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*7860296335*

**GEOGRAPHY** **0460/42**

Paper 4 Alternative to Coursework **February/March 2022**

**1 hour 30 minutes**

You must answer on the question paper.

You will need: Insert (enclosed) Ruler
Calculator
Protractor

**INSTRUCTIONS**

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- If additional space is needed, you should use the lined pages at the end of this booklet; the question number or numbers must be clearly shown.

**INFORMATION**

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [ ].
- The insert contains additional resources referred to in the questions.

This document has **16** pages. Any blank pages are indicated.


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**1** Students did fieldwork to investigate tourism in Salina National Park in Malta. Malta is an island in the Mediterranean Sea. They decided to test the following hypotheses:

**Hypothesis 1:** *The reasons why people of different ages visit the National Park vary in importance.*

**Hypothesis 2:** *Tourism has a more negative impact than positive impact on residents of the National Park.*

**(a) (i)** To begin their investigation the students divided into pairs to produce a questionnaire to use with tourists in the National Park. Two of these questionnaires are shown in Figs. 1.1 and 1.2 (Insert). Give **three** ways that questionnaire 1 (Fig. 1.1) is better than questionnaire 2 (Fig. 1.2).

1 .....

.....

2 .....

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3 .....

..... [3]

**(ii)** The students used a random sampling method to select 100 tourists to answer the questionnaire shown in Fig. 1.1.

Describe, in detail, how they would use a random sampling method.

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..... [2]

**(iii)** The students decided to use the questionnaire in a car park in the middle of the National Park.

Suggest **one** advantage and **one** disadvantage of their decision to use the questionnaire **in the car park**.

Advantage

.....

.....

Disadvantage

.....

..... [2]

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**(b)** The results of question 1 in the questionnaire used (shown in Fig 1.1) are shown in Table 1.1 (Insert).

