



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE
NAME

CENTRE
NUMBER

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GEOGRAPHY

0460/41

Paper 4 Alternative to Coursework

May/June 2012

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 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.

Answer **all** questions.

The Insert contains Fig. 1 and Table 1 for Question 1.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

The number of marks is given in brackets [] at the end of each question or part question.

For Examiner's Use	
Q1	
Q2	
Total	

This document consists of **13** printed pages, **3** blank pages and **1** Insert.



1 Four students were investigating the possible impact of visitors in a rural area. In particular, they wanted to find out about the extent of erosion caused by people walking along footpaths. This is known as 'footpath erosion'. They focussed their investigation on two popular paths which go away from a car park. One path goes up a steep slope through woodland to a viewpoint. The other path goes through a grassy field to a bridge over the river.

The area is shown in a sketch map, Fig. 1 (Insert).

The students decided to test the following hypotheses:

Hypothesis 1: *Footpath erosion increases towards the centre of the footpath.*

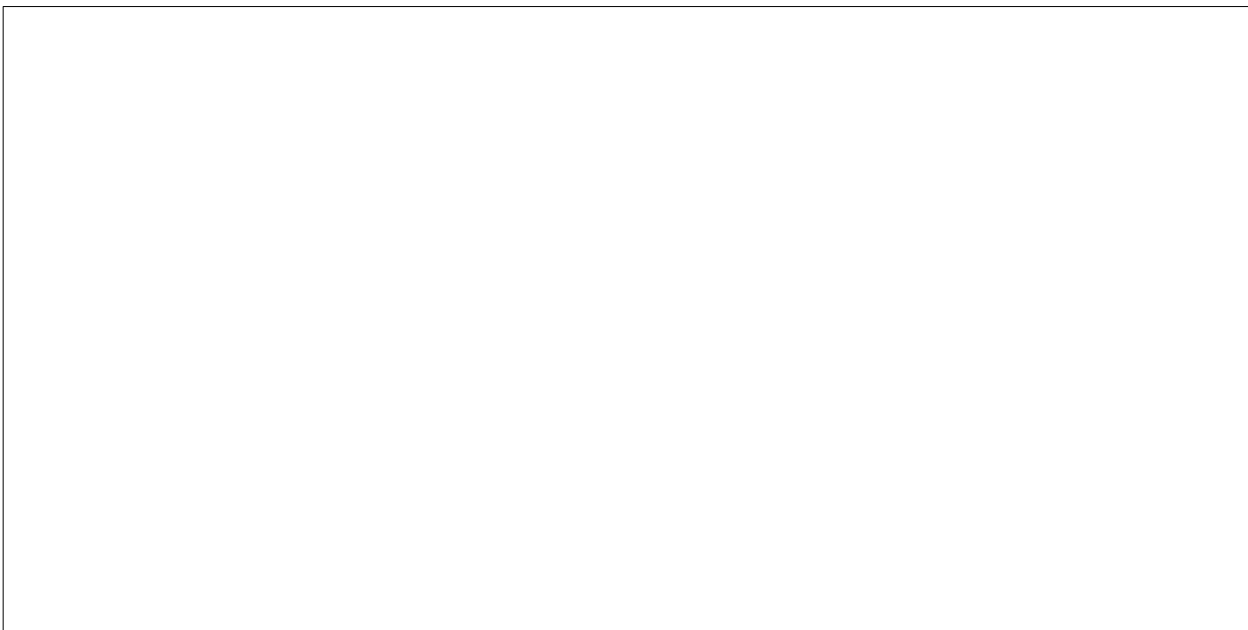
Hypothesis 2: *Vegetation cover increases towards the edge of the footpath.*

(a) The students chose an investigation point on each path. These are shown on Fig. 1.

