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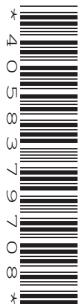
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GEOGRAPHY

0460/43

Paper 4 Alternative to Coursework

May/June 2020

1 hour 30 minutes

You must answer on the question paper.

You will need: Insert (enclosed)
Calculator
Protractor

Ruler

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 **20** pages. Blank pages are indicated.

- 1 Students in the UK visited a local company which made electronic products. The company is located in an inner-city area. It employs two main groups of workers, one in research and development of new products and the other in assembly of components to make the products.

Some students decided to investigate where the employees lived and any disadvantages of living there in order to test the following hypotheses:

Hypothesis 1: *Research and development employees generally live in different parts of the urban area compared to the assembly work employees.*

Hypothesis 2: *Employees think that the journey to work is a main disadvantage of where they live.*

- (a) Suggest **three** factors which may affect where people choose to live in an urban area.

1

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2

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3

..... [3]

- (b) (i) To collect data to test these hypotheses, the students produced a questionnaire. This is shown in Fig. 1.1 (Insert). Describe a suitable method of selecting the employees to complete the questionnaire in order to get a fair, representative sample.

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..... [2]

- (ii) Part of the recording sheet which the students used is shown in Fig. 1.2 (Insert). What is this method of recording results called?

..... [1]

(c) The results for Question 1 in the questionnaire are shown in Table 1.1 (Insert).

One student showed the results of Question 1 on two different types of map. These are shown in Figs. 1.3 below and 1.4 on page 5.

