UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

GEOGRAPHY **2217/23**

Paper 2 **May/June 2012**

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 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.

Section A
Answer **all** questions
Section B
Answer **one** question.

The Insert contains Photograph A for Question 3, Fig. 10 for Question 7, and Figs 13 and 14 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 **27** printed pages, **1** blank page and **1** Insert.

UNIVERSITY *of* CAMBRIDGE
International Examinations

[Turn over

Section A

Answer **all** questions in this section.

1 Study the 1:50 000 map of Longlands, Zimbabwe.

(a) (i) Give the four figure grid reference of the square that contains the college buildings at Bovey Tracey.

....[1]

(ii) Give the six figure grid reference of the trigonometrical station in the Sable Range Extension, in the south-east of the map.

....[1]

(iii) How is water provided to the dip tank at 583003?

....[1]

(b) Study the area of the map indicated by Fig. 1.
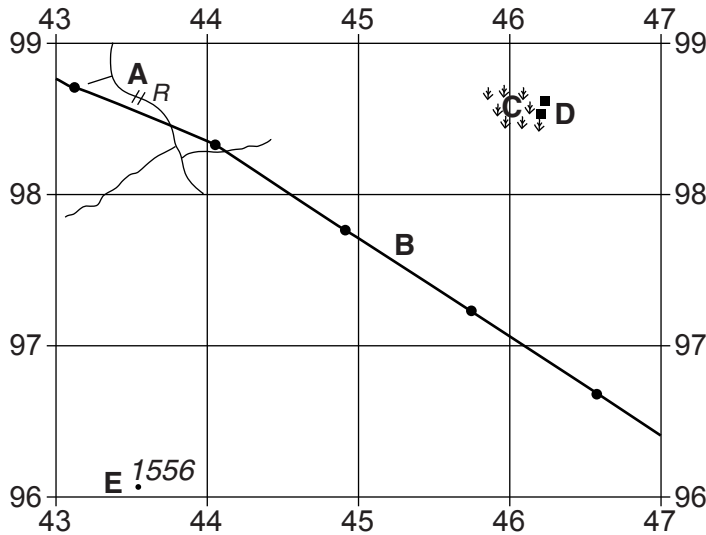
Fig. 1

(i) Name the following:

• feature **A**;

....[1]

• feature **B**;

....[1]

• land use at **C**;

....[1]

- feature **D**;

....[1]

- feature **E**.

....[1]

   (ii) On Fig. 1, draw the position of the dam wall of the Longlands Dam. [2]

  (iii) What is the height above sea level of the dam wall of the Longlands Dam?

....[1]

(c) The Nyakambiri River is found on the easter n edge of the map . State the direction of flow of the Nyakambiri River and give a reason for your answer.

Direction of flow ....

Reason ....

....

....[2]

(d) Describe a journey along the narrow tarred road from the junction at 467988 to the edge of the map at 498030. Use the headings below to help you.

Direction and distance ....

....

Physical features of the land next to the road..

....

....

....

Human features seen from the road ....

....

....[7]

[Total: 20 marks]

2 Study Fig. 2, which shows a subduction zone.

volcanoes
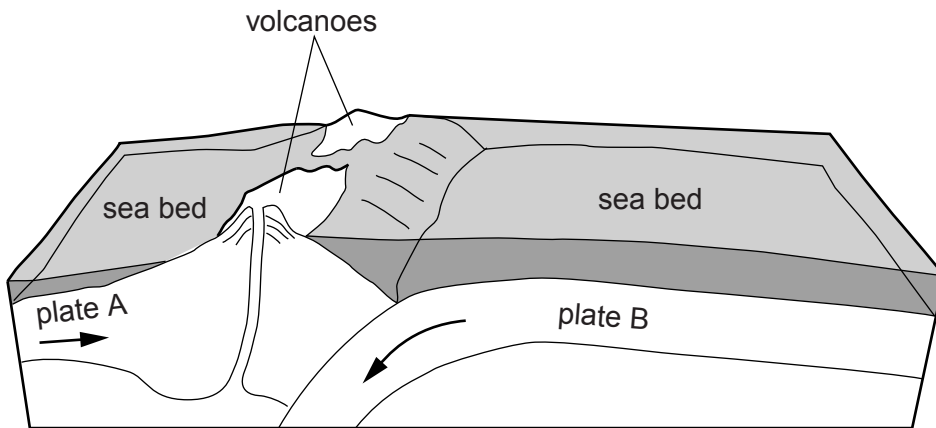
Fig. 2

(a) **(i)** Which plate is being subducted?

