www.XtremePapers.com

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

4736198982

GEOGRAPHY **2217/22**

Paper 2 **October/November 2013**

2 hours 15 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Ruler
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.

The Insert contains Photographs A and B for Question 3, Fig. 8, Table 3 and Photograph C for Question 7, and Figs 12, 13 and Table 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.

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 **1** Insert.

© UCLES 2013

Section A

For Examiner's Use

Answer **all** questions in this section.

1 Study the 1:25 000 Map of Port-of-Spain, Trinidad.

(a) Complete Table 1 to show the location of places in relation to Cumberland Hill (596827).

Table 1

Location	Six-Figure Grid Reference	Direction from Cumberland Hill	Distance from Cumberland Hill (m)
Fire Station	580816		1950
	631811	SE	3900
Junction of 1st class roads in Maraval		NE	

[4]

(b) Compare the pattern of the road network in Belmont (6379) with that of St Ann's (6280). Suggest a reason for the difference.

.....

.....

.....

.....[2]

(c) **(i)** Which grid square contains most of Port of Spain's CBD?

.....[1]

(ii) Describe the different building patterns in grid square 6179.

.....

.....

.....

.....

.....

.....

.....

.....[4]

© UCLES 2013

(d) Study the area of the map shown on Fig. 1. Locate **three** opportunities for leisure activities which are shown on the map. Mark and label their positions on Fig. 1.

For Examiner's Use

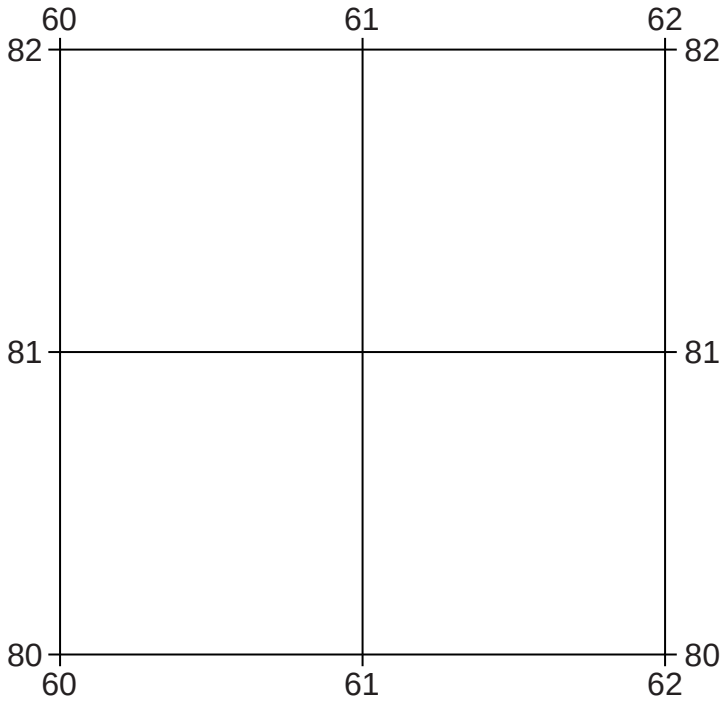


Fig. 1

[3]

(e) Table 2 compares the features in grid squares 5880 and 6078, two sections of the coast. Complete the table by putting ticks in the correct **six** boxes. Use only **one** tick for each row.

Table 2

	Grid Square 5880	Grid Square 6078	Both of these areas	Neither of these areas
Example: wharf		✓		
cliff				
hotel				
jetty				
lighthouse				
mangrove				
sand and mud				

[6]

[Total: 20 marks]

