
Reading a newspaper report [2]

Primary data	Secondary data
Using a questionnaire	Using an atlas map

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(ii) Use information from Table 2 (Insert) to plot the atmospheric pressure recorded in Manama on July 18th and January 18th in Fig. 4 below. [2]

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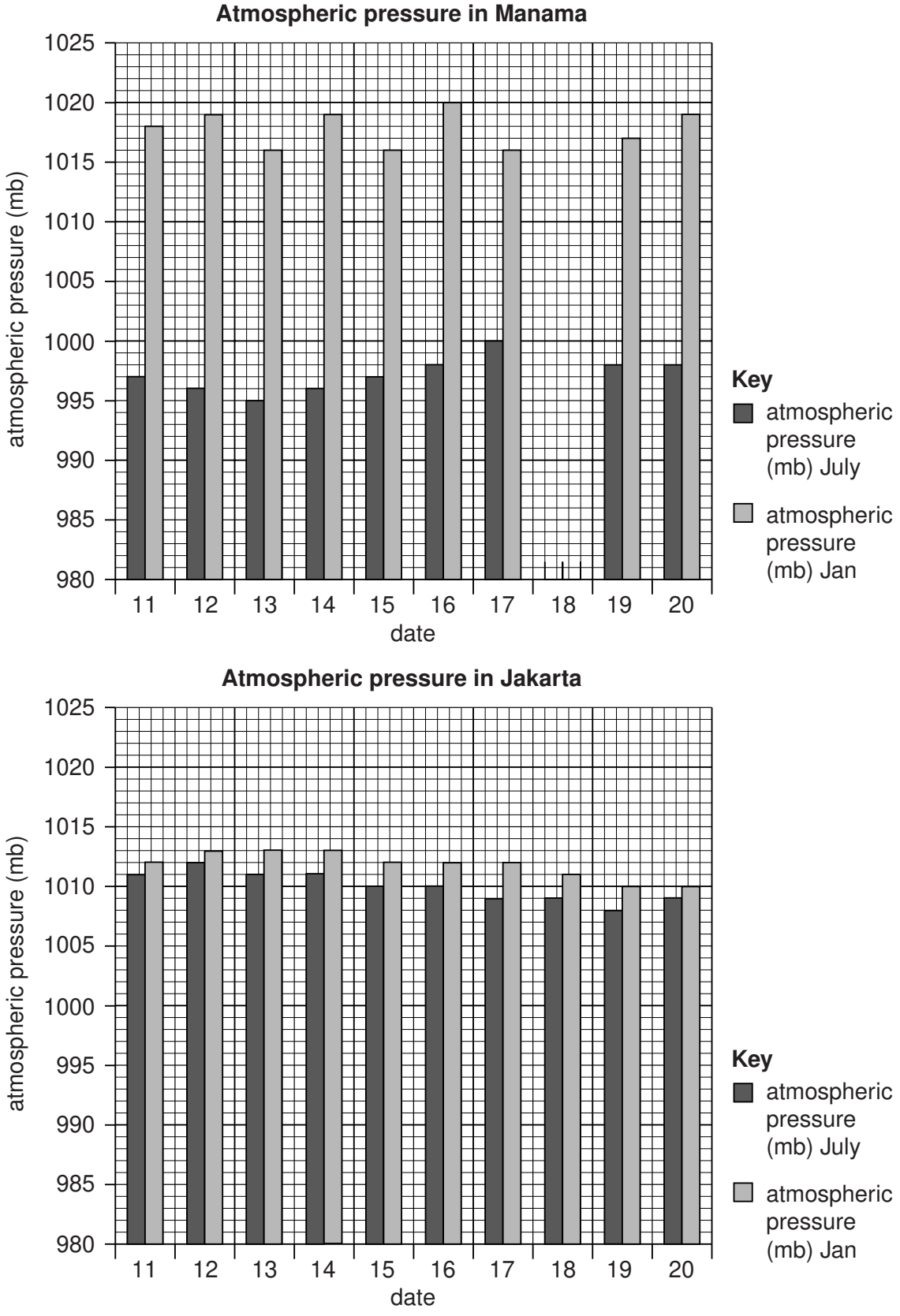

Fig. 4

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(iii) Do the results shown in Fig. 4 support **Hypothesis 2:** *Atmospheric pressure is different in January and July in both Manama and Jakarta*? Use data to support your conclusion.

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.....[4]

(e) Suggest **two** weaknesses of the fieldwork investigation carried out by the students.

1 .....

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2 .....

.....[2]

(f) The students in one school decided to extend their fieldwork with an investigation into **temperature**. How could they do this?

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.....[4]

[Total: 30 marks]

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2 Students from a town in southern Malawi wanted to do an investigation of the Central Business District (CBD) of their town. The town had a commercial centre which was unlike the CBD of a city in an MEDC. There were no high-rise buildings and few large shops. Most shops sold low order goods which people bought frequently.