....[1]

(ii) Use labelled arrows, on Fig. 2, to indicate the position of:

- an ocean trench;
- an island arc;
- a possible earthquake focus. [3]

(b) Study Fig. 3, which shows the location of the world's main subduction zones.

Atlantic
Ocean

L
Pacific
Ocean

Indian
Ocean

N

Key
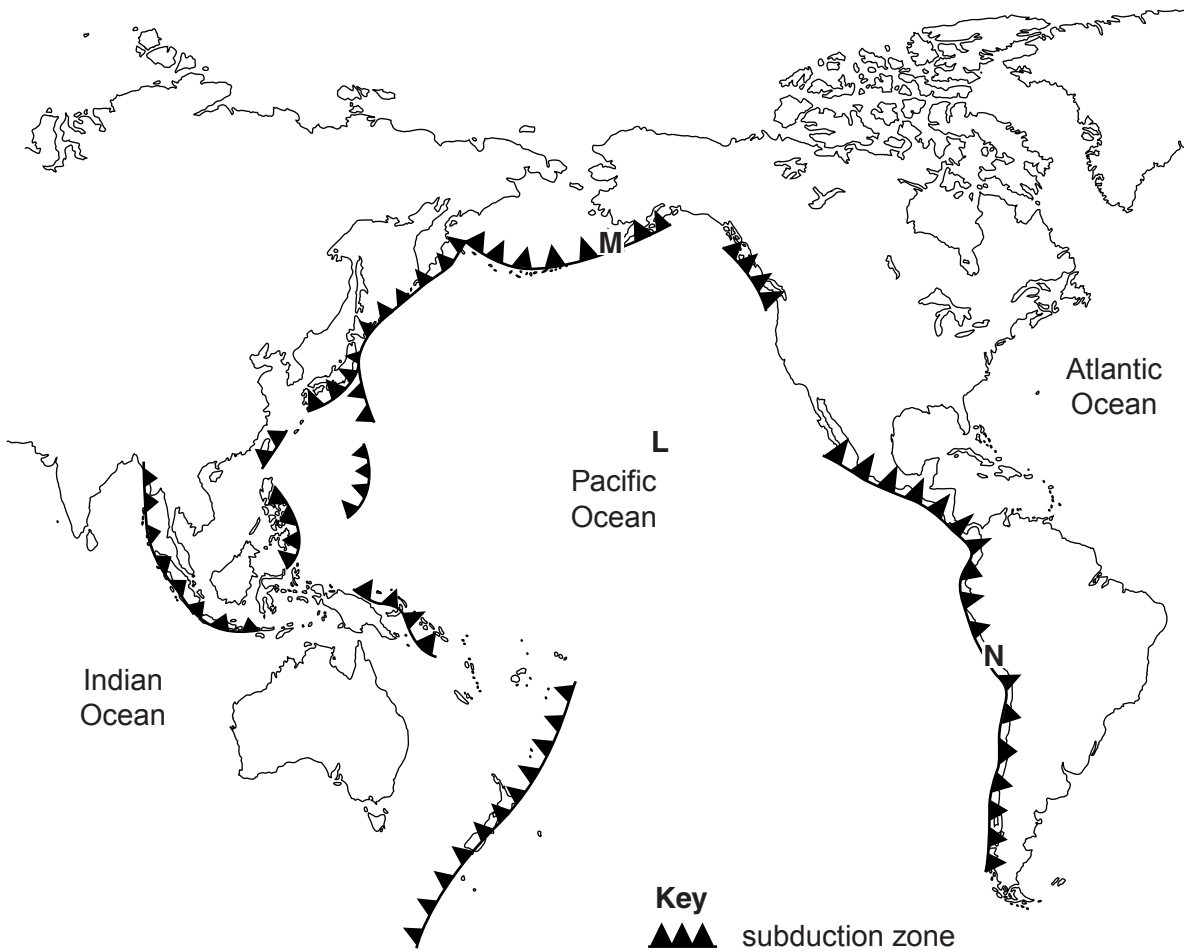
▲▲▲ subduction zone

Fig. 3

(i) At which of the three locations, **L**, **M** or **N**, could Fig. 2 be located?