2 Study Figs 2A and 2B, which show data for the six countries across the world with the largest land areas.

For Examiner's Use

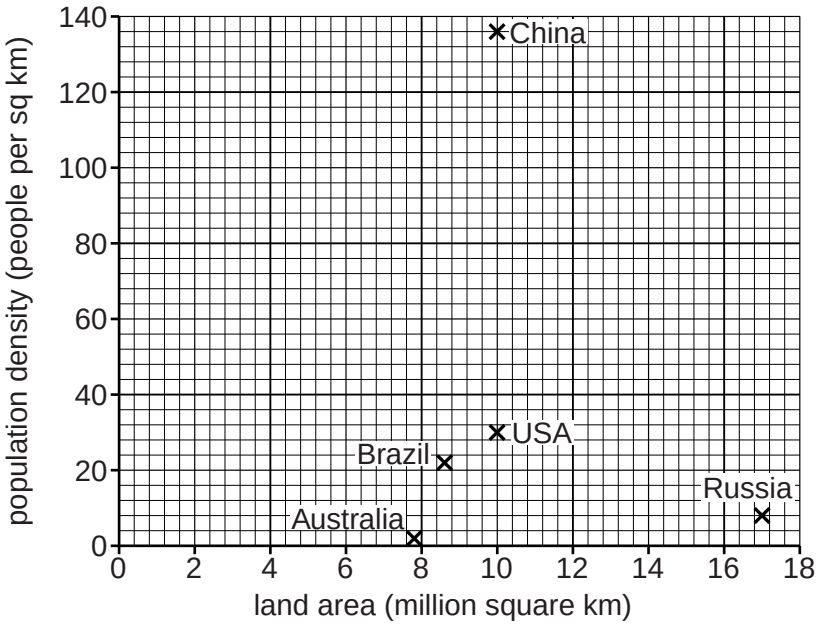


Fig. 2A

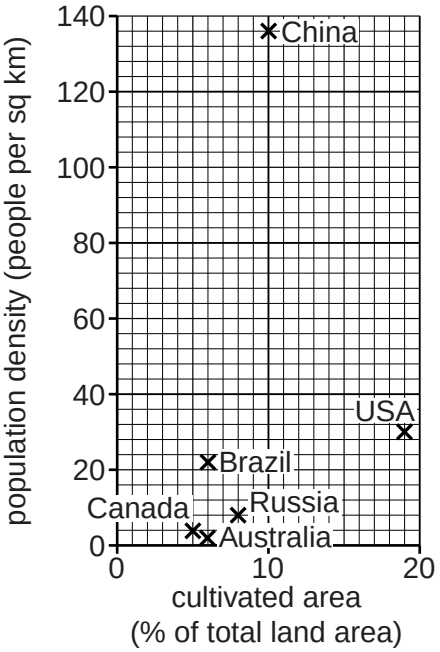


Fig. 2B

(a) (i) Which country has the largest land area?

.....[1]

(ii) Which is the most densely populated country?

.....[1]

For Examiner's Use

(iii) Which country has the highest percentage of cultivated land?

.....[1]

(iv) Which **two** countries have the same percentage of cultivated land?

1 ..... 2 .....[1]

(b) (i) Complete Fig. 2A to show that Canada has 10 million square kilometres of land and an average population density of 3.4 people per square kilometre. [1]

(ii) Calculate Canada's total population.

.....[1]

(c) (i) Name the type of graph used in Figs 2A and 2B.

.....[1]

(ii) What is the relationship between land area and population density suggested in Fig. 2A? Circle the correct answer below.

positive relationship negative relationship no relationship

[1]

[Total: 8 marks]

3 Study Photograph A (Insert) of Lahore, Pakistan and Photograph B (Insert) of Atari, India.

For Examiner's Use

(a) Describe **four** similarities in the buildings shown in Photographs A and B.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[4]

(b) Describe **four** differences in the roads shown in Photographs A and B.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[4]

[Total: 8 marks]

© UCLES 2013

BLANK PAGE

4 Study Fig. 3, which shows a coastal area.

For Examiner's Use

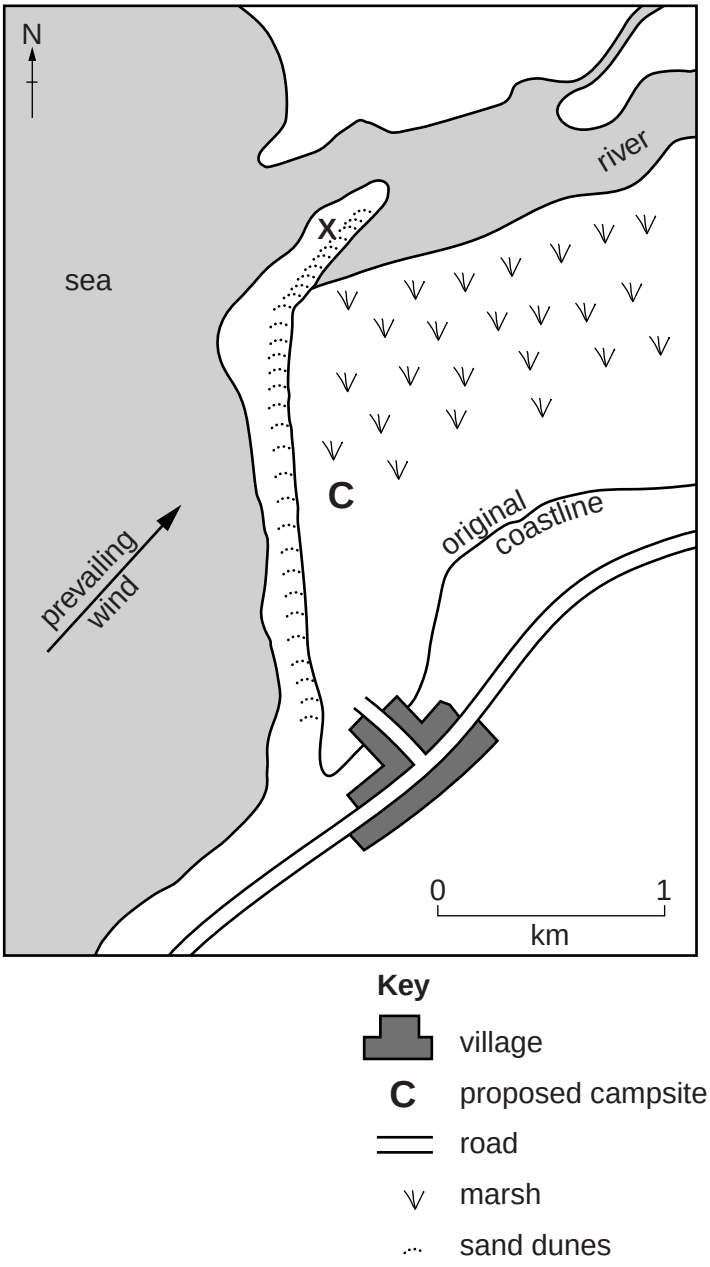


Fig. 3

(a) (i) Name feature **X**.