Map showing where research and development employees live

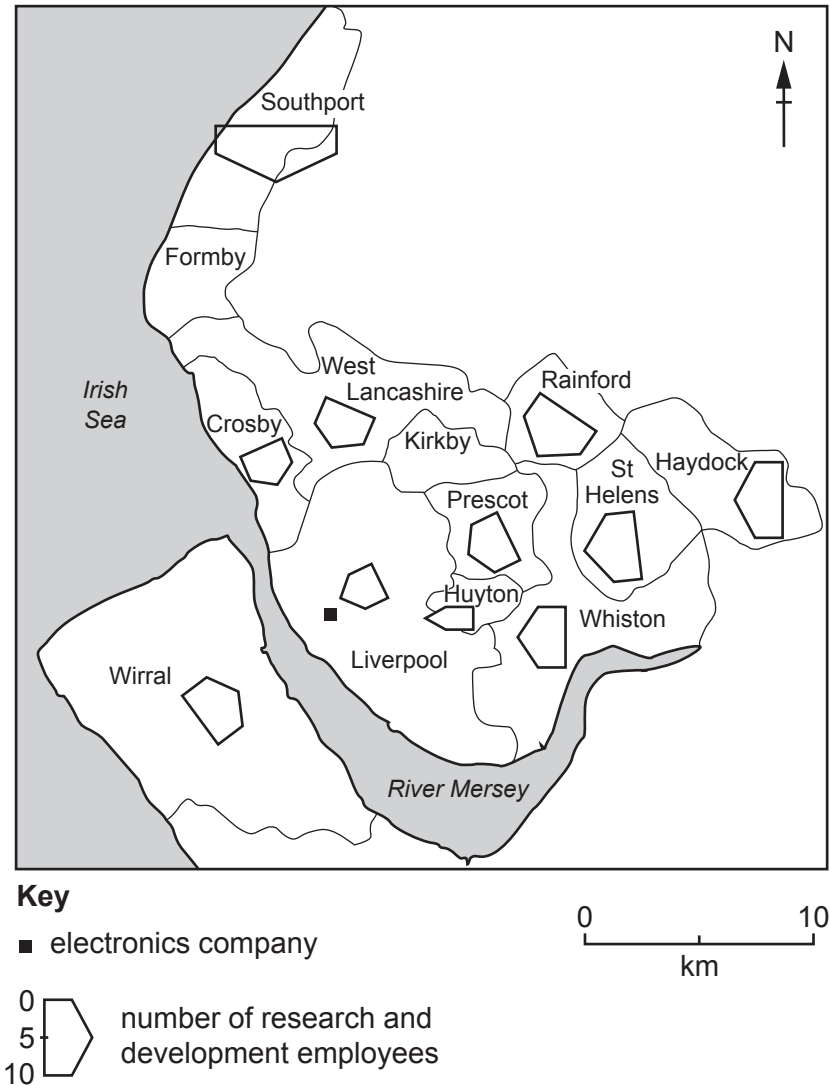


Fig. 1.3

Map showing where assembly work employees live

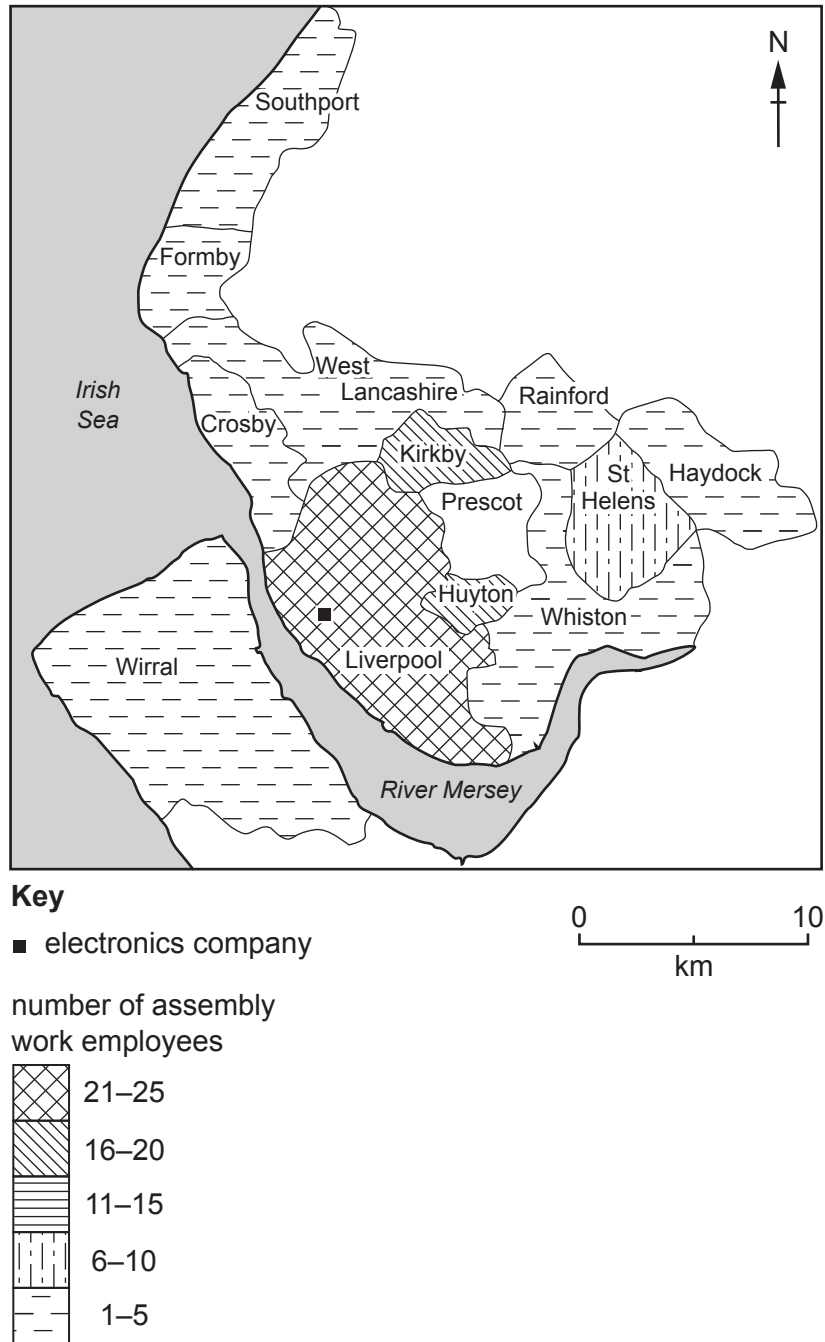


Fig. 1.4

- (i) **Complete Fig. 1.3** to show the numbers of research and development employees living in Formby and Kirkby. [2]
- (ii) **Complete Fig. 1.4** to show the number of assembly work employees living in Prescott. [1]

- (iii) Choose **either** Fig. 1.3 **or** Fig. 1.4 and circle your choice below. Name the type of map and give **two** advantages of this type of map for showing data.

Fig. 1.3

Fig. 1.4

Name of type of map

.....

Advantage 1

.....

.....

Advantage 2

.....

.....

[3]

- (iv) Which **one** of the following would be another suitable method to display the results of Question 1 on a map of the urban area? Tick (✓) your choice.