The students decided on the following hypotheses:

Hypothesis 1: *The commercial centre of the town is near to the market.*

Hypothesis 2: *Pedestrian flows are highest in the commercial centre but vehicle flows are lowest there.*

(a) To investigate **Hypothesis 1** the students produced a land use map of the central area of the town. This is shown in Fig. 5 (Insert).

(i) Use the key to identify the land use of buildings 1 and 2 on Fig. 5.

Building 1 .....

Building 2 .....[2]

(ii) The students classified the shops and services into groups, as shown in the key.

Suggest **two** reasons why they did this.

1 .....

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2 .....

.....[2]

(iii) Describe the location of the wholesale shops and general stores shown in Fig. 5.

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.....[1]

(iv) Describe the location of the supermarkets.

.....

.....[1]

(v) Suggest **two** reasons why the wholesale shops and general stores are in different locations from the supermarkets.

1 .....

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2 .....

.....[2]

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(vi) Does the students' land use map, Fig. 5 support **Hypothesis 1:** *The commercial centre of the town is near to the market?* Use evidence from Fig. 5 to justify your conclusion.

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.....[3]

(b) To investigate **Hypothesis 2:** *Pedestrian flows are highest in the commercial centre but vehicle flows are lowest there,* the students worked in pairs to do a pedestrian and vehicle survey at different locations in the town centre.

(i) They decided to do the survey between 09.30 and 09.40 on two working days. Give **three** advantages of their decision.

1 .....

.....

2 .....

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3 .....

.....[3]

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(ii) Study Fig. 6, which shows an example of a survey sheet which students used near the clinic. They counted 18 bicycles and mopeds during their survey. Use this information to complete Fig. 6, below. [2]

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Survey sheet

Location: Clinic Time: 09.30 – 09.40	Day: Wednesday	
Pedestrians	Vehicles – Bicycles and mopeds	Vehicles – Cars, vans and lorries
𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸		𝍸 𝍸 //
90		12

Fig. 6

(c) The results of the survey carried out in the different locations are shown in Fig. 7 below and Fig. 8 opposite.

Number of pedestrians recorded in 10 minutes

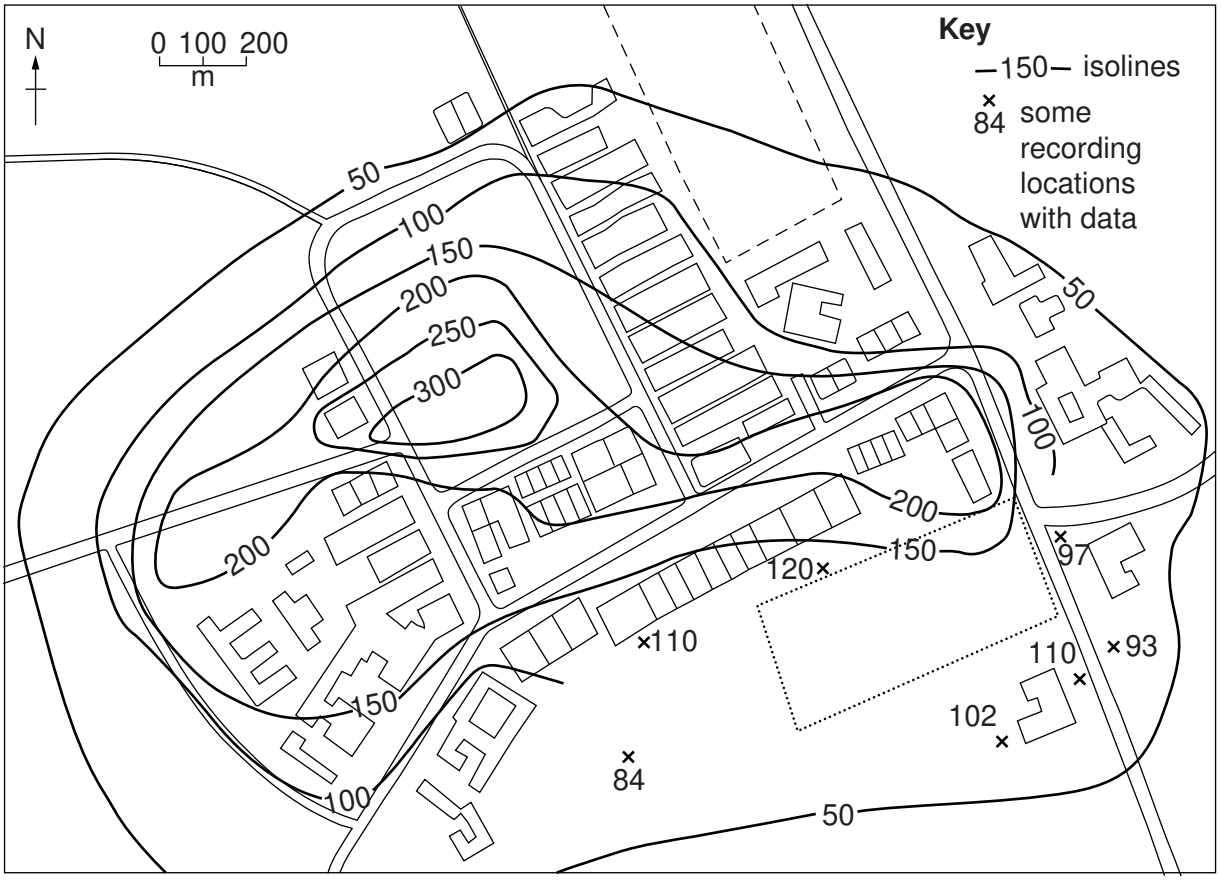

Fig. 7

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Number of vehicles recorded in 10 minutes
(vehicles include bicycles, mopeds, cars, vans, lorries)

