Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

0123456789

GEOGRAPHY **0460/04**

Paper 4 Alternative to Coursework **For Examination from 2016**

SPECIMEN PAPER

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Ruler
Protractor

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, graphs or rough working.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** the questions.
The Insert contains Fig. 1 for Question 1 and Figs 6 and 11 for Question 2.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be draw 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.

This document consists of **19** printed pages, **1** blank page and **1** Insert.

CAMBRIDGE International Examinations

1 Students at a school in the Netherlands, a northern European country, investigated the microclimate around their school. This was to find out whether buildings and different types of ground surface influenced the air temperature and the relative humidity.

The two hypotheses were:

Hypothesis 1: *Temperatures are higher nearer to the buildings.*

Hypothesis 2: *Relative humidity is affected by vegetation on the ground.*

(a) The students recorded temperature and relative humidity in calm and clear conditions during November. Why were these conditions important for the investigation?

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(b) Study the map, Fig. 1 (Insert). This shows eight sites, labelled A to H, around the school buildings. These sites were used by the students for measuring temperature and relative humidity.

(i) The school's Stevenson screen is located at Site A. Suggest **two** reasons why this is a good location for a Stevenson screen.

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(ii) A traditional maximum-minimum thermometer is located in the Stevenson screen. Use Fig. 2 to identify maximum, minimum and present temperature shown on the thermometer. Record these in the boxes on Fig. 2. [3]