.....[1]

(ii) What is meant by *prevailing wind*?

.....[1]

(iii) Draw an arrow on Fig. 3 to show the direction of longshore drift. [1]

For Examiner's Use

(b) (i) There is a proposal for a campsite to be established at **C** on Fig. 3. Suggest **four** disadvantages of this location.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

.....[4]

(ii) Some of the villagers would be in favour of the campsite. Suggest a reason for this.

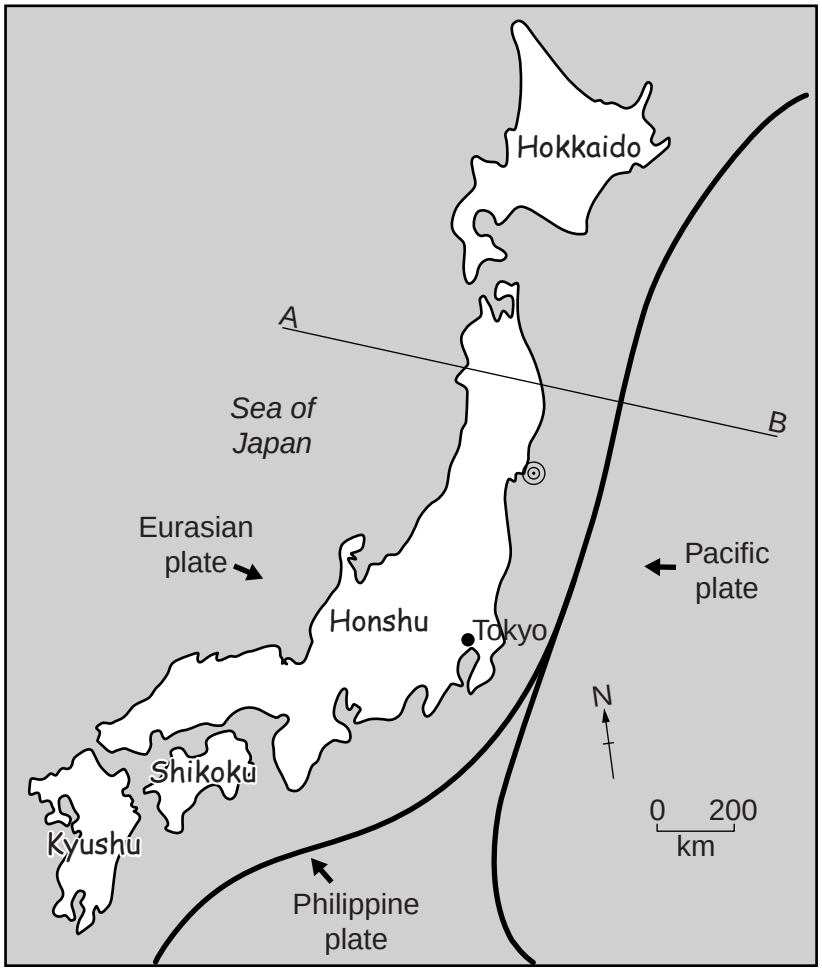
.....

.....[1]

[Total: 8 marks]

5 Study Fig. 4, which shows the islands of Japan and nearby plate boundaries.

For Examiner's Use



Key

◎ epicentre of 2011 earthquake

— plate boundary

● capital city

Kyushu name of island

Fig. 4

(a) (i) Name Japan's largest island.

.....[1]

(ii) State the direction of movement of the Philippine plate.

.....[1]

(b) How far from Tokyo was the epicentre of the 2011 earthquake?

.....[1]

(c) Study Fig. 5, which is a sketch of the cross-section along the line A – B.

For Examiner's Use

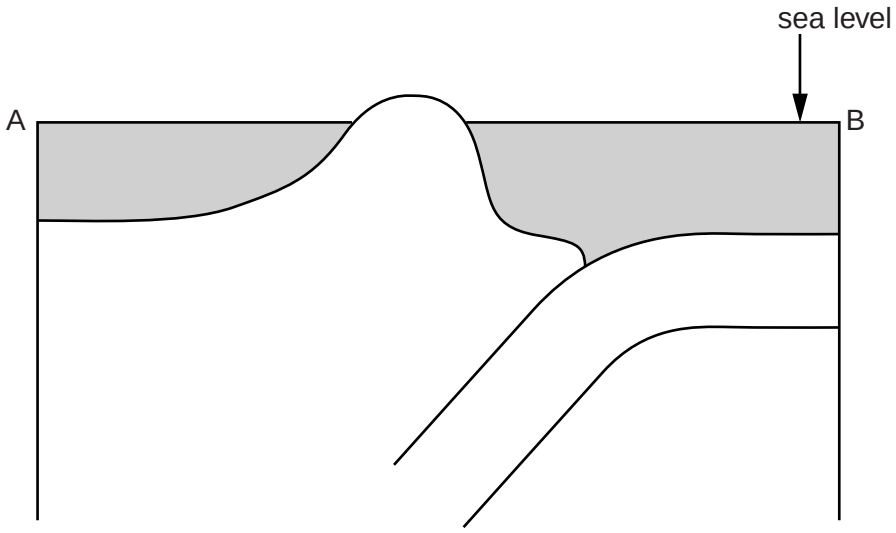


Fig. 5
(not to scale)

