



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE
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GEOGRAPHY

0460/42

Paper 4 Alternative to Coursework

May/June 2014

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
 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 an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer **all** questions.

The Insert contains Photographs A, B and C, Figs 1 and 2 and Table 1 for Question 1, and Fig. 6 and Table 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.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **14** printed pages, **2** blank pages and **1** Insert.

- 1 Three students wanted to investigate the effects of two different types of woodland on temperature and the amount of sunlight in the wooded areas. Photographs A and B (Insert) show the two types of woodland.

They decided to investigate the following hypotheses:

Hypothesis 1: *Temperature will be higher in the area of deciduous woodland than in the area of coniferous woodland.*

Hypothesis 2: *The amount of light at ground level will differ in the two areas of woodland.*

- (a) To begin their investigation the students drew two transect lines (**X** and **Y**) on a map of the area. These are shown on Fig. 1 (Insert).

- (i) Suggest **three** pieces of advice their teacher gave them to keep them safe whilst carrying out fieldwork in this area.

1

.....

2

.....

3

.....[3]

- (ii) Using Fig. 1, describe **two** similarities and **two** differences between transects **X** and **Y**.

Similarities

1

.....

2

.....

Differences

1

.....

2

.....[4]

(b) The three students decided to take measurements of temperature and light every 25 metres along each transect line. They worked along transect X in the morning and along transect Y in the afternoon.

(i) What is the name of the sampling method they used?

Circle your choice below.

random stratified systematic [1]

(ii) Suggest why they took measurements every 25 metres.

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

(c) The results of the students' measurements are shown in Table 1 (Insert).

(i) To measure temperature they used the digital thermometer shown in Photograph C (Insert).

Give **two** advantages of using a digital thermometer for this task.

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

(ii) To measure the amount of light at ground level the students made a measuring device to estimate the percentage of sky they could see. More sky means more light.

Their measuring device is shown in Fig. 2 (Insert) along with instructions on how it was used.

What percentage of sky is shown on Fig. 2?

.....% [2]

(iii) Use Table 1 (Insert) to give the most common temperature recorded in the **grassland** area.

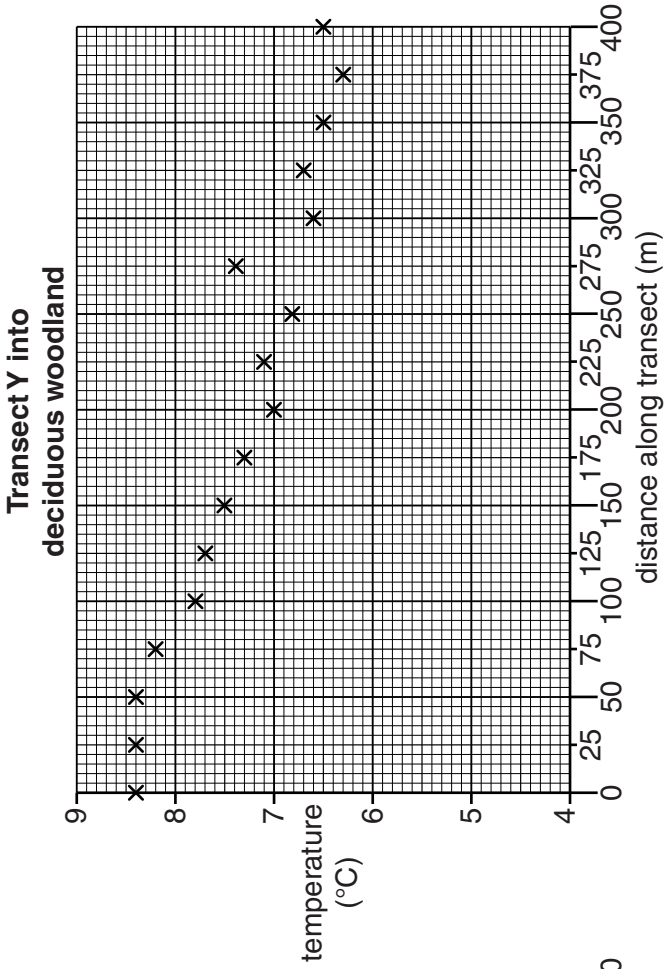
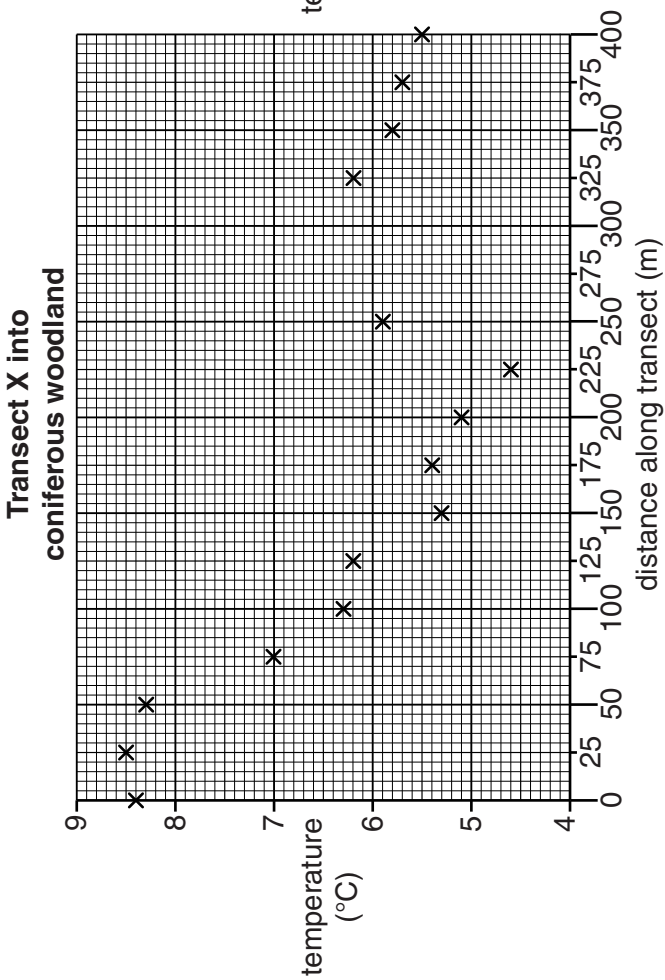
..... °C [1]