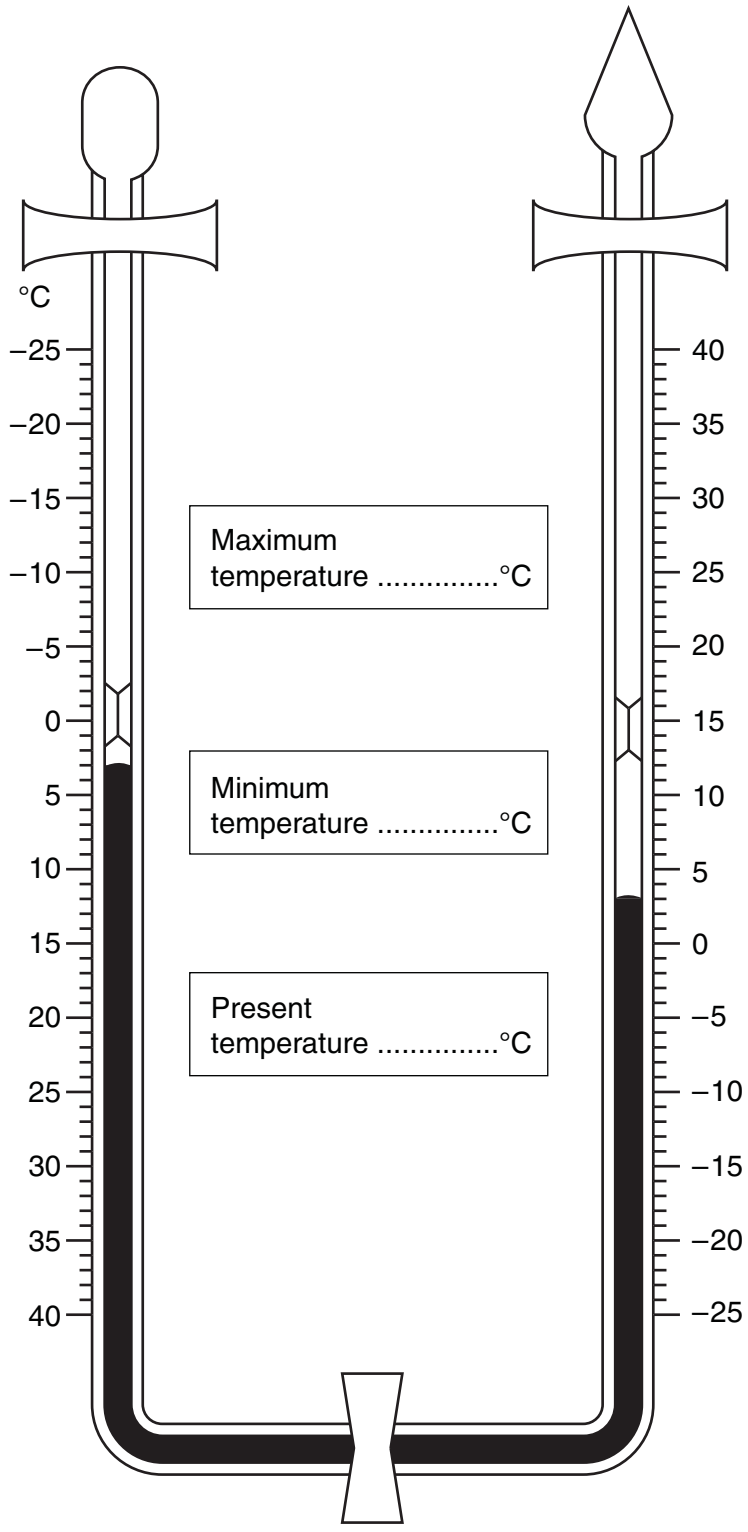

Fig. 2

(c) The temperature at the other seven sites was measured using a hand-held digital thermometer. The instructions from the teacher on how to use this thermometer are shown in Fig. 3, below.

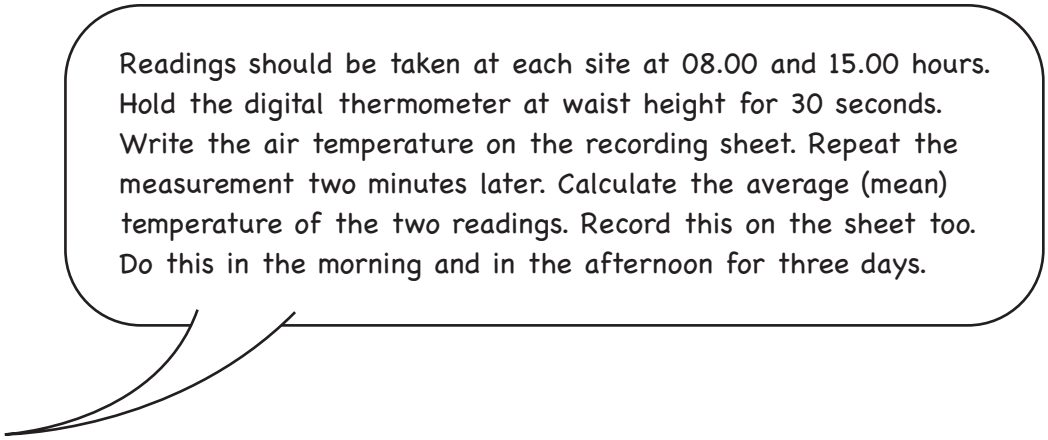

Fig. 3

(i) Suggest **one** advantage of using a digital thermometer over a maximum-minimum thermometer.

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(ii) Give **one** disadvantage of the method described in Fig. 3.

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(iii) Suggest why the temperatures were taken each morning and afternoon.

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TURN OVER FOR QUESTION 1(d)

(d) Study Table 1, which shows the temperature measured at each site.

Table 1

Air temperature at each site (°C)

Site	A	B	C	D	E	F	G	H	Average temperature (08.00 and 15.00)
Distance from building	32 m	2 m	3 m	40 m	1 m	17 m	9 m	2 m	
Day 1, 08.00	5.0	5.3	5.8	5.3	5.7	5.5	5.8	6.5	5.6
Day 1, 15.00	12.0	11.8	13.0	11.6	11.5	11.8	12.0	12.3	12.0
Day 2, 08.00	3.0	3.8	3.8	3.0	3.5	2.9	3.2	3.5	3.3
Day 2, 15.00	3.0	3.4	4.4	3.4	4.6	3.3	3.3	3.8	3.6
Day 3, 08.00	3.0	3.1	4.5	2.8	4.2	3.1	2.9	3.0	3.3
Day 3, 15.00	5.0	5.9	7.0	4.6	6.2	5.1	5.3	5.8	5.6
Three day site average	5.2	5.5	6.4	5.1	5.9	5.2	5.4	5.8	

Describe the change in average temperature (08.00 and 15.00) during the three days. Support your answer with data from Table 1.

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(e) The scatter graph, Fig. 4, below shows the three day average temperature at each site.