(i) On Fig. 5 label:

- Honshu Island;
- Sea of Japan;
- subduction zone;
- a possible earthquake focus [4]

(ii) What type of plate boundary is shown on Fig. 5? Circle the correct answer below.

constructive boundary destructive boundary conservative boundary

[1]

[Total: 8 marks]

6 Study Fig. 6, which shows changes in the global temperature from 1860 to 2000.

For Examiner's Use

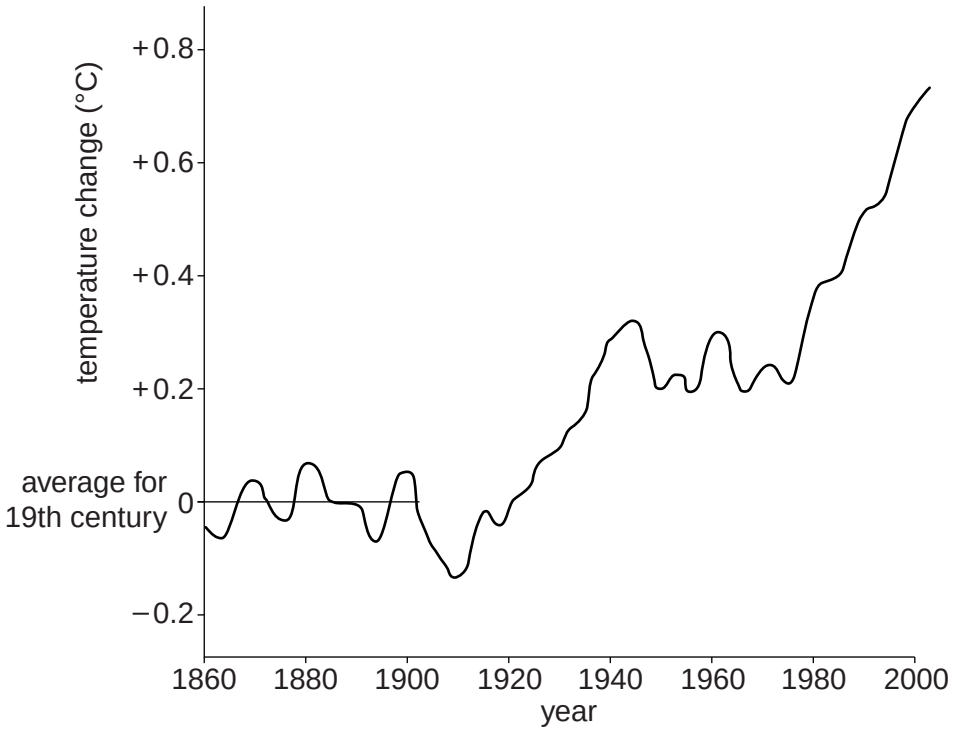


Fig. 6

(a) Complete the paragraph below by circling the correct answers. The first one has been done for you.

From 1860 to 1920, the global temperature was decreasing / (fluctuating) / increasing around the average for the 19th century. From 1920 to 1940, the global temperature was decreasing / fluctuating / increasing. From 1940 to 1980 the global temperature was fluctuating at 0°C / +0.25°C / +0.35°C. From 1980 to 2000 the global temperature was decreasing / fluctuating / increasing by +0.4°C / +0.6°C / +0.8°C. [4]

© UCLES 2013

(b) Study Fig. 7, which shows some possible consequences of global warming.