(i) To test **Hypothesis 1** they stretched a tape measure across the footpath to create a transect line. They then measured the distance from the tape to the ground at 50 cm intervals. Each of the four students had a different task in the investigation. Complete the table below by suggesting tasks for the other three students. [3]

Student	Investigation task
1	Hold the tape measure at one end of the transect line
2	
3	
4	

(ii) To test **Hypothesis 2** the students used a quadrat to estimate the amount of vegetation cover at each point along the transect line. In the space below, draw a labelled diagram of a quadrat measuring 75% vegetation cover and 25% bare soil. [4]

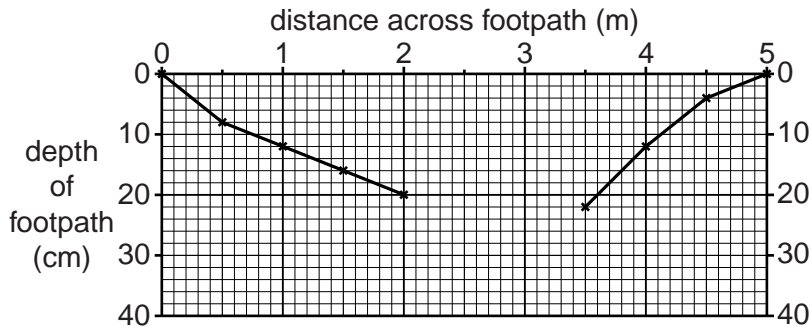


(b) The results of the students' fieldwork are shown in Table 1 (Insert).

(i) Use these results to complete the cross section of the woodland footpath in Fig. below, at 2.5 and 3.0 metres across the path. [2]

Cross section of the two paths

Woodland footpath



Grassland footpath

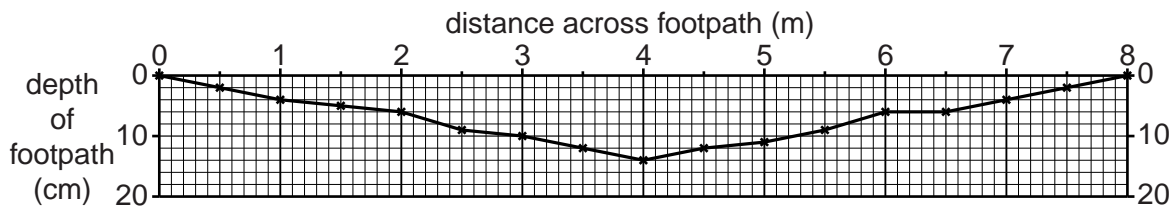


Fig. 2

(ii) Describe **three** differences between the cross sections of the two footpaths.

- 1
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- 2
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- 3
- [3]