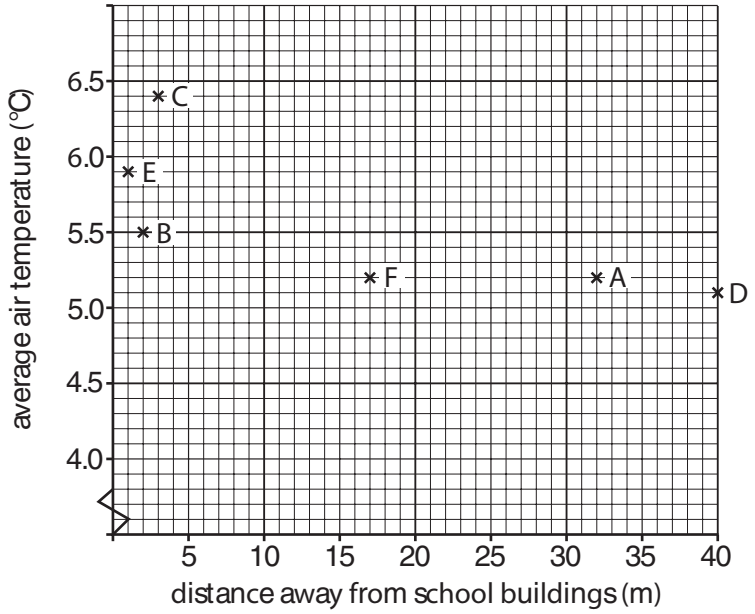

Fig. 4

(i) Use the three day site average temperatures from Table 1 to complete the scatter graph for Sites G and H. [2]

(ii) Draw a best fit line on Fig. 4. [1]

(iii) What conclusion would the students make about **Hypothesis 1:** *Temperatures are higher nearer to the buildings*? Use evidence from Table 1 and Fig. 4 to support your answer.

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(iv) Use Fig. 1 (Insert) to give **two** reasons why temperatures vary at the different sites.

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(f) At the same times of day, the students also used a digital hygrometer to measure relative humidity at each site. The students also observed and recorded the type of ground surface.

Table 2 below shows the results of the students' measurements and observations.

Table 2

Site	A	B	C	D	E	F	G	H
Average relative humidity	75%	77%	76%	75%	73%	73%	75%	77%
Type of ground surface	grass	small plants	concrete	tarmac	concrete	trees	near water	concrete

Does the data in Table 2 show there is a higher relative humidity at the sites where there is vegetation at the ground surface? Calculate your results below and state your answer.

Space for calculations and answer

Average relative humidity for sites with vegetation	
Average relative humidity for sites without vegetation	
Is there a higher relative humidity at the sites where there is vegetation on the surface? Your answer	

[2]

(g) (i) Does the data collected by the students support **Hypothesis 2:** *Relative humidity is affected by vegetation on the ground*?

State your answer and explain your decision.

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(ii) Suggest **three** improvements the students could have made to their data collection methods.

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[Total: 30 marks]

2 Students in Italy were investigating tourism in the village of Pescasseroli in the Abruzzi National Park. They did their fieldwork during the summer holiday. They wanted to test the following hypotheses:

Hypothesis 1: *People of different ages visit the National Park for different reasons.*

Hypothesis 2: *Tourism has a positive effect on the village of Pescasseroli.*

(a) The students used the Internet to find some information about Pescasseroli. This information is given in Fig. 5 below.

> Pescasseroli is a settlement of 2 000 inhabitants. It is located on a wide plain surrounded by mountains, in the middle of the Abruzzi National Park. Activities in winter include downhill skiing and cross country skiing. In the summer there are many opportunities for a variety of walking and outdoor activities. There are six hotels in the settlement and 11 restaurants for visitors and residents to use.

Fig. 5

(i) Which **one** of the following describes the Internet as a source of information? Circle your answer.

Regular Sampling Secondary Tertiary [1]

(ii) The students also collected primary data. What is meant by a primary source of data?

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(iii) Give **one** example of a primary source of data.

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(b) To find out information for Hypothesis 1 the students produced a questionnaire for tourists. This is shown in Fig. 6 (Insert).

(i) The results to Question T1 (i) are shown in Table 3 below.

Table 3

Question T1 (i)
How did you get to the National Park today?

Method	Number	Percentage
Car	56	70
Bus or Coach	17	21
Train	7	9
Bike	0	0

Use these results to complete the pie chart, Fig. 7, below.