(iv) The students used their results in Table 1 (Insert) to plot the graphs in Fig. 3 opposite. Use the results shown in Table 1 to plot the temperatures at 275 m and 300 m along transect X. [2]

(v) Use the results in Table 1 to plot the percentage of sky measured at 150 m and 300 m along transect Y. [2]

(vi) How does the percentage of sky measured differ between the grassland and woodland in both transects?

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



51

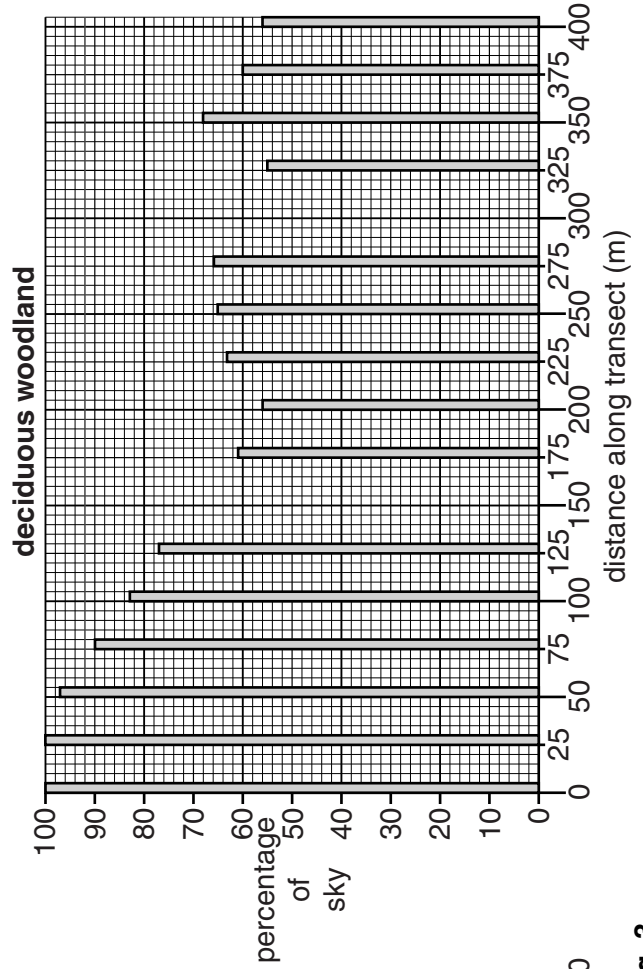
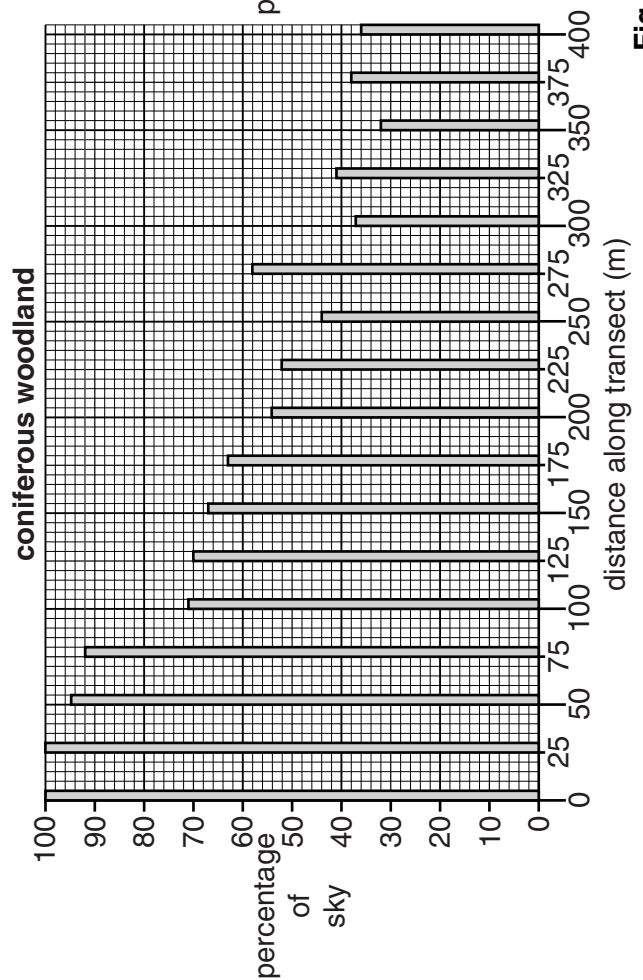