	Tick (✓)
histogram	
kite diagram	
pictogram	

[1]

- (v) Do you agree with **Hypothesis 1: Research and development employees generally live in different parts of the urban area compared to the assembly work employees?** Support your conclusion with data from Figs. 1.3 and 1.4 and Table 1.1.

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..... [4]

(d) Table 1.2 (Insert) shows the results of Question 2 in the questionnaire.

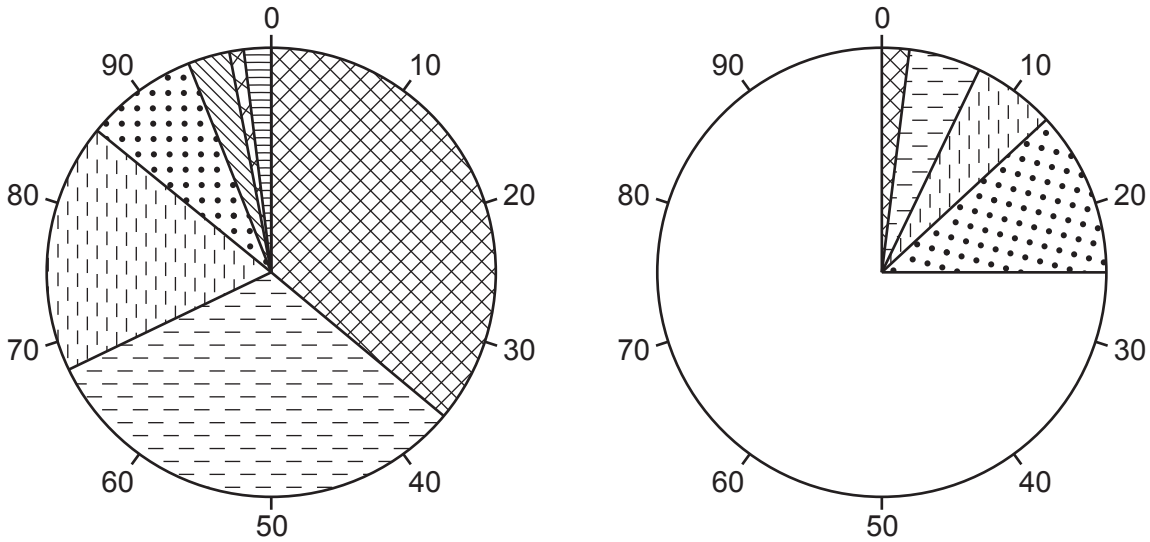
(i) Use the results from Table 1.2 to complete Fig. 1.5 below.

[3]

Results of Question 2

Research and development employees

Assembly work employees



Key








- | | |
|---|--|
|  The journey to work takes a long time |  Social disorder, e.g. gangs, graffiti, vandalism |
|  Congested roads on the journey to work |  No open spaces for recreation |
|  Overcrowded trains on the journey to work |  Poor schools |
|  Noise from traffic and aircraft | |

Fig. 1.5

- (ii) Which **one** of the conclusions below would the students make about **Hypothesis 2: *Employees think that the journey to work is a main disadvantage of where they live?*** Tick (✓) your choice and support your conclusion with evidence from Fig. 1.5 and Table 1.2.

	Tick (✓)
The hypothesis is true for both groups of employees.	
The hypothesis is true for one group of employees.	
The hypothesis is true for neither group of employees.	

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..... [4]

- (e) Traffic congestion may affect people’s journey to work.

- (i) Suggest **two** other problems which traffic congestion may cause.

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2

..... [2]

(ii) Explain why traffic congestion occurs in urban areas.

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..... [4]

[Total: 30]

- (ii) The students recorded the water level in the plastic tube every minute for 10 minutes. The results of the measurements along transect line **A** are shown in Table 2.1 (Insert). Use these results to **complete the measurements** for site 4 on transect **A** in Fig. 2.3 below. [2]