**(i)** Use the results in Table 1.1 **to complete Fig. 1.3**. [2]

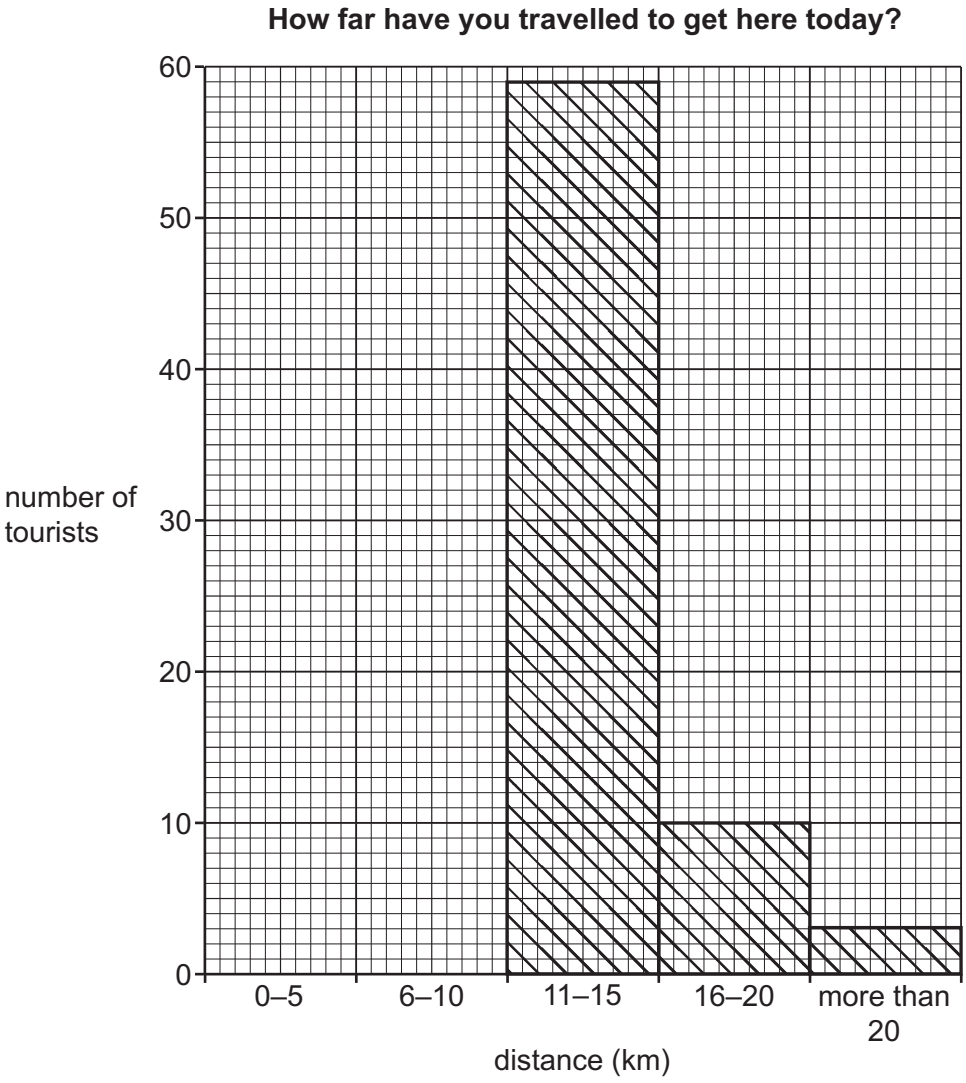



**Fig. 1.3**

**(ii)** Use the results of question 1 to describe how the number of tourists going to the National Park varied with distance.

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..... [2]

**(c)** The results of questions 2 and 3 in the questionnaire are shown in Table 1.2.

**(i)** **Complete Table 1.2** by writing in the total number of people aged between 20 and 40 who completed the questionnaire. [1]

**Table 1.2**

**Results of questions 2 and 3**

| **main reason for visit** | **under 20** | | **20–40** | | **41–60** | | **over 60** | |
|---|---|---|---|---|---|---|---|---|
| | number | percentage | number | percentage | number | percentage | number | percentage |
| birdlife centre | 1 | 5 | 2 | 7 | 5 | 18 | 4 | 17 |
| cycling paths | 12 | 54 | 5 | 19 | 3 | 11 | 1 | 4 |
| memorial gardens and historic buildings | 2 | 9 | 0 | 0 | 6 | 21 | 10 | **44** |
| playgrounds and picnic areas | 0 | 0 | 14 | 52 | 2 | 7 | 0 | **0** |
| walking trails | 6 | 27 | 5 | 19 | 7 | 25 | 3 | **13** |
| woodland scenery | 1 | 5 | 1 | 3 | 5 | 18 | 5 | **22** |
| total | 22 | 100 | | 100 | 28 | 100 | 23 | 100 |

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**(ii)** Use the results in Table 1.2 to **complete the divided bar graph** for the age group over 60 in Fig. 1.4. [3]

