GradeMax

Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

6687307305

GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **May/June 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

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.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1.1, 1.2 and 1.3 and Table 1.1 for Question 1, and Figs. 2.1, 2.2 and 2.4 and Tables 2.1, 2.2 and 2.3 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.

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

This document consists of **15** printed pages, **1** blank page and **1** Insert.

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1 Students in Greece were studying how different types of wave affected beaches.

(a) Destructive waves and constructive waves are shown in Fig. 1.1 (Insert).

Put the following features into the table below to identify important differences between destructive and constructive waves.

waves are close together waves are far apart

wave spills forward as it breaks wave plunges downwards as it breaks

Features of destructive waves	Features of constructive waves

[2]

The students decided to investigate the following hypotheses by doing fieldwork at Afandou beach and Archangelos beach on the island of Rhodes:

Hypothesis 1: *At Afandou the beach profile is produced by constructive waves.*

Hypothesis 2: *Beach material is larger at beaches formed by constructive waves.*

(b) The students had learned that destructive waves and constructive waves varied in their frequency as shown below.

Type of wave	Frequency
Destructive waves	10 to 15 waves per minute
Constructive waves	6 to 9 waves per minute

Describe a method the students could use to measure wave frequency to get the results shown in Table 1.1 (Insert).

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(c) The students researched typical beach profiles produced by destructive and constructive waves. These are shown in Fig. 1.2 (Insert).

(i) Fig. 1.3 (Insert) shows a method of measuring a beach profile. Describe the method shown.

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[Turn over

(ii) The students used their measurements to draw the profile at Afandou beach shown in Fig. 1.4 below.

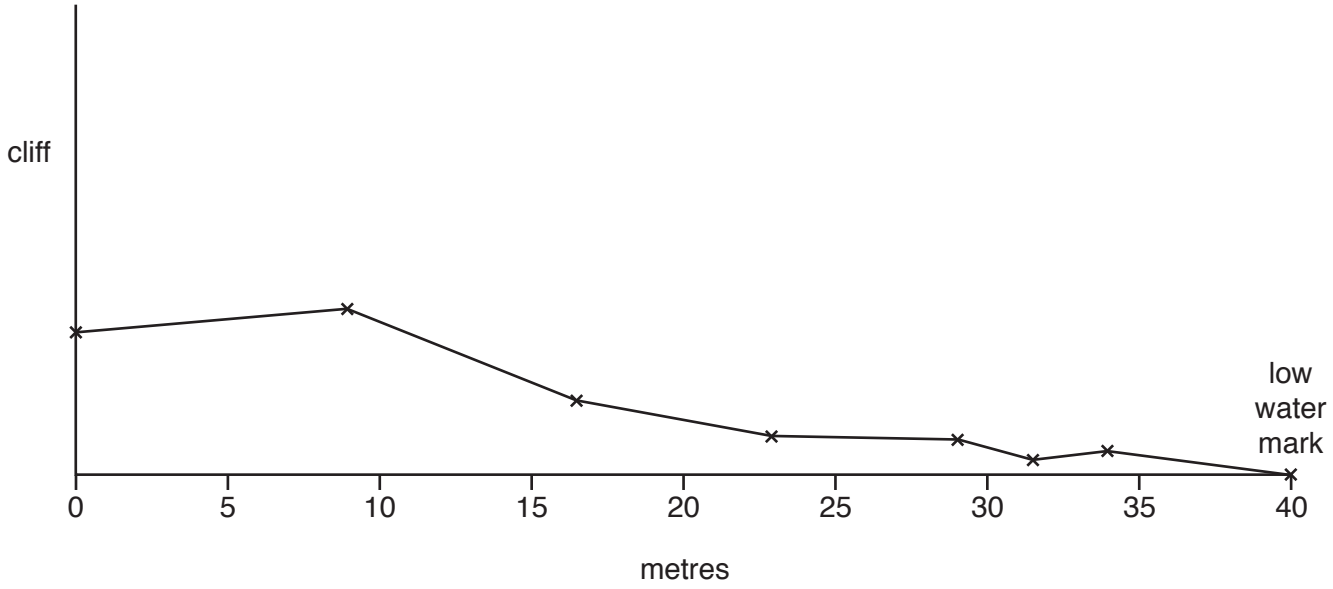

Fig. 1.4

What conclusion would the students make about **Hypothesis 1:** *At Afandou the beach profile is produced by constructive waves*? Support your decision with evidence from Table 1.1 and Figs. 1.2 and 1.4.

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(d) (i) To investigate **Hypothesis 2:** *Beach material is larger at beaches formed by constructive waves*, the students then obtained a sample of pebbles from both beaches. Describe a method they could use to get reliable samples in order to compare them.

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(ii) Describe a method to measure the size (length) of each pebble the students collected.