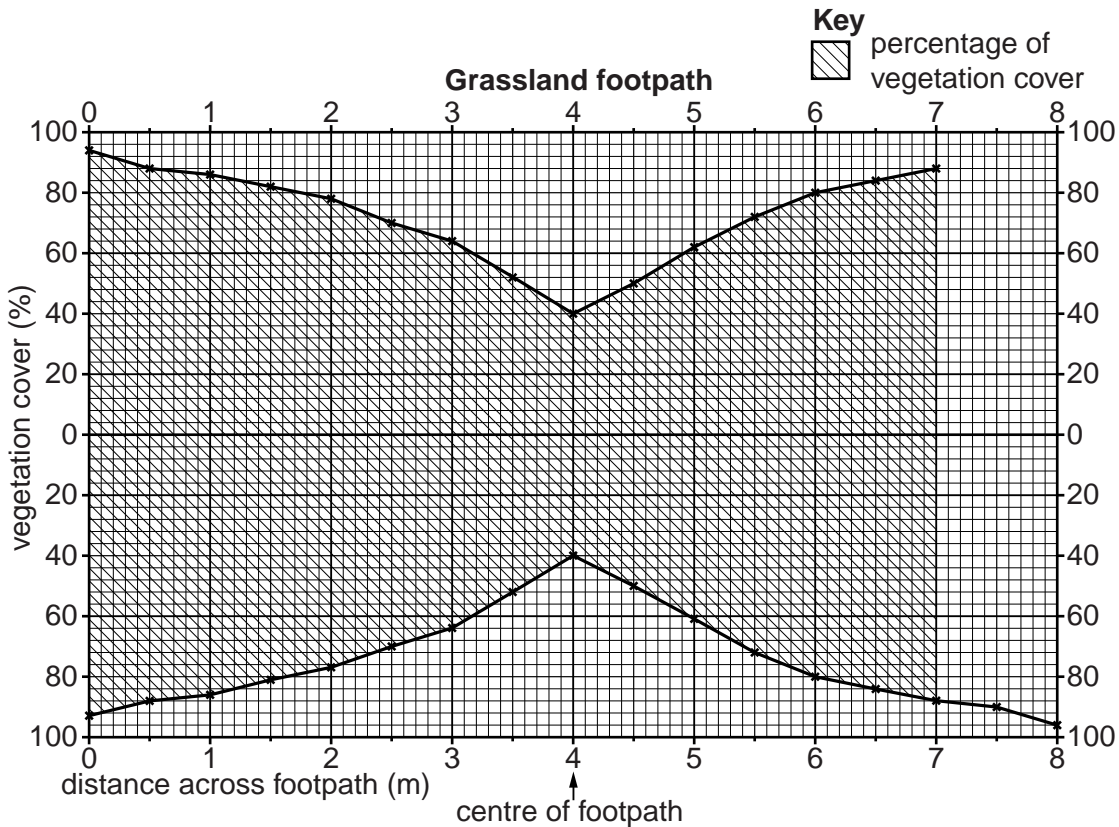
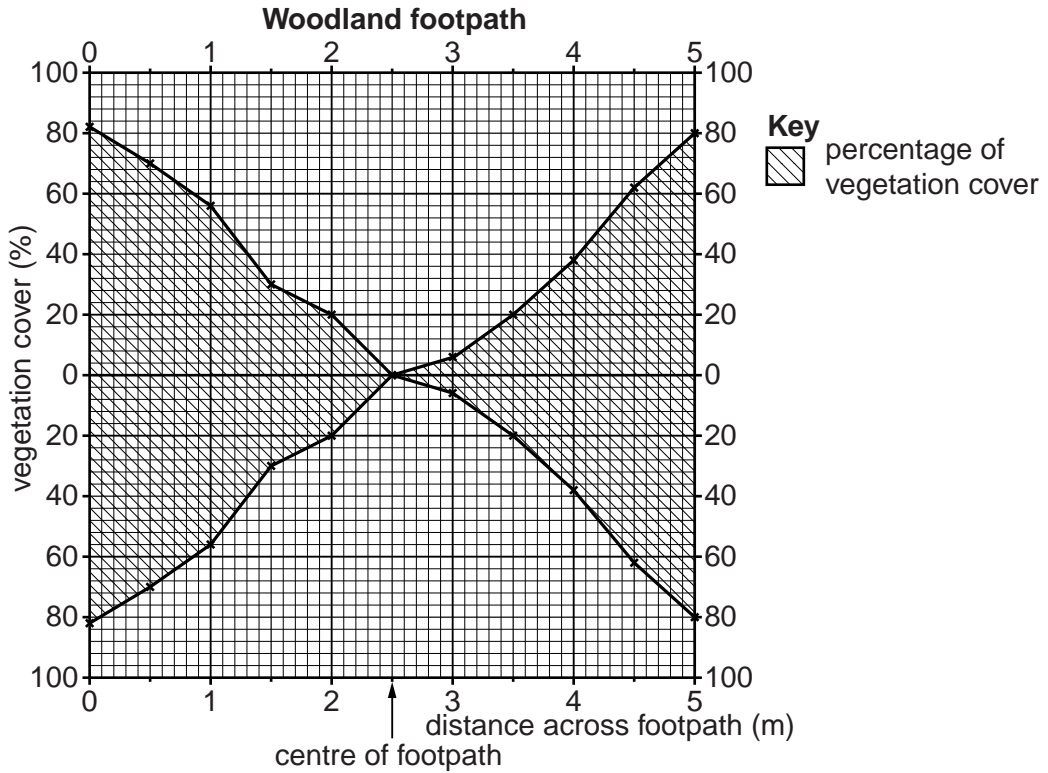
(iii) What conclusion could the students make about **Hypothesis 1: Footpath erosion increases towards the centre of the footpath**? Give **one** piece of evidence from Fig. 2 to support this conclusion.