Method of transport used by tourists

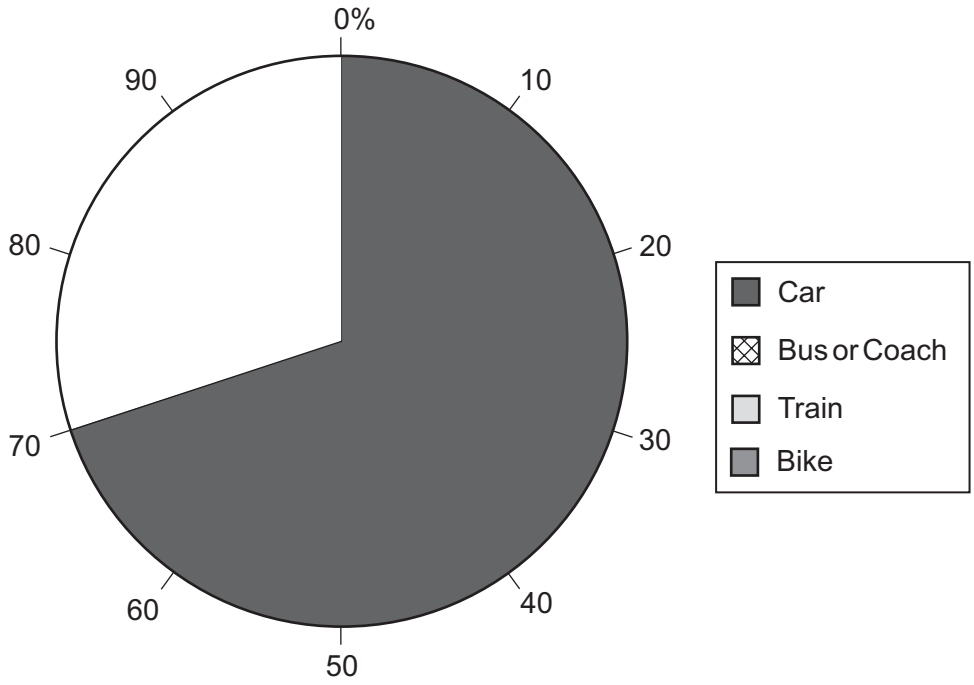

Fig. 7

[2]

(ii) Describe the pattern of transport shown by these results to Question T1 (i).

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(iii) Suggest **one** reason for this pattern.

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(iv) The results to Question T1 (ii) are shown in Table 4 below.

Table 4

Question T1 (ii)
If you came by car did you find parking difficult?

Opinion about parking	Number	Percentage
Very difficult	12	21
A little difficult	4	7
Easy	40	72

Use these results to complete the pictograph, Fig. 8, below, to show tourists' opinions about parking in Pescasseroli. [1]

Tourists' opinions about parking

☹ Very difficult	
😐 A little difficult	😐
☺ Easy	☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺

☹ or 😐 or ☺ = 4 people

Fig. 8

(c) (i) The results to Question T2 are shown in Table 5 below.

Table 5

Question T2
What is the main reason for your visit to the National Park?

Main reason	Number	Percentage
See the wildlife	20	25
Scenery	22	28
Walking	15	19
Cycling	14	17
Skiing	0	0
Other e.g. visiting friends	9	11

Use these results to complete the bar graph, Fig. 9, below. [2]