Fig. 3

(d) (i) What conclusion would the students make about **Hypothesis 1**: *Temperature will be higher in the area of deciduous woodland than in the area of coniferous woodland?*

Support your decision with evidence from Fig. 3.

.....
.....
.....
.....
.....
.....
.....[3]

(ii) The students agreed that **Hypothesis 2**: *The amount of light at ground level will differ in the two areas of woodland* was correct.

Give **two** pieces of evidence from Fig. 3 to support their decision.

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

(iii) Using Photographs A and B (Insert), suggest why temperature and the percentage of sky measured are different in the two areas.

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

(e) Having completed their investigation the students considered how they could have improved the reliability of their results. Suggest **three** ways they might have done this.

1
.....
2
.....
3
.....[3]

[Total: 30 marks]

TURN PAGE FOR QUESTION 2

2 Students were studying different residential areas of cities in MEDCs. They decided to do some fieldwork to compare different types of housing area in the 'inner city'. They chose to study three areas:

- Area A: an area of houses which were built around 1850
- Area B: an area of terraced houses which were built around 1920
- Area C: an area of houses and apartment blocks which were built when the area was redeveloped around 1990

The students investigated the following hypotheses:

Hypothesis 1: *The newer the housing area the better the environment.*

Hypothesis 2: *Parking and traffic are problems for people living in all three inner city areas.*

(a) In order to investigate **Hypothesis 1** the students did an environmental quality survey on roads in each housing area. Their recording sheet is shown in Fig. 4 below.

Environmental quality recording sheet

| Environmental quality survey | | | | | | | | | |
|--|--|----|----|----|---|----|----|----|--|
| Location: Area A/B/C (circle the area) | | | | | | | | | |
| Feature | Negative description | -3 | -2 | -1 | 0 | +1 | +2 | +3 | 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 |
| Pavements | No pavement or poorly maintained | | | | | | | | Well maintained and safe to walk on |
| Gardens | No private gardens and poorly maintained | | | | | | | | Individual gardens and well maintained |
| Public open space | None, unattractive natural environment | | | | | | | | Plenty, and attractive natural environment |
| Noise | Very noisy from different sources | | | | | | | | Quiet, and causes no inconvenience |
| Air pollution | High level of pollution from different sources | | | | | | | | Low level of pollution |
| Vandalism and graffiti | Found everywhere | | | | | | | | No vandalism and graffiti |

Fig. 4

(i) First the students did a pilot survey in a road near their school.

Suggest **two** reasons why they did a pilot survey.

1

.....

2

.....[2]

(ii) Describe how the students used the recording sheet shown in Fig. 4.

.....

.....

.....

.....[2]

(iii) Suggest **two** ways that the students could have organised themselves to make sure that their results were reliable.

Give a reason for each way you suggest.

Suggestion 1

.....

Reason

.....

Suggestion 2

.....