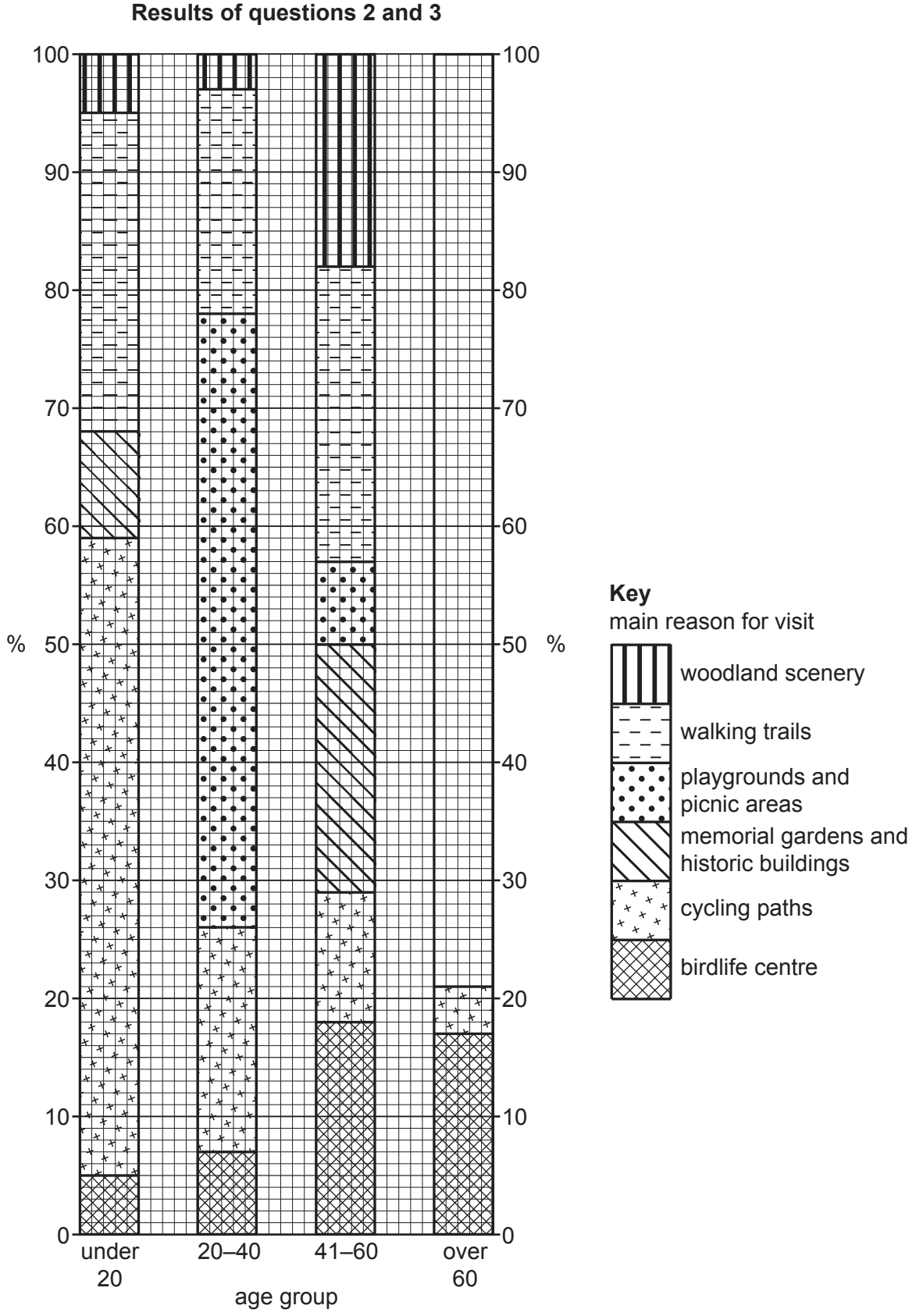



**Fig. 1.4**

**(iii)** What conclusion would the students make about **Hypothesis 1:** *The reasons why people of different ages visit the National Park vary in importance*?
Support your answer with evidence from Table 1.2 and Fig. 1.4.

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..... [4]

**(d)** To investigate **Hypothesis 2:** *Tourism has a more negative impact than positive impact on residents of the National Park*, the students interviewed 50 residents to get their opinions about tourism. The questions which they asked in the interview are shown in Fig. 1.5 (Insert).

**(i)** The results of question 1 in the interview are shown in Table 1.3 (Insert). **Complete Fig. 1.6**, to show the residents' opinions about traffic congestion. [3]

**Residents' opinions about traffic congestion**

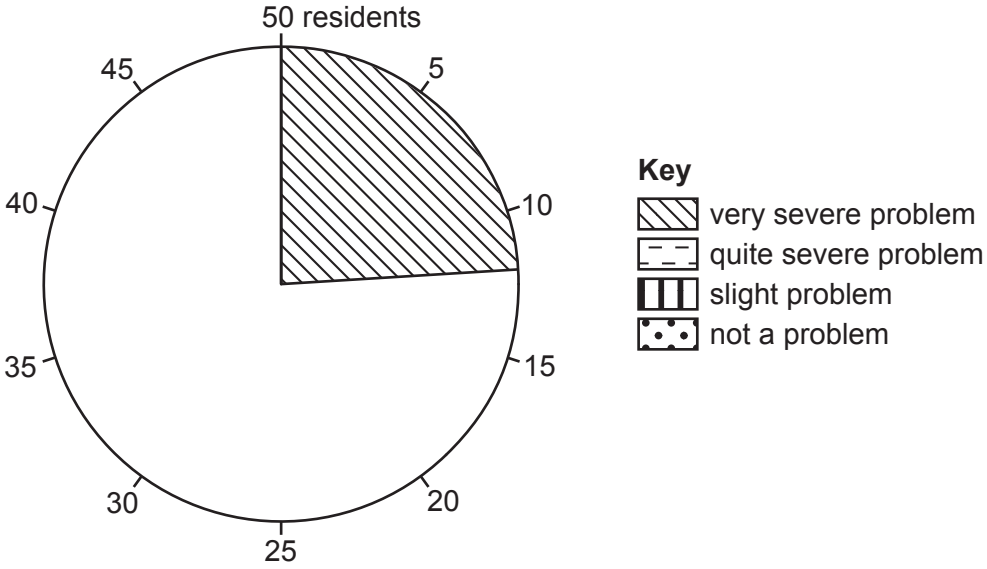



**Fig. 1.6**

**(ii)** The results of question 2 in the interview are shown in Table 1.4 (Insert).
Which **one** of the benefits shown in Table 1.4 do residents think is most important? Tick (✓) your answer in the table below. [1]

| benefit | tick (✓) |
|---|---|
| creates jobs in the local area | |
| brings money into the area | |
| local residents can use the tourist facilities | |

**(iii)** The students made the conclusion that **Hypothesis 2:** *Tourism has a more negative impact than positive impact on residents of the National Park* was **false**. Refer to data in Tables 1.3 and 1.4 (Insert) to explain their decision.