....[1]

(ii) Describe the distribution of the subduction zones shown on Fig. 3.

....

....

....

....

....

....[3]

[Total: 8 marks]

3 Study Photograph A (Insert).

(a) What river feature is shown in Photograph A? Circle the correct answer. [1]

Delta   Meander   Waterfall   Wave-cut platform
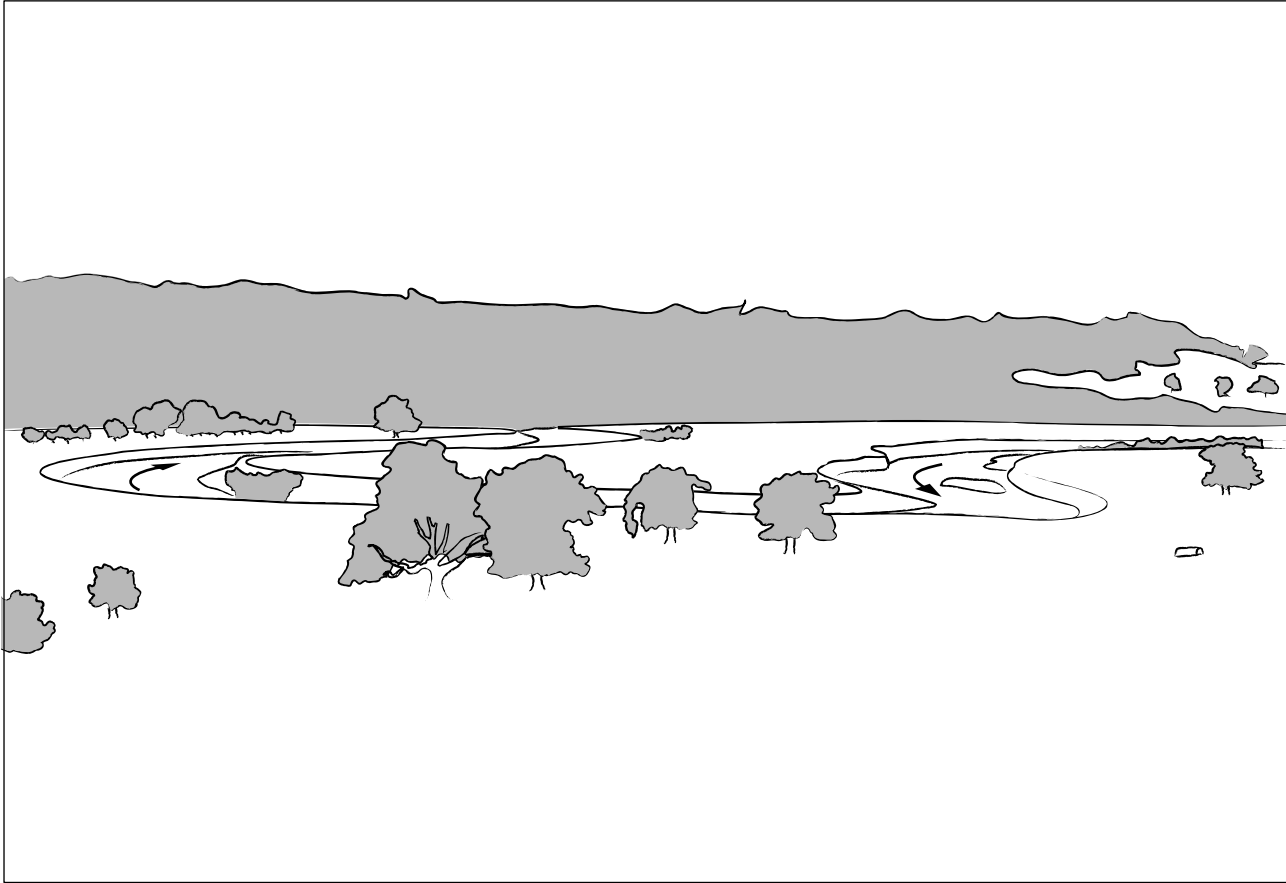

Fig. 4

(b) Fig. 4 is a sketch of the area shown by Photograph A. The direction of river flow is shown. Use labelled arrows on Fig. 4 to show:

- an island in the river;
- a slip off slope;
- the floodplain;
- a place where erosion is occurring. [4]

(c) How might river processes cause the path of the river to change in the future? You may add further annotations to Fig. 4 to help illustrate your answer.