Reason

.....[4]

Results of environmental quality survey

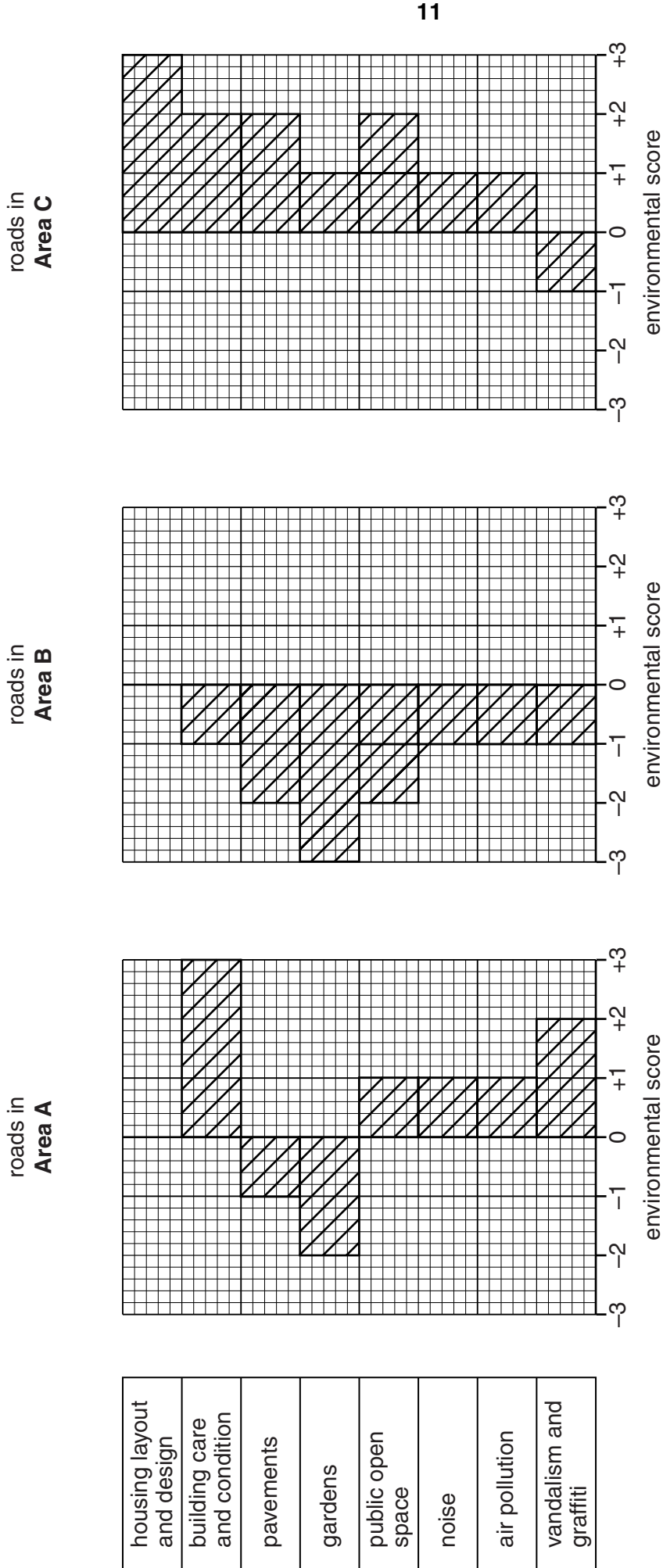


Fig. 5

(c) To investigate **Hypothesis 2: Parking and traffic are problems for people living in all three inner city areas**, the students used a questionnaire with residents in each of the three areas. This is shown in Fig. 6 (Insert).

(i) Name a sampling method the students could use to get a representative sample of people to take part in their survey.

Name of sampling method

Give **two** reasons for your choice.

1

.....

2

.....[3]

(ii) When they had completed their questionnaires the students devised a scoring system to use with the results. The points they awarded for each answer are shown in Table 3 below.

Table 3

| Answer | Points awarded |
|-------------------|----------------|
| Strongly agree | 4 |
| Agree | 3 |
| Disagree | 2 |
| Strongly disagree | 1 |

The students then calculated the average number of points awarded in each area. These are shown in Table 4 below.

Table 4

Average points awarded in each area

| | Area A | Area B | Area C |
|---|--------|--------|--------|
| Car parking is difficult in the area where I live | 3.8 | 3.3 | 1.8 |
| Traffic is a problem in the area where I live | 2.9 | 3.7 | 1.5 |

(iv) Suggest a different way to improve each of the following in inner city areas.

Parking

.....

Traffic problems

.....[2]

(d) To extend their fieldwork the students wanted to investigate another possible difference between the three housing areas. Suggest an investigation and describe a method you would use.

Investigation

.....

Fieldwork method

.....

.....

.....

.....

.....[4]

[Total: 30 marks]

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Copyright Acknowledgements:

Question 1 Photograph A © http://www.offwell.free-online.co.uk/maps_website/coniferouswoodland.htm
Question 1 Photograph B © http://www.countrysideinfo.co.uk/maps_website/wetland.htm

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