Results of students' measurements of water level at sites on transect A

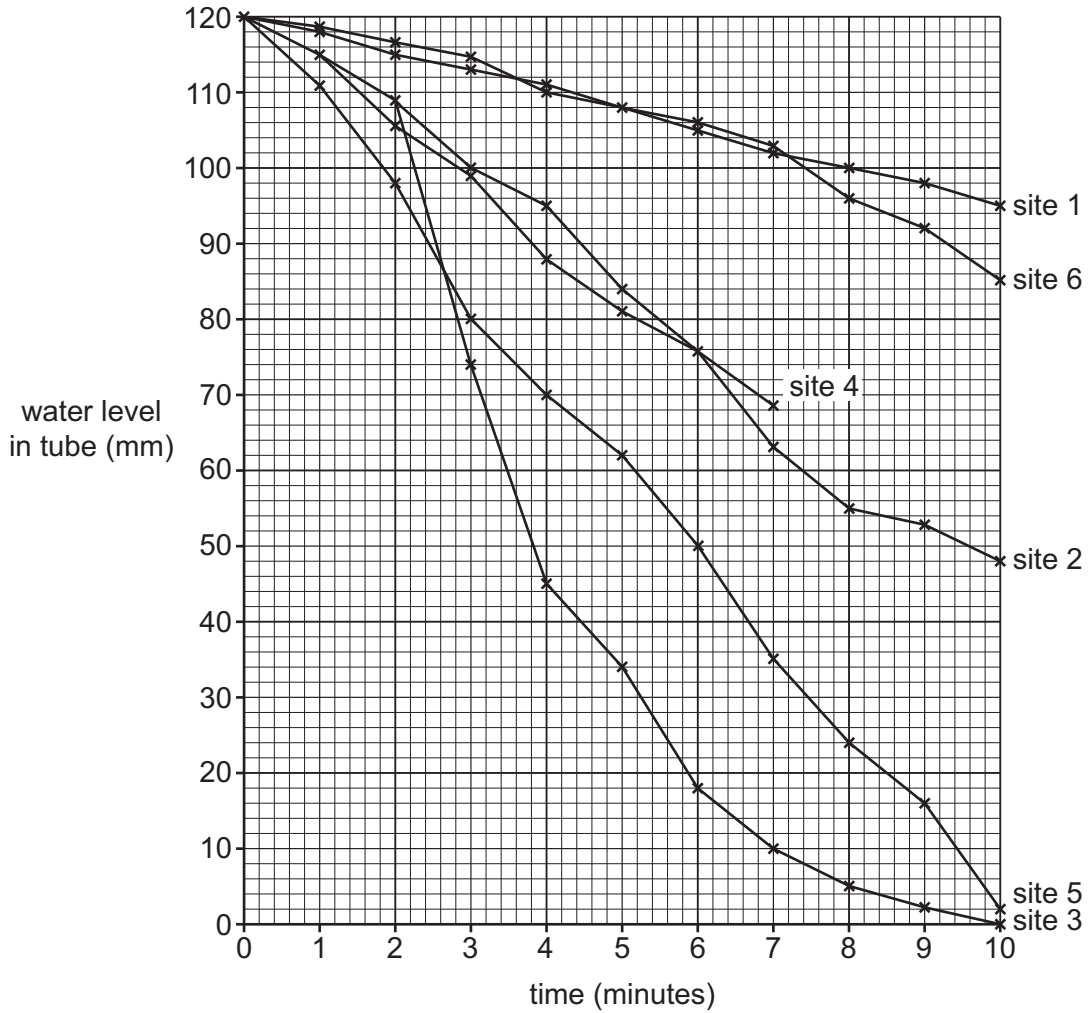


Fig. 2.3

- (iii) Compare the fall in water level for site 1 and site 5 on transect **A**.

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..... [2]

- (iv) The students calculated the infiltration rate at each site. Use the data in Table 2.1 to show the calculation which produced the result for site 2 on transect **A** in the space below.

$\text{Infiltration rate} = \frac{\text{fall in water level (mm)}}{\text{time}}$ $=$ $= 7.2 \text{ mm per min}$

[2]

- (v) The measurements of distance from the lake and infiltration rate at the different fieldwork sites on the three transect lines are shown in Table 2.2 (Insert). The students plotted these results on a graph, Fig. 2.4 on page 13. **Plot the results** at site 6 on transects **A** and **C**. [2]
- (vi) Which transect line agrees with **Hypothesis 1**: *The rate of infiltration increases as you go further from the lake*? Tick (✓) your choice below and support your answer with evidence from Fig. 2.4 and Table 2.2.

transect line	Tick (✓)
A	
B	
C	

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..... [3]