....

....

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....[3]

[Total: 8 marks]

[Turn over

4 Study Fig. 5, which shows the 20 most popular destinations for migrants from Mexico.

Key

■ popular destination for
Mexican migrants

Fig. 5

(a) Describe the distribution of Mexican migrant destinations.

....

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....[4]

(b) Fig. 6 shows the percentage of Mexican migrants that move to areas **excluding** the USA.
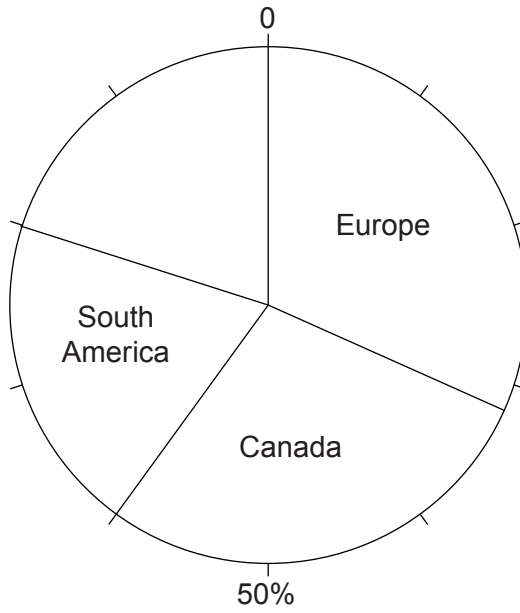
Fig. 6

(i) Use the data in Table 1 below to complete Fig. 6. [1]

Table 1

Central America	15%
Asia	5%

(ii) Of the locations shown in Fig. 6, which has the most Mexican migrants?

....[1]

(c) 99% of Mexican migrants go to the USA. Suggest **two** reasons for this.

....

....

....

....[2]

[Total: 8 marks]

5 Study Fig. 7, which shows a country's production and export of motor vehicles from 1997 to 2010.
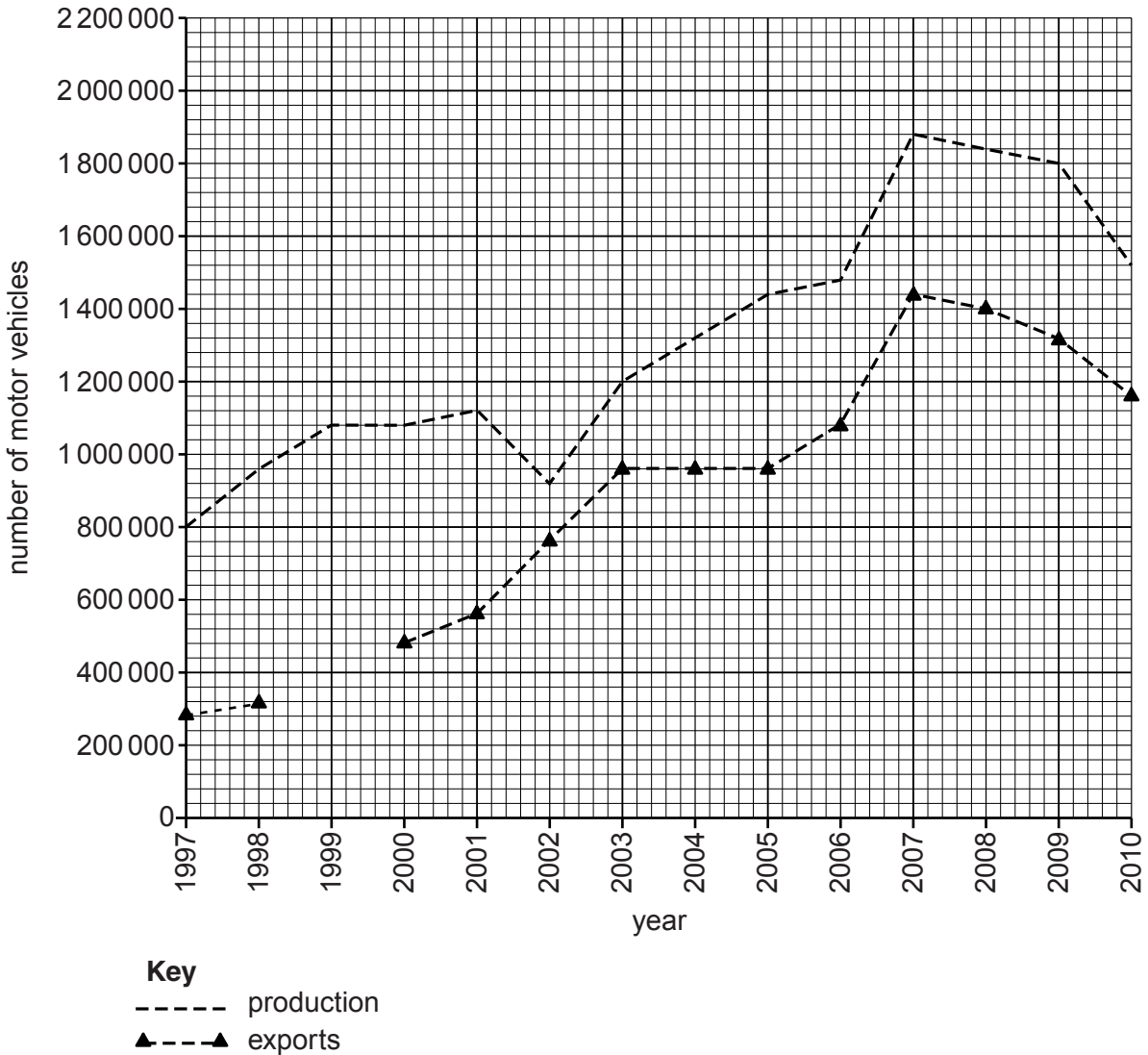
Fig. 7