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(c) Look again at the results of the students' fieldwork in Table 1 (Insert). The students used these to draw kite diagrams for both paths.

(i) Use these results to complete the kite diagram for the grassland path in Fig. 3 below, to show the percentage of vegetation cover at 7.5 and 8.0 metres across the path. Complete the shading to show the amount of vegetation cover. [3]

Kite diagrams to show vegetation cover across the two paths



(ii) The students decided that **Hypothesis 2: Vegetation cover increases towards the edge of the footpath** was correct. What evidence from Fig. 3 supports this conclusion?

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..... [2]

(iii) Suggest why footpath erosion varies between the woodland path and the grassland path. Use the information in Fig. 1 (Insert) to help you to answer.

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..... [4]

(d) Walkers compact the soil which affects infiltration (the rate at which water soaks into the soil).
The students decided to compare the rate of infiltration across the two paths. Describe what equipment they would use and how they would do this.

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(e) Suggest ways in which footpath erosion can be reduced in rural areas which are used by many people.

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[Total: 30 marks]

2 Students wanted to find out more about the conditions in two squatter settlements in Bangladesh. Settlement A had grown up in the last 15 years and settlement B had grown up rapidly in the last three years. They decided to investigate the following hypotheses:

Hypothesis 1: *Services in squatter settlement A are better than services in squatter settlement B.*

Hypothesis 2: *Family homes in squatter settlement A are more crowded than homes in squatter settlement B.*

(a) The students decided to investigate their hypotheses by using a questionnaire with 100 people who lived in each squatter settlement.

(i) Describe a suitable sampling method for the students to choose people to interview. Explain why you have chosen this method.

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..... [2]

(ii) Fig. 4, opposite, is the questionnaire which the students used. In the spaces provided on Fig. 4 add **two** other age groups which are appropriate for classifying the people interviewed. Two age groups have already been included. [2]

(iii) Complete the partly completed example of a questionnaire given in Fig. 4 by adding the following answers from a resident. Put ticks in the correct boxes on Fig. 4. [1]

I get my water from a tap in the street
I do not have a toilet in my house so my family has to use the public toilet
I get electricity from a cable installed by the city authority
I have two rooms in my home
There are six people in my family home

(iv) Suggest **two** 'other' sources of water supply in a squatter settlement in addition to those listed in the questionnaire.

1
2 [2]

(v) Suggest why some people may not give a true answer to the question 'How do you get your electricity supply?'

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..... [1]

Resident Questionnaire

Squatter settlement A B

Age group
Under 15 _____ _____ Over 60

Gender Male Female

Question 1
Where do you get your water supply?
Standpipe (tap in the street)
Tap in the home
Other

Question 2
What are your toilet facilities?
Public toilet
Toilet in the home

Question 3
How do you get your electricity supply?
No electricity supply
From the city authority
By attaching a cable into the official supply

Question 4
How many rooms are there in your family home?
1 2 3 4 or more

Question 5
How many people live in your family home?
1 2 3 4 or more

Fig. 4

(b) The students produced a results table for each question.

Table 2

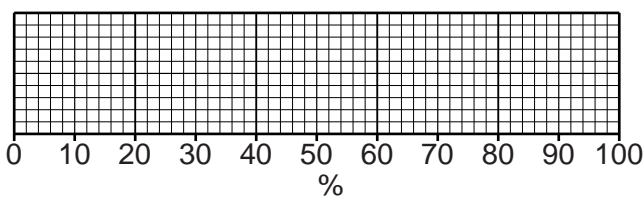
Answers to Question 1: Where do you get your water supply?