Infiltration rate at the sites on the three transects

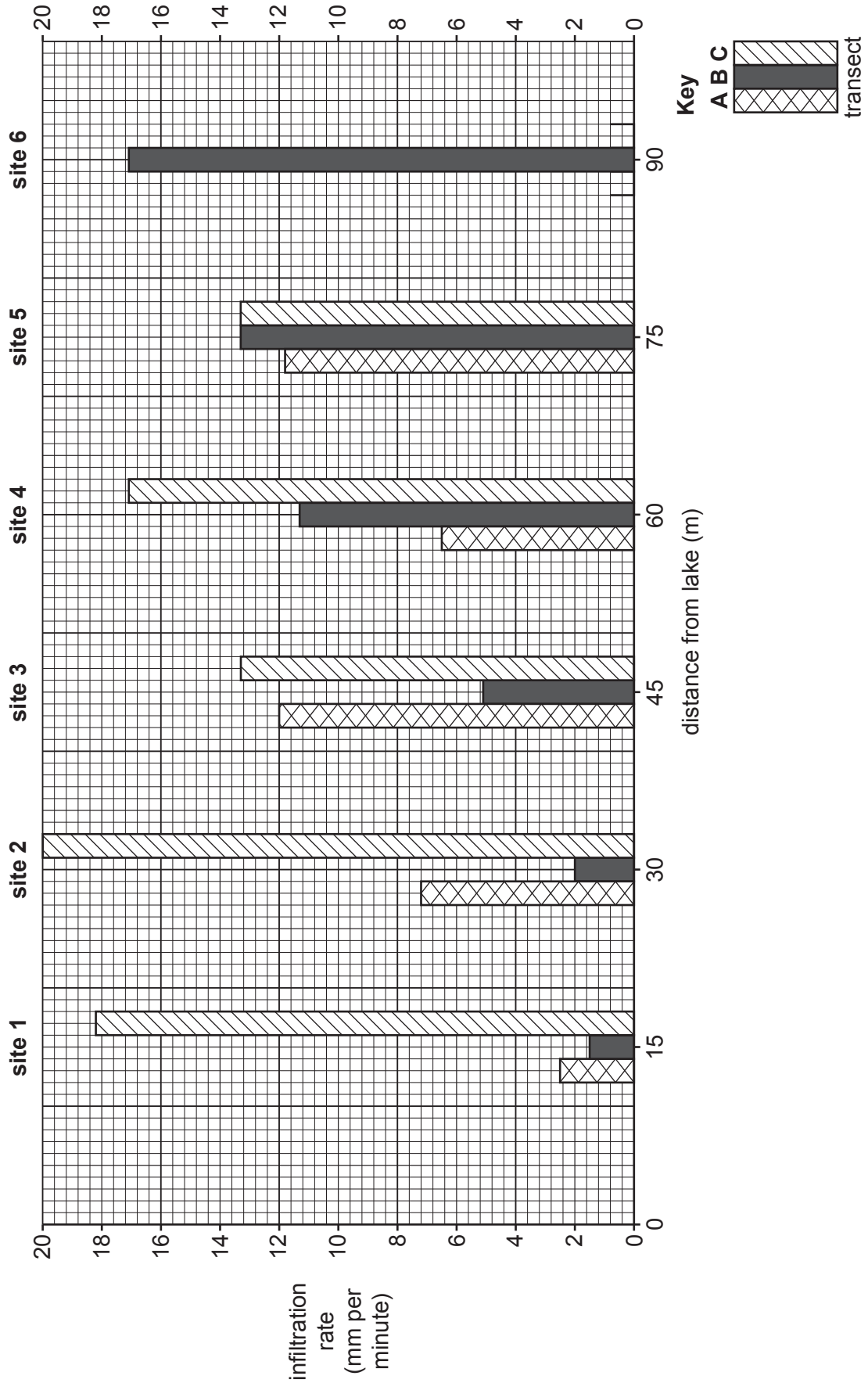


Fig. 2.4

(iii) What conclusion would the students working on transect **C** make about **Hypothesis 2: *The rate of infiltration is greater on steeper sloping land?***
Support your decision with evidence from Fig. 2.5 and Table 2.3.

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..... [3]

(d) Whilst doing their fieldwork, the students also recorded the vegetation found at each measuring site. Their results are shown in Table 2.4 (Insert). How do these results show that the infiltration rate is affected by vegetation?

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..... [3]

(e) The area around the lake where the students did their fieldwork is a popular tourist area. How might people walking in the area affect the infiltration rate? Explain why this would happen.

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..... [3]

[Total: 30]

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