.....

.....

.....

.....

.....

..... [3]

**(e)** Some residents identified litter and traffic congestion as problems in the National Park. Suggest **two** different ways to reduce each problem.

Litter

1 .....

.....

2 .....

.....

Traffic congestion

1 .....

.....

2 .....

..... [4]

[Total: 30]

**2** A class of students was studying how to collect weather data using a Stevenson Screen which was located in the school grounds. The Stevenson Screen contained a maximum-minimum thermometer and a wet-and-dry bulb thermometer.

A Stevenson Screen is shown in Fig. 2.1 (Insert).

**(a) (i)** Explain why the Stevenson Screen

is painted white.

.....

.....

is 120 cm above the ground.

.....

.....

has gaps in the sides.

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..... [3]

**(ii)** Which **two** of the following positions would be most suitable for a Stevenson Screen? Tick (✓) your choices in the box below.

| | **tick (✓)** |
|---|---|
| away from buildings | |
| in the playground | |
| in the car park | |
| on the grass lawn | |
| under some trees | |

[2]

**(b)** Fig. 2.2 (Insert) shows a photograph of the school campus. On the photograph the students labelled their predictions about how the microclimate would differ around the campus. To which of the locations labelled 1 to 7 on the photograph would the following predictions apply?

| | **location number** |
|---|---|
| The playground will be sheltered from the wind by the building. | |
| Classrooms will be hotter on the sunny side of the school. | |
| It will be cool and windy in shade and facing the wind. | |

[3]

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**(c)** Two students decided to carry out an investigation around their school to test the following hypotheses:

**Hypothesis 1:** *Temperatures are higher nearer to buildings and decrease away from buildings.*

**Hypothesis 2:** *The wind speed decreases as the distance from the buildings increases.*

To test **Hypothesis 1** the students used a digital thermometer. This instrument is shown in Fig. 2.3 (Insert). They selected seven sites around the school campus and recorded the temperature at each site. The sites are shown on Fig. 2.2 and Fig. 2.4 (Insert).

**(i)** What are **three** advantages of using the digital thermometer over a traditional thermometer?

1 .....

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2 .....

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3 .....

..... [3]

**(ii)** Why is it important that the students measured the temperature at the seven different sites at the same time of day?

.....

..... [1]

**(d)** The temperatures recorded at the seven sites are shown in Table 2.1 (Insert).

Which **one** of the following is the correct conclusion to **Hypothesis 1:** *Temperatures are higher nearer to buildings and decrease away from buildings*? Tick (✓) your decision below and support it with evidence from Fig. 2.4 and Table 2.1 (Insert).

| conclusion | tick (✓) |
|---|---|
| Hypothesis 1 is true. | |
| Hypothesis 1 is partly true. | |
| Hypothesis 1 is false. | |

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..... [3]

**(e)** To test **Hypothesis 2:** *The wind speed decreases as the distance from the buildings increases*, the students used the weather instrument shown in Fig. 2.5 (Insert).

**(i)** Identify this instrument in the table below. Tick (✓) your choice.

| | **tick (✓)** |
|---|---|
| anemometer | |
| barometer | |
| clinometer | |
| hygrometer | |
| seismometer | |

[1]

**(ii)** The results of the wind speed measurements are shown in Table 2.2 (Insert).
**Plot the wind speed at site 5** on Fig. 2.6 opposite. [1]

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**Results of wind speed measurements**