**(a) (i)** Complete Fig. 7 to show 360 000 vehicles exported in 1999.

....[1]

(ii) How many vehicles were produced in 2006?

....[1]

(iii) For which years were 960 000 vehicles exported?

....[1]

(b) Describe the variation in vehicle production between 1997 and 2005.

....

....

....

....[2]

(c) (i) In which year was the highest proportion of production exported?

....[1]

(ii) For the country shown in Fig. 7, production always exceeds export. Suggest what happens to the remaining vehicles.

....

....[1]

(iii) Suggest why production and exports follow a similar pattern.

....

....[1]

[Total: 8 marks]

[Turn over

6   Study Fig. 8, which gives information about the 2010 oil spill in the Gulf of Mexico.

An explosion on the BP operated Deepwater Horizon oil rig killed eleven crew members on April 20, 2010, causing an environmental disaster. Estimates put the amount of oil that was being discharged from the broken well at above 5 million litres per day. There are over 400 different species of animals living in the area affected by the spill. Over 460 sea turtles and 60 dolphins have been found dead within the spill area. BP is operating oil skimmers and other clean-up tools to try to remove oil from the water and Louisiana is using oil containment booms to halt the spread of oil. Experts are uncertain what effect, if any, these efforts will have. On July 15, 2010 BP successfully stopped the flow of oil from the well itself. The build-up of pressure however has caused the seeping of oil through the bedrock, continuing the flow.

Fig. 8

(a) (i)   What caused the oil spill?

....[1]

(ii) Name **two** animal species affected by the spill.

....[1]

(iii) How did the oil continue to escape after the direct flow from the well had been stopped?

....[1]

(b) For how many days was oil leaking directly from the well? Circle the correct answer.

15   86   365   400

[1]

(c) How was oil being:

•   kept from sections of Louisiana coast;

....

•   removed from the water?

....[2]

(d) Suggest **two** other effects of the oil leak on the people in coastal communities.

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....[2]

[Total: 8 marks]

2217/23/M/J/12   **[Turn over**

Section B

Answer **one** question in this section.

7 Some students who lived near to the coast at latitude 55 °N were investigating coastal processes at three locations.

(a) Before going to the coast to begin their fieldwork on waves and beaches they discussed safety measures. Suggest **three** precautions the students needed to take to reduce the risk of accident.

1 ....

....

2 ....

....

3 ....

.... [3]

The students investigated the following hypotheses:

Hypothesis 1: *Where waves are more frequent the beach is steeper.*

Hypothesis 2: *Where waves are more frequent the beach material is larger.*

(b) First, the students measured wave frequency at the three locations. Their results are shown in Table 2 below.