For Examiner's Use

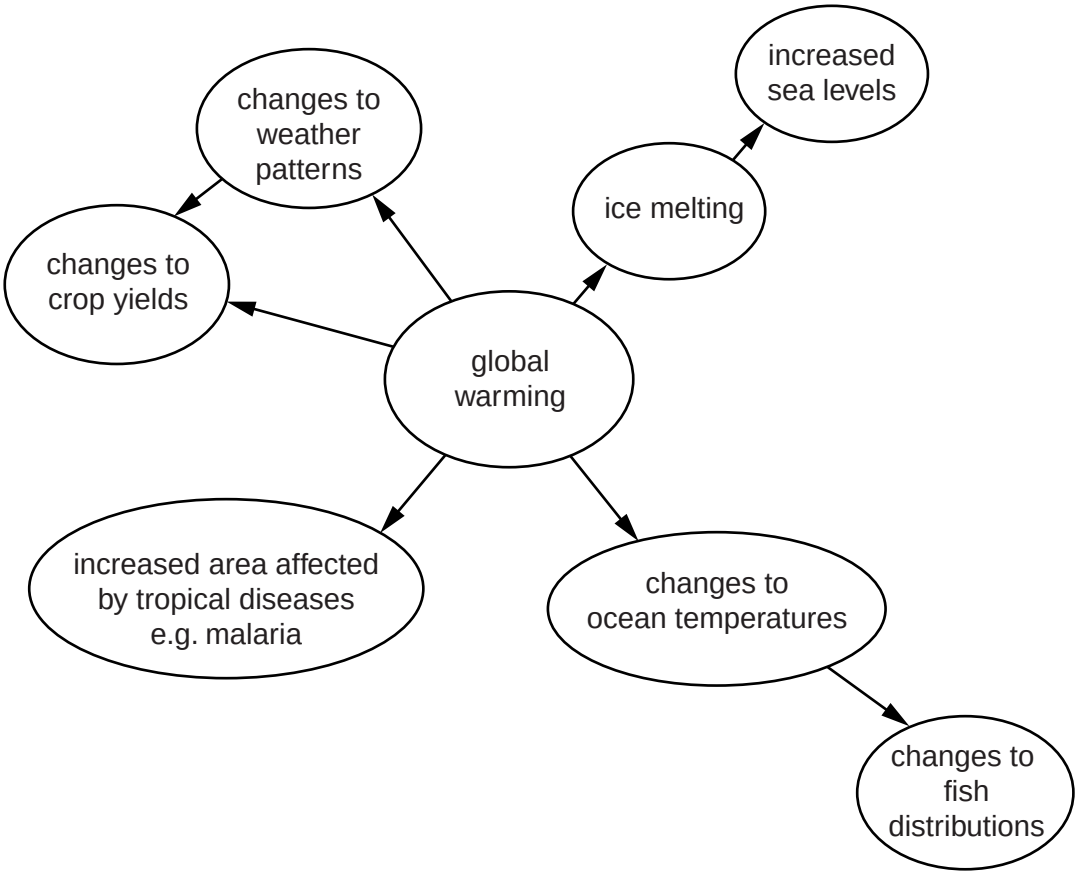


Fig. 7

(i) From Fig. 7 **only**, how might global warming affect the oceans?

.....

.....

.....

.....[2]

(ii) From Fig. 7 **only**, why might global warming **indirectly** affect crop yields?

.....

.....[1]

(iii) Suggest how global warming may cause tropical diseases to spread to a greater area.

.....

.....

.....[1]

[Total: 8 marks]

BLANK PAGE

© UCLES 2013

Section B

For Examiner's Use

Answer **one** question in this section.

7 Students from Santiago, Chile, were studying how the characteristics of a river change downstream. They wanted to investigate possible changes in velocity (speed of flow) downstream.

They decided to test the following hypotheses:

Hypothesis 1: *Velocity increases downstream.*

Hypothesis 2: *Velocity increases as the hydraulic radius of the river channel increases.*

Hydraulic radius is a measurement which indicates how much friction there is between the river channel and the flow of the river.

(a) (i) The students carried out their fieldwork at five sites along the river.
Suggest **three** factors the students should have considered in choosing their fieldwork sites.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(ii) Suggest why it was important that they made all of their measurements on one day.

.....

..... [1]

(iii) In preparation for their fieldwork the students visited a local stream to do a trial (pilot) study. Give **two** advantages of doing a trial (pilot) study.

1 .....

.....

2 .....

..... [2]

© UCLES 2013

[Turn over

(b) (i) Fig. 8 (Insert) is a student sketch which shows their method of measuring velocity. Describe the method shown.

For Examiner's Use

.....

.....

.....

.....

.....

..... [3]

(ii) Another way to measure velocity is by using a flowmeter. Describe how this is done.

.....

.....

.....

.....

.....

..... [3]

© UCLES 2013

(iii) The results which the students obtained at the five sampling sites are shown in Table 3 (Insert). Use these results to complete Fig. 9, below, to show how average velocity changes downstream. [2]