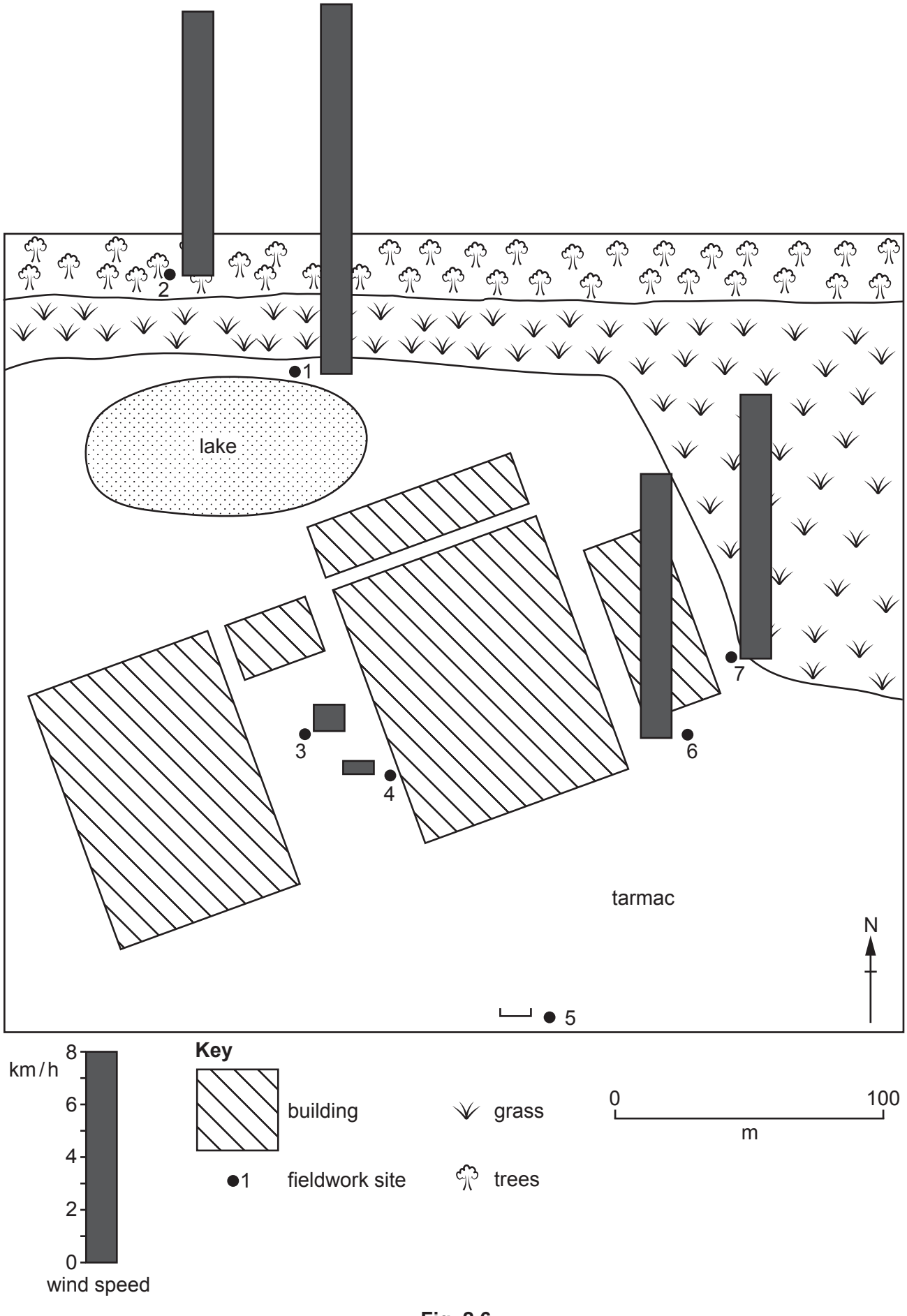



**Fig. 2.6**

**(iii)** What conclusion would the students make about **Hypothesis 2:** *The wind speed decreases as the distance from the buildings increases*? Use data from Fig. 2.6 and Table 2.2 to support your answer.

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..... [3]

**(f)** Relative humidity is a weather feature which can be measured using a wet-and-dry bulb thermometer in a Stevenson Screen.

**(i)** Which **one** of the following is the correct definition of relative humidity? Tick (✓) your answer. [1]

| definition | tick (✓) |
|---|---|
| the amount of water vapour in the air during the day compared to the night | |
| the percentage of moisture in the air when it is raining | |
| the amount of moisture in the air as a percentage of the total moisture it could hold at that temperature | |
| the minimum amount of water vapour in the air when it is warmed up | |

**(ii)** Explain how students would use a wet-and-dry bulb thermometer to work out relative humidity.

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..... [4]

**(iii)** At which **one** of the following sites shown in Fig. 2.4 (Insert) would you expect relative humidity to be highest? **Circle your answer.** [1]

site 1 site 4 site 5 site 7

**(g)** Describe a fieldwork method that could be used to measure daily rainfall at the school.

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..... [4]

[Total: 30]

## Additional pages

If you use the following pages to complete the answer to any question, the question number must be clearly shown.

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