Reasons for visiting the Abruzzi National Park

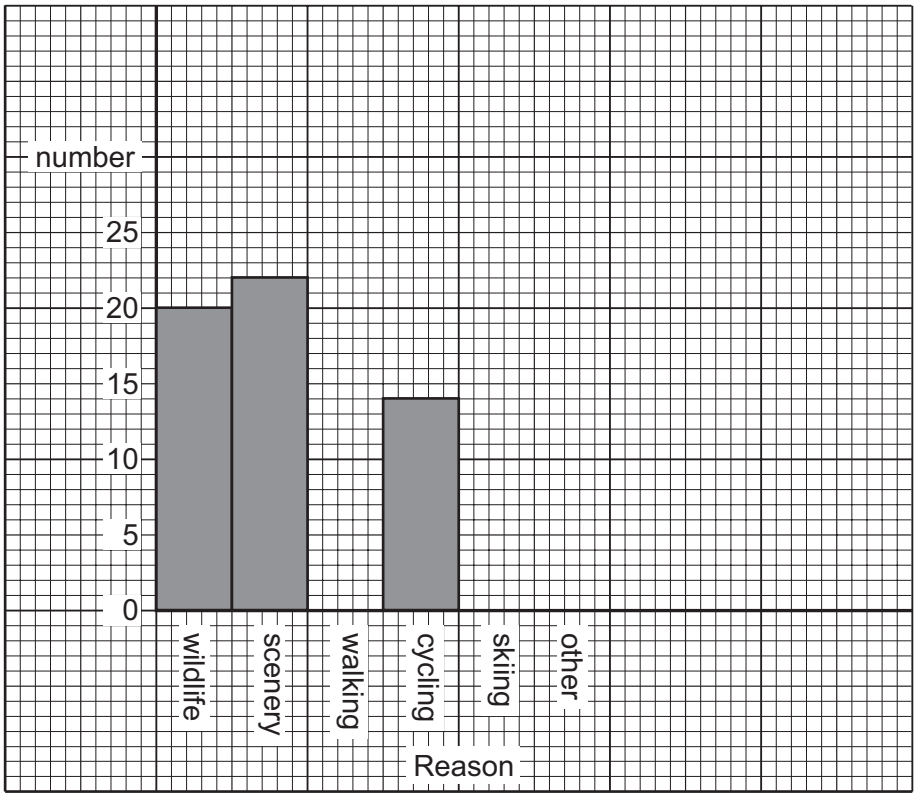

Fig. 9

(ii) The students produced Table 6, below, in which they compared the reasons for the visit with the ages of the visitors.

Table 6

	Age				
Main reason	Under 20	20–40	41–60	Over 60	Total
See the wildlife	7	6	4	3	20
Scenery	6	8	3	5	22
Walking	3	7	4	1	15
Cycling	7	5	2	0	14
Skiing	0	0	0	0	0
Other e.g. visiting friends	3	2	3	1	9
Total	26	28	16	10	80

The students used the information in Table 6 to work out their conclusion to **Hypothesis 1:** *People of different ages visit the National Park for different reasons.*

What conclusion would the students have made? Support your answer with evidence from Table 6.

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(iii) Suggest how the visitors' main reason for visiting the National Park may change at a different time of the year.

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(iv) The results of questions T3 and T4 in the questionnaire are shown in Tables 7 and 8 below.

Table 7

Question T3
How long are you staying in the village?

Length of stay	Number	Percentage
1 day	34	42
2–3 days	30	38
4–7 days	14	17
More than one week	2	3

Table 8

Question T4
What type of accommodation are you staying in?

Type of accommodation	Number	Percentage
None	34	42
Hotel	9	11
Youth hostel	23	29
Campsite	6	8
Villa or cottage	8	10

Explain how these results may affect tourism in the village.

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(v) The data about the gender of visitors is shown in Table 9 below.

Table 9

Gender of visitors

Gender	Percentage
Male	54
Female	46

Use the data in Table 9 to plot the percentage of visitors gender in the divided bar graph below.

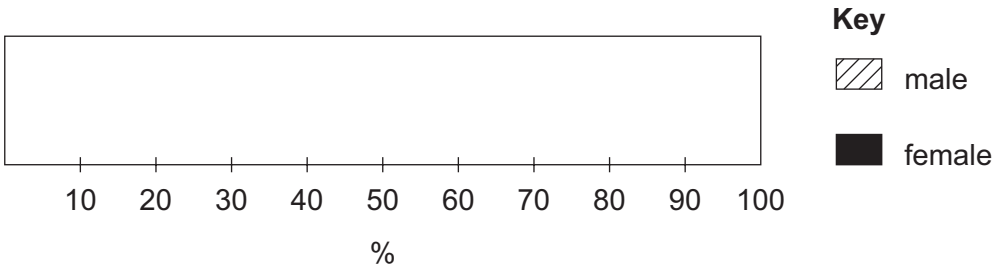

Fig. 10

[2]

TURN OVER FOR QUESTION 2(d)

(d) To find out information for **Hypothesis 2:** *Tourism has a positive effect on the village of Pescasseroli*, the students produced a questionnaire for residents. This is shown in Fig 11 (Insert). The results of this questionnaire are shown in Fig. 12 below.

Results of questionnaire for residents (125 results)

			Number	%
R1	Length of residency	Under 5 years	19	15
		5–10 years	22	18
		11–15 years	66	53
		Over 15 years	18	14
R2	Opinion of main problems	None	50	40
		Crowded	18	14
		Litter	15	12
		Traffic	26	21
		Noisy people	16	13

			Yes	No
R3	Residents' views on benefits of tourism	Tourism related job	66%	34%
		Adequate tourist facilities	72%	28%
		Adequate parking	69%	31%
		Improved facilities	83%	17%

Fig. 12

What conclusion would the students make about Hypothesis 2? Support your decision with data from Fig. 12.

[4]

(e) Describe how the students could collect data to investigate how tourism may increase the amount of traffic in the village.

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[Total: 30 marks]

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