For Examiner's Use

Changes in average velocity downstream

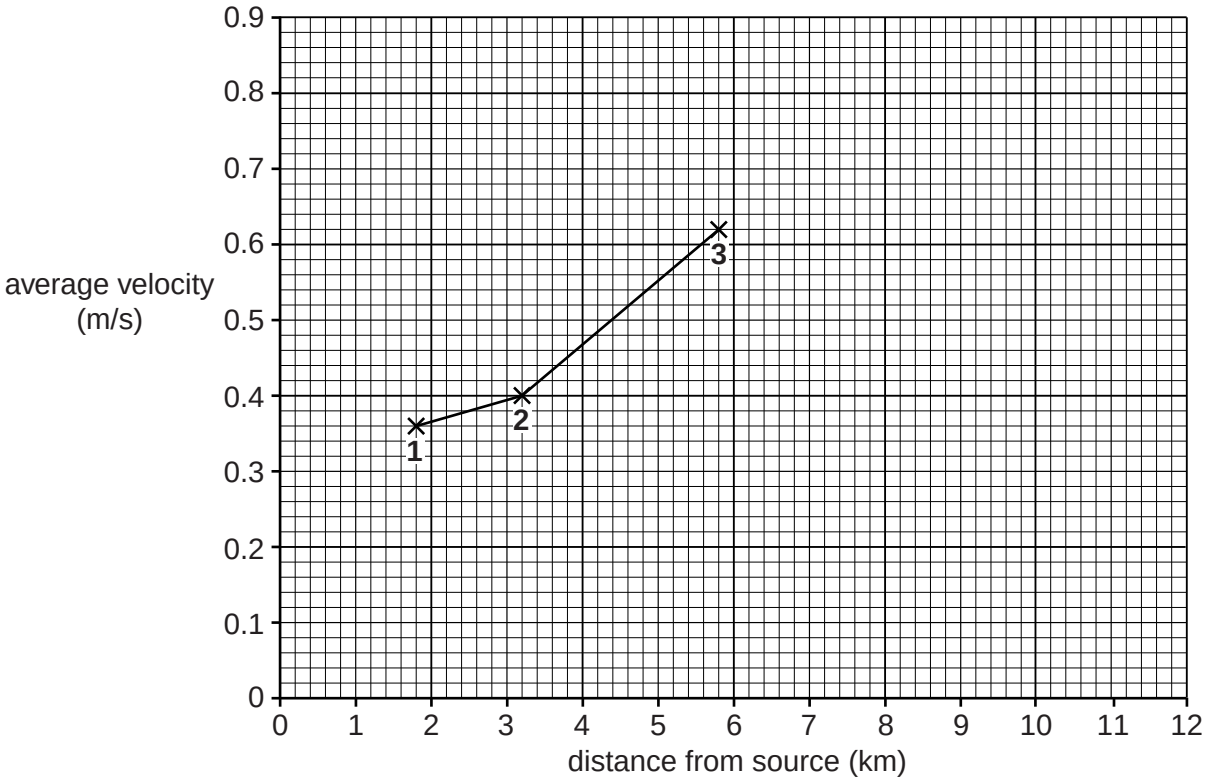


Fig. 9

(iv) What conclusion could the students make about **Hypothesis 1:** *Velocity increases downstream*? Support the conclusion with evidence from Fig. 9 and Table 3.

.....

.....

.....

..... [2]

For Examiner's Use

(c) Hydraulic radius is a measurement which indicates how much friction there is between the river channel and the flow of the river. Hydraulic radius is calculated by the following formula:

$$\frac{\text{cross-sectional area}}{\text{wetted perimeter}}$$

(i) In order to calculate the cross-sectional area the students measured the width of the river channel and the depth of the river at points across the channel. What equipment would the students use and how would they make their measurements?

.....

.....

.....

.....

.....

.....

.....

..... [4]

(ii) The results of sample measurements made at site 3 are shown in Table 4, below.

Table 4

Sample measurements made at site 3

Distance across channel (m)	0.5	1.0	1.5	2.0	2.5	3.0	3.5
Depth of river (m)	0.15	0.21	0.29	0.26	0.24	0.20	0.19

Calculate the average depth of the sample measurements at this site.

Average depth = ...m [1]

(iii) The students measured the width of the river at site 4 as 8.2 m.
They calculated that the average depth at site 4 was 0.31 m.
Using this data calculate the cross-sectional area at site 4 below.

Cross-sectional area = width of river (m) × average depth of river (m)

Answer .....sq. m. [1]

For Examiner's Use

(iv) Next the students measured the wetted perimeter. The wetted perimeter is the part of the channel cross-section which the river touches. Photograph C (Insert) shows a way to measure the wetted perimeter.
This method is described in Fig. 10, below, which is part of a student's fieldwork notebook.

Fieldwork notebook

Measuring the wetted perimeter

The tape was placed across the bed of the river, starting and finishing at water level on both banks.

To make the method more accurate a student walked along the tape across the river.

Fig. 10

Suggest **two** disadvantages of this method in a large river.

1 .....

.....

2 .....

..... [2]

For Examiner's Use

(d) The students then calculated the hydraulic radius of each site using the following formula:

$$\frac{\text{cross-sectional area}}{\text{wetted perimeter}}$$

The results of their calculations are shown in Table 3 (Insert).

(i) Complete the scatter graph, Fig. 11, below, by plotting the data for Site 5. [1]