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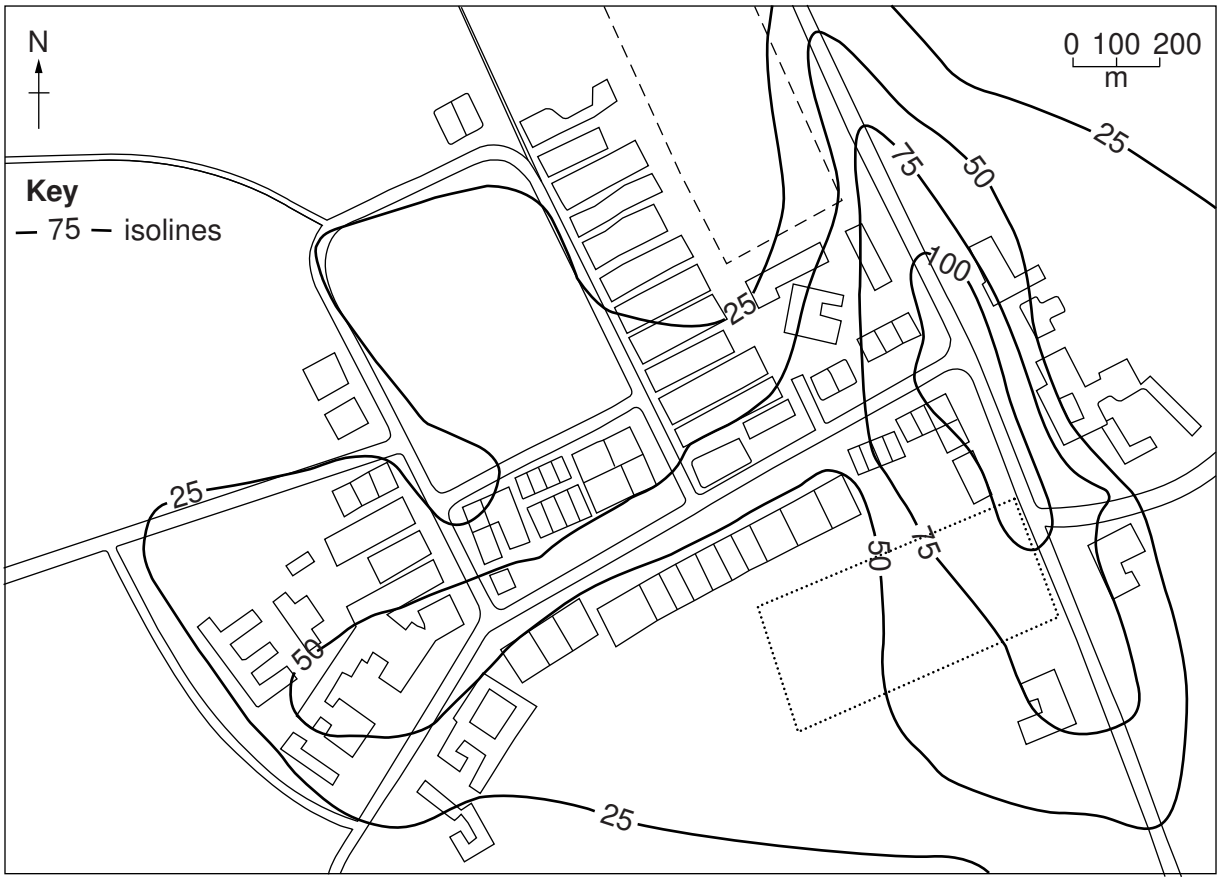

Fig. 8

(i) On Fig. 7, complete the isoline which shows 100 pedestrians. [2]

(ii) On Fig. 8, shade in the area where more than 100 vehicles were recorded. [1]

(iii) Some students drew separate maps to show the results of bicycles and mopeds on one map and other vehicles (cars, vans and lorries) on a different map. Why might this be more useful?

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.....

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.....[2]

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(iv) What conclusion would the students make about **Hypothesis 2:** *Pedestrian flows are highest in the commercial centre but vehicle flows are lowest there*? Support your answer with evidence from Figs 7 and 8.

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.....[3]

(v) Suggest **three** reasons for the different patterns of pedestrian and vehicle flows shown in Figs 7 and 8.

1 .....

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2 .....

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3 .....

.....[3]

(d) How might the fieldwork investigation have been improved?

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.....[3]

[Total: 30 marks]

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