Table 2

Wave frequency at the three locations

Location	Waves per minute
A	16
B	9
C	7

(i) How could wave frequency be measured?

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.... [3]

(ii) Complete Fig. 9 below, to show the recorded wave frequency at location B.

Wave frequency

Fig. 9 [1]

(iii) The waves at location A were 'destructive' waves. Give **two** features of destructive waves.

1 ....

....

2 ....

....[2]

(c) Next, the students measured the beach profile along transects at each of the locations A, B and C.

(i) They used a tape measure, two ranging poles and a clinometer, which are shown in Fig. 10 (Insert). Describe how they used each piece of equipment to make their measurements.

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....[5]

(ii) The results of the fieldwork are shown in Table 3 below.

Calculate the average angle of the beach profile at location B and put your answer into Table 3.   [1]

Table 3

Beach profiles

	Transect at location A	Transect at location B	Transect at location C
Distance from low water mark (m)	Angle of slope in degrees (°)	Angle of slope in degrees (°)	Angle of slope in degrees (°)
3	5	3	2
6	9	5	4
9	10	3	3
12	12	7	4
Average angle of slope in degrees (°)	9.0		3.25

(iii) What would be the students' conclusion about **Hypothesis 1:** *Where waves are more frequent the beach is steeper*? Use data from Tables 2 and 3 to support your decision.

....

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....[2]

(d) To investigate **Hypothesis 2:** *Where waves are more frequent the beach material is larger* the students sampled the beach mater ial at each location. They took samples every two metres along the three beach transects.

(i) A completed data recording sheet for one site along the transect at location C is shown in Fig. 11 below.

Data recording sheet

Transect: C	
Distance from low water mark: 6 m	
Beach material number	Size of beach material (mm)
Stone 1	8
Stone 2	19
Stone 3	9
Stone 4	29
Stone 5	23
Stone 6	18
Stone 7	12
Average size	16.9

Fig. 11

Describe how the student collected the data shown in Fig. 11.

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....[3]

       [Turn over

(ii)   The average size of all the beach material samples are shown in Table 4 below.

Table 4

Average results of beach samples

Distance from low water mark (m)	Transect at location A: average size of beach materials (mm)	Transect at location B: average size of beach materials (mm)	Transect at location C: average size of beach materials (mm)
2	74.2	8.4	3.6
4	81.7	10.3	4.0
6	98.6	36.1	16.9
8	89.6	60.6	52.3
10	94.1	76.0	61.2
12	96.0	136.0	105.7

On Fig. 12 below, plot the result for 10 metres from the low water mark at location B.   [1]