Scatter graph of hydraulic radius and velocity

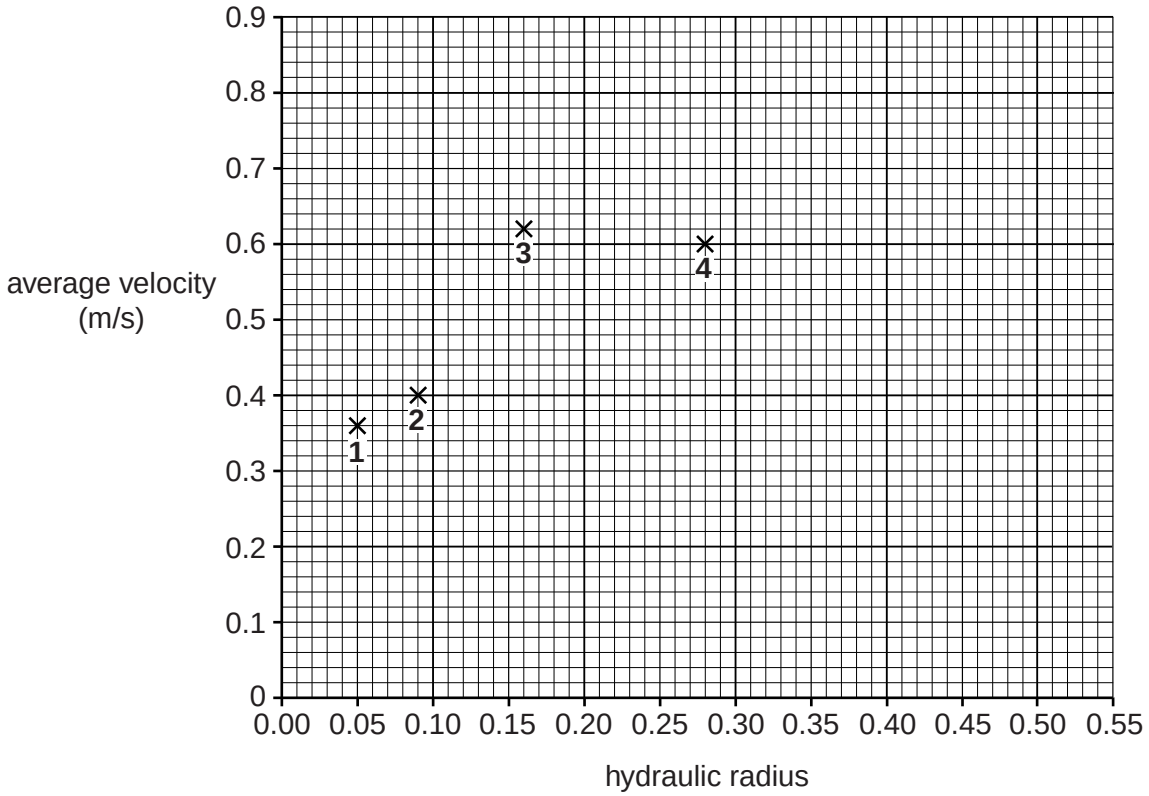


Fig. 11

(ii) The students reached the conclusion that **Hypothesis 2:** *Velocity increases as the hydraulic radius of the river channel increases* was correct. What evidence from Fig. 11 and Table 3 supports their conclusion?

.....

.....

.....

..... [2]

(e) Whilst doing the fieldwork one student noticed how the river valley was different at the five sites. How could the student record these differences during fieldwork?

For Examiner's Use

.....

.....

.....

.....

.....

..... [3]

[Total: 30 marks]

For Examiner's Use

8 Students from Auckland, New Zealand, were studying land-use in urban areas. One textbook model of land-use is shown in Fig. 12 (Insert). They decided to do some fieldwork to investigate land-use patterns in the city where they lived.

(a) Give **two** reasons why there are different types of land-use in different parts of a city.

1 .....

.....

2 .....

..... [2]

The students investigated the following hypotheses:

Hypothesis 1: *Different types of land-use are located in different areas of the city.*

Hypothesis 2: *There is a relationship between the main type of land-use and the height of buildings.*

(b) To collect fieldwork data the students decided to follow three transects from the Central Business District (CBD) to the edge of the city.

(i) Give **three** characteristics of the CBD of a city.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(ii) The students decided to do their data collection at 10 sites along each transect. These are shown on Fig. 13 (Insert).
Describe **one** way they could have chosen these sites.

.....

.....

.....

..... [2]

(c) At each sampling site the students recorded the ground-floor land-use of five buildings on each side of the road. Their results from one site are shown in Fig. 14 below.

For Examiner's Use

Ground-floor land-use

Transect A site 3	
Left side of road	Right side of road
House	House
Apartments	House
Newsagents	Apartments
Tourist information office	Apartments
Insurance office	Food shop

Fig. 14

(i) Use this information to complete the following building classification which the students used. [2]

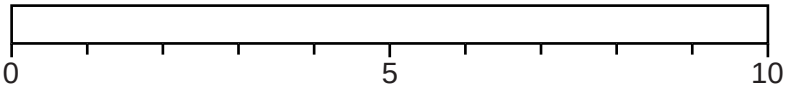
Use of building	Number of buildings at the site
Residential	
Offices	
Shops	
Industry	0

(ii) Use the data below for **site 4 on transect C** to complete the divided bar graph for the site. [2]

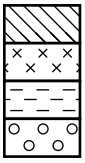
For Examiner's Use

Transect C site 4	
Use of building	Number of buildings at the site
Residential	2
Offices	0
Shops	1
Industry	7

Divided bar graph of ground floor land-use at site 4 on transect C



Key



residential
offices
shops
industry

(iii) The students decided to show only the main type of land-use at each survey site on their map of the city (Fig. 13 Insert). For site 4 on transect C, above, this was industry. Do you agree with their decision to show only the main type of land-use? Circle your choice below.

Agree Disagree

Explain why you agree or disagree.

.....

.....

.....

..... [2]

For Examiner's Use

(iv) Fig. 13 (Insert) shows the results of the students' fieldwork. The students decided that **Hypothesis 1:** *Different types of land-use are located in different areas of the city* was correct. Support this decision with evidence from Fig. 13.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(d) To investigate **Hypothesis 2:** *There is a relationship between the main type of land-use and the height of buildings*, the students counted the number of storeys of each building when they recorded its ground floor use.