	Settlement A (%)	Settlement B (%)
Standpipe (tap in street)	18	38
Tap in the home	72	5
Other	10	57

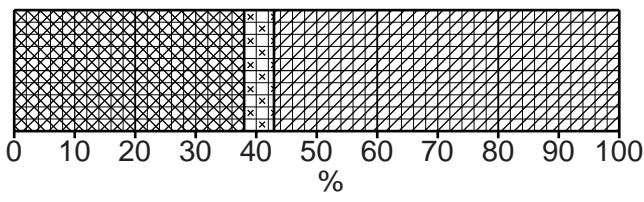
(i) Use the results in Table 2 to complete the divided bar graph for settlement A on Fig. 5 below. [3]

Where people get their water supply from

Settlement A



Settlement B



Key

- standpipe
- home
- other

Fig. 5

Table 3

Answers to Question 2: What are your toilet facilities?

	Settlement A (%)	Settlement B (%)
Public toilet	49	100
Toilet in the home	51	0

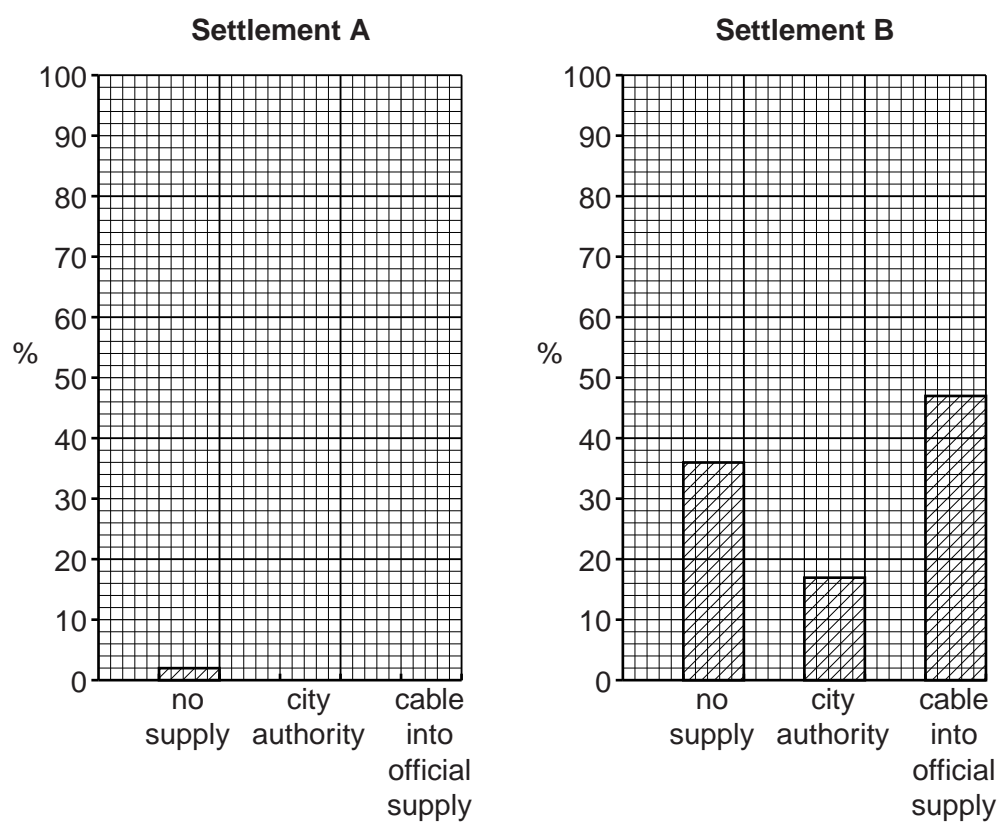
Table 4

Answers to Question 3: How do you get your electricity supply?

	Settlement A (%)	Settlement B (%)
No electricity supply	2	36
From the city authority	80	17
By attaching a cable into the official supply	18	47

(ii) Use the results in Table 4 to complete the bar graph for settlement A on Fig. 6 below. [2]

How do people get their electricity supply



(iii) Do the results shown in Tables 2, 3 and 4 support **Hypothesis 1**: Services in squatter settlement A are better than services in squatter settlement B? Use information from the tables to explain your answer.