Average results of beach samples

Fig. 12

For
Examiner's
Use
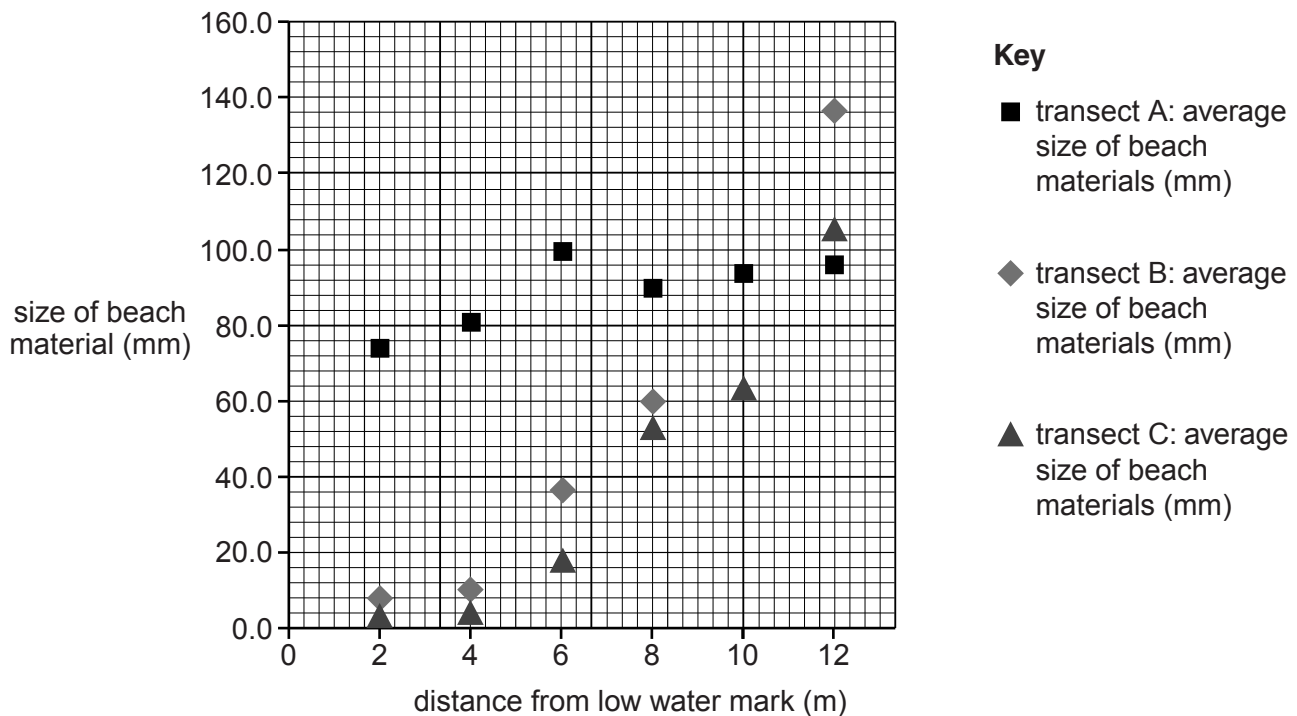
(iii) Do the results shown in Fig. 12 support **Hypothesis 2:** *Where waves are more frequent the beach material is larger*? Justify your answer with data from Tables 2 and 4 and Fig. 12.

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....[4]

(e) Later the students discussed their beach fieldwork and how they could have improved the accuracy and reliability of the measurements. What suggestions could they have made?

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....

....[3]

(f) The students thought that people may have affected the natural wave processes and beaches which they had investigated.

Describe **two** ways that people can affect wave movement and beaches.

1 ....

....

2 ....

....[2]

[Total: 30 marks]

8 Students were studying patterns of urban structure in MEDCs. They decided to do some fieldwork about different types of housing area in order to investigate a textbook model of land use. This model is shown in Fig. 13 (Insert).

(a) Give **two** reasons why there are different areas of land use in cities in MEDCs.

1 ....

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2 ....

....[2]

The students selected three different types of housing areas based on the land use model. These housing areas are labelled A, B and C in Fig. 14 (Insert).

The students investigated the following hypotheses:

Hypothesis 1: *The environment of housing areas improves as distance from the town centre increases.*

Hypothesis 2: *The nearer people live to the CBD the better their access to services.*

(b) In order to investigate **Hypothesis 1** the students did an environmental quality survey in one road in each housing area. Their recording sheet is shown in Fig. 15 below.

Environmental quality recording sheet

Location: Area A / B / C (circle the area)							
Feature	**Negative description**	**–2**	**–1**	**0**	**+1**	**+2**	**Positive description**
Housing layout and design	Poor, identical and low quality						Varied, well spaced out and high quality
Building care and condition	Poorly maintained and unattractive						Well maintained and attractive
Gardens	Very few private gardens and poorly maintained						Individual gardens and well maintained
Public open space	None, unattractive natural environment						Plenty, and attractive natural environment
Car parking	Mainly on roads						Mainly on private drives
Traffic noise and fumes	Noisy, high level of pollution						Quiet, low level of pollution
Litter	Much litter			No			litter
Vandalism and graffiti	Widespread damage and graffiti						No vandalism and graffiti

Fig. 15

(i) Describe how the students used the recording sheet.

....

....

....

....[2]

(ii) First, the students did a pilot (trial) survey in a road near their school. Suggest **two** advantages of doing a pilot survey.

1 ....

....

2 ....

....[2]

(c) The results of the environmental quality survey are shown in Table 5 below.

Table 5

Results of survey

Feature	Road in area A	Road in area B	Road in area C
Housing layout and design	–2	–1	+2
Building care and condition	–1	0	+2
Gardens	–2	+1	+2
Public open space	0	–1	0
Car parking	–2	+1	+2
Traffic noise and fumes	–2	+1	+2
Litter	+1	0	+1
Vandalism and graffiti	+1	–1	+2
Total score	**–7**	**0**	**+13**

(i) Use the results from the road in area B to complete the bi-polar graph (Fig. 16) below. [3]

Bi-polar graph

Fig. 16

(ii) The students decided that **Hypothesis 1:** *The environment of housing areas improves as distance from the town centre increases* was true. Use data from Table 5 and Fig. 16 to support their conclusion.