(i) Suggest why this is an appropriate method of measuring the height of buildings.

.....

..... [1]

Then they calculated the average number of storeys at each site as shown in an example below.

Transect A Site 3			
Left side of road	Number of storeys	Right side of road	Number of storeys
House	3	House	2
Apartments	4	House	2
Newsagents	2	Apartments	6
Tourist information office	1	Apartments	6
Insurance office	1	Food shop	3

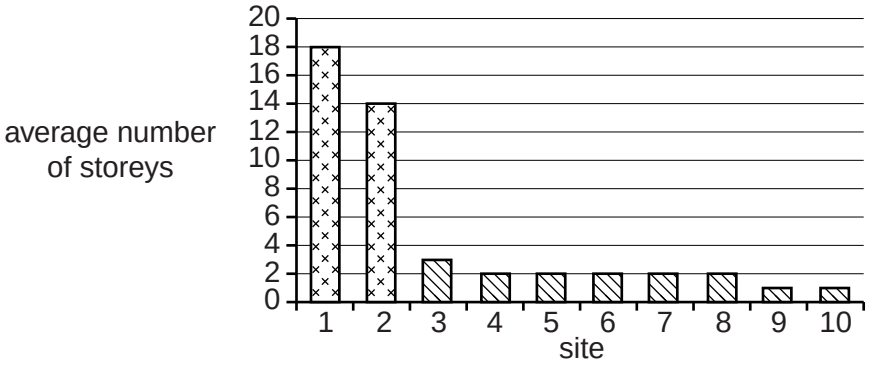
Average number of storeys per building = 30/10 = 3

(ii) The results from all the sites on the three transects are shown in Table 5 (Insert). Use the data in Table 5 to complete Fig. 15 on page 26 (overleaf). You should plot sites 3 and 4 on transect C. [2]

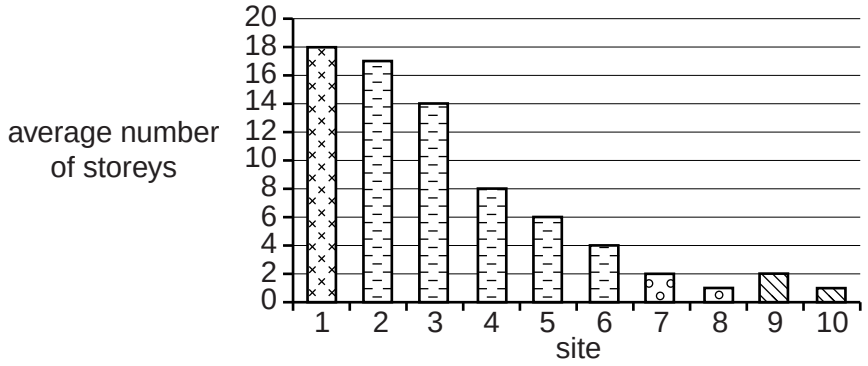
Average number of storeys and main type of land-use at each site

For Examiner's Use

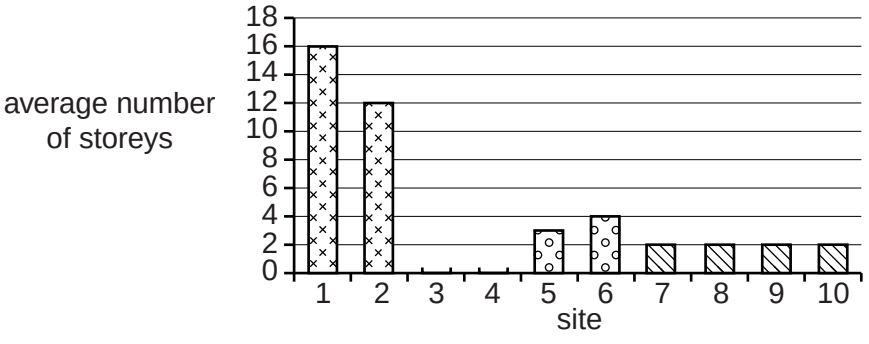
Transect A



Transect B



Transect C



Key

Fig. 15

© UCLES 2013

For Examiner's Use

(iii) What conclusion would the students make about **Hypothesis 2:** *There is a relationship between the main type of land-use and the height of buildings*? Support your answer with evidence from Table 5 and Fig. 15.

.....

.....

.....

.....

.....

..... [3]

(iv) Explain why there are buildings of different heights in a city.

.....

.....

.....

..... [2]

(v) A common weakness of studies of urban land-use is that data is only recorded for the ground floor level. Suggest why this is a weakness.

.....

..... [1]

(e) One student wanted to extend her study by comparing the quality of the environment in different parts of the city. Describe how she could do this.

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Total: 30 marks]

© UCLES 2013

BLANK PAGE

Copyright Acknowledgements:

Question 3 Photographs A & B	© David Bird © UCLES.
Question 6 Fig. 6	© www.helpsavetheclimate.com.
Map Extract	© Port of Spain, Trinidad, 1:25 000, E57.5-65 N78-84.

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.

© UCLES 2013