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..... [4]

(c) The results of questions 4 and 5 are shown in Tables 5 and 6 below.

Table 5

Answers to Question 4: How many rooms are there in your family home?

	Settlement A (%)	Settlement B (%)
1 room	39	64
2 rooms	23	30
3 rooms	25	6
4 or more rooms	13	0

(i) Use the results in Table 5 to complete Fig. 7 below. [2]

Settlement A: Number of rooms in the family home

Settlement B: Number of rooms in the family home

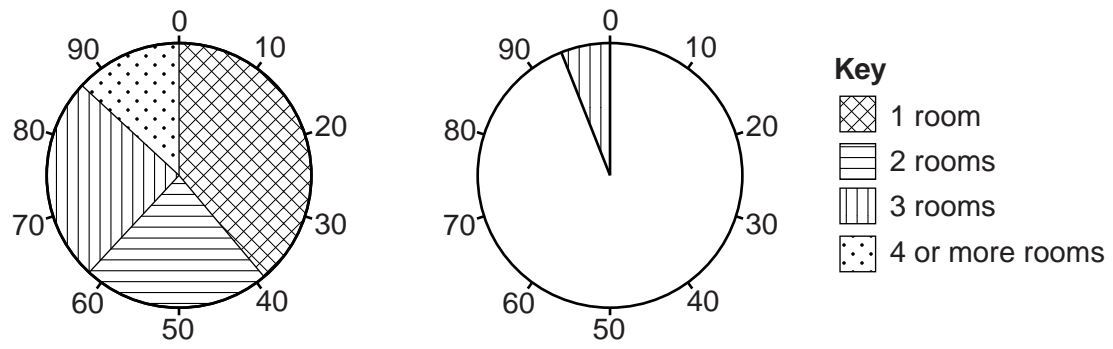


Fig. 7

(ii) Use the information in Table 5 and Fig. 7 to complete the following sentences. Write your answer.

The most common number of rooms in a family home in settlement B is 1 / 2 / 3.

Settlement A has a **smaller / larger / same** percentage of homes with at least 3 or 4 rooms compared with Settlement B. [2]

Table 6

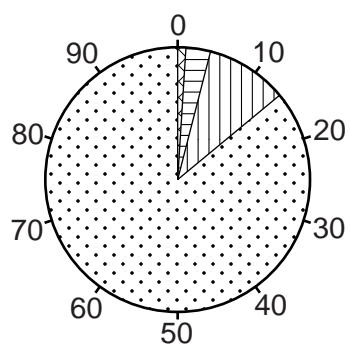
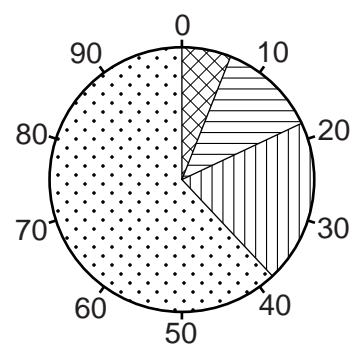
Answers to Question 5: How many people live in your family home?

	Settlement A (%)	Settlement B (%)
1 person	6	1
2 people	12	3
3 people	20	10
4 or more people	62	86

(iii) The results in Table 6 are shown in Fig. 8 below. Use the results in Table 6 to complete the key. [2]

Settlement A: Number of people living in family home

Settlement B: Number of people living in family home



Key

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-
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Fig. 8

(iv) Use the information in Table 6 and Fig. 8 to compare the number of people living in family homes in the two squatter settlements.

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..... [2]

(v) Do the results of Questions 4 and 5 support **Hypothesis 2: Family homes in squatter settlement A are more crowded than homes in squatter settlements B and C.** Explain your answer.

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(d) Suggest three difficulties of conducting fieldwork in squatter settlements.

1
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2
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3
..... [3]

[Total: 30 marks]