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....[4]

(iii) Suggest **two** weaknesses of the students' fieldwork which may put doubt on their conclusion that the hypothesis is true.

1 ....

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2 ....

....[2]

(d) To investigate **Hypothesis 2:** *The nearer people live to the CBD the better their access to services* the students asked 15 residents in each of the three areas how much time it took them to walk to a number of services.

(i) Suggest how the students could get a representative sample of people to take part in their survey.

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....

....[3]

An example of a partly completed survey sheet is shown in Fig. 17 below.

Survey sheet

Residential area: A

How long does it take you to walk to the following services (nearest one)?

Circle your answer

Park	(less than 5 minutes)	5 – 30 minutes	more than 30 minutes
Supermarket	less than 5 minutes	(5 – 30 minutes)	more than 30 minutes
Primary school	(less than 5 minutes)	5 – 30 minutes	more than 30 minutes
Secondary school	less than 5 minutes	(5 – 30 minutes)	more than 30 minutes
Doctors' surgery / Health centre	less than 5 minutes	5 – 30 minutes	more than 30 minutes
Bus stop	(less than 5 minutes)	5 – 30 minutes	more than 30 minutes
Cinema	less than 5 minutes	5 – 30 minutes	more than 30 minutes
City centre shops	less than 5 minutes	(5 – 30 minutes)	more than 30 minutes
Sports centre	less than 5 minutes	5 – 30 minutes	(more than 30 minutes)
Local store	(less than 5 minutes)	5 – 30 minutes	more than 30 minutes

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Fig. 17

(ii) Complete Fig. 17 by including the following information for a resident in area A:

Time taken to walk to doctors' surgery: 6 minutes

Time taken to walk to cinema: 40 minutes   [1]

(iii) What are **two** possible weaknesses of the question 'How long does it take you to walk to the following services'?

1 ....

....

2 ....

....[2]

2217/23/M/J/12

(iv) When they had completed their survey the students used a scoring system to produce an accessibility index. This is shown in the table below.

Time taken	Score
Less than 5 minutes	3 points
Between 5 minutes and 30 minutes	2 points
More than 30 minutes	1 point

Use this scoring system to complete an accessibility index for a resident of area B shown in Fig. 18 below. Insert the score for the local store and the total score. [2]

Accessibility index

Residential area: B				
How long does it take you to walk to the following services (nearest one)?				
Circle your answer				**Score**
Park	less than 5 minutes	(5 – 30 minutes)	more than 30 minutes	2
Supermarket	less than 5 minutes	(5 – 30 minutes)	more than 30 minutes	2
Primary school	(less than 5 minutes)	5 – 30 minutes	more than 30 minutes	3
Secondary school	less than 5 minutes	(5 – 30 minutes)	more than 30 minutes	2
Doctors' surgery / Health centre	less than 5 minutes	(5 – 30 minutes)	more than 30 minutes	2
Bus stop	(less than 5 minutes)	5 – 30 minutes	more than 30 minutes	3
Cinema	less than 5 minutes	5 - 30 minutes	(more than 30 minutes)	1
City centre shops	less than 5 minutes	5 – 30 minutes	(more than 30 minutes)	1
Sports centre	less than 5 minutes	5 – 30 minutes	(more than 30 minutes)	1
Local store	(less than 5 minutes)	5 – 30 minutes	more than 30 minutes	
Total accessibility index score				

Fig. 18

(v) Plot the accessibility index you calculated in **(d)(iv)** on the dispersion graph, Fig. 19 below. [1]

Dispersion graph

Fig. 19

(vi) The median (middle) values of the accessibility index in areas A and B are shown on Fig. 19. Circle the median value for area C. [1]

(vii) What was the students' conclusion about **Hypothesis 2:** *The nearer people live to the CBD the better their access to services*? Support your decision with evidence from Fig. 19.

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....[3]

(e) Suggest **two** reasons for the difference in accessibility index scores in one area.

1 ....

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2 ....

....[2]

[Total: 30 marks]

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