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[Turn over

(iii) The results of the students' fieldwork are shown in Fig. 1.5 below and Fig. 1.6 on page 7.
On Fig. 1.6 draw the bar to show that the length of pebble number 1 is 8.5 cm. [1]

Results of fieldwork

Afandou beach

Average pebble size = 9.6 cm	Median (middle) pebble size = 9.0 cm

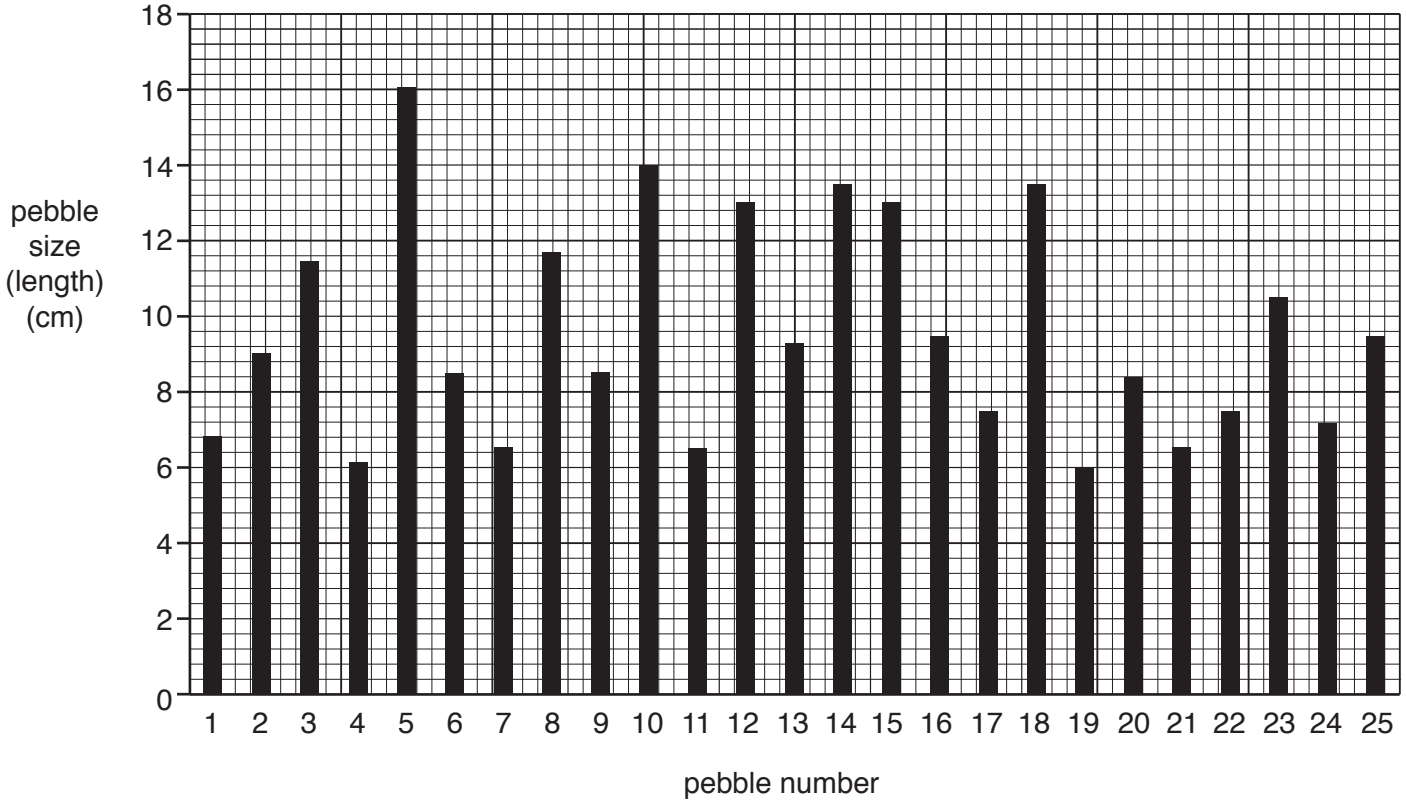

Fig. 1.5

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Archangelos beach

Average pebble size = 10.2 cm	Median (middle) pebble size = 9.5 cm

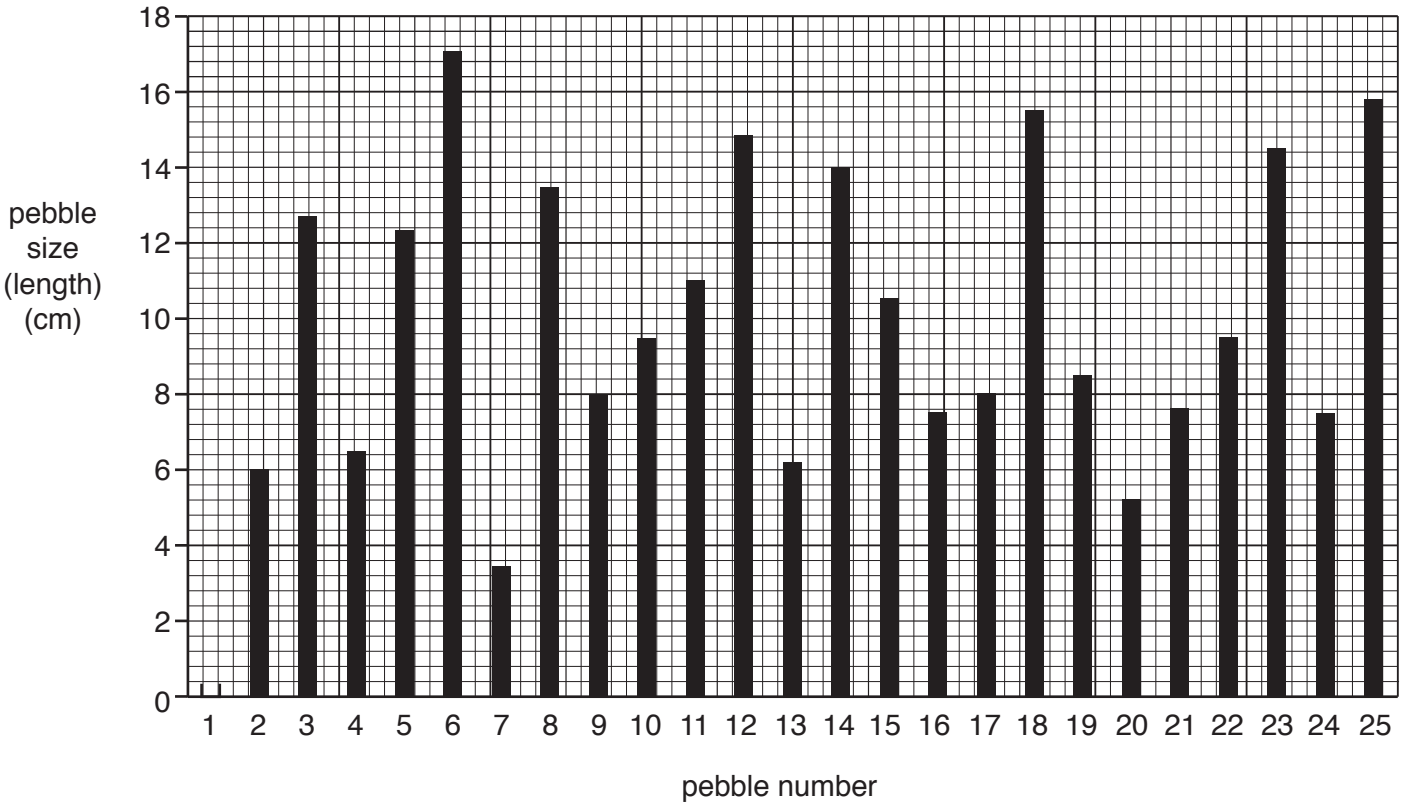

Fig. 1.6

(iv) What conclusion would the students make about **Hypothesis 2:** *Beach material is larger at beaches formed by constructive waves*? Support your decision with evidence from Figs. 1.5 and 1.6 and Table 1.1 (Insert).

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(e) The students planned an additional piece of fieldwork to investigate longshore drift in the area.

(i) Describe and explain the process of *longshore drift*. You may use a diagram in your answer.

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[3]

(ii) Describe a fieldwork method to investigate longshore drift.

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[Total: 30]

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2 Students in the UK did some fieldwork to compare two residential areas of the 'inner city'. They divided their investigation into two parts. First, they studied the environment of the areas, and second, they investigated what people who lived in the areas thought about their quality of life there.

Quality of life is a measurement of a person's well-being and satisfaction which result from factors in their environment such as health care, education opportunities, safety, and community spirit.

The two areas which the students chose to investigate, Mossbank and Ratcliffe, are shown in Fig. 2.1 (Insert). Mossbank is an area of old housing. Ratcliffe is an area of new apartments in buildings which used to be warehouses and factories.

They decided to investigate the following hypotheses:

Hypothesis 1: *Ratcliffe has a better quality of environment than Mossbank.*

Hypothesis 2: *Residents of Ratcliffe have a better quality of life than residents of Mossbank.*

(a) To investigate **Hypothesis 1** the students observed some features of the local environment at one site in each area. They recorded their results on the form shown in Fig. 2.2 (Insert).

(i) Before they began their fieldwork, the students went with their teacher to practise their survey in an area near the school.
Suggest **two** reasons why they did a practice survey.

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[2]

(ii) Explain how the students would organise and carry out their fieldwork survey using the form shown in Fig. 2.2.

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[Turn over

(b) The results of the fieldwork survey are shown in Table 2.1 (Insert).

(i) Use the results for Ratcliffe in Table 2.1 **to complete Fig. 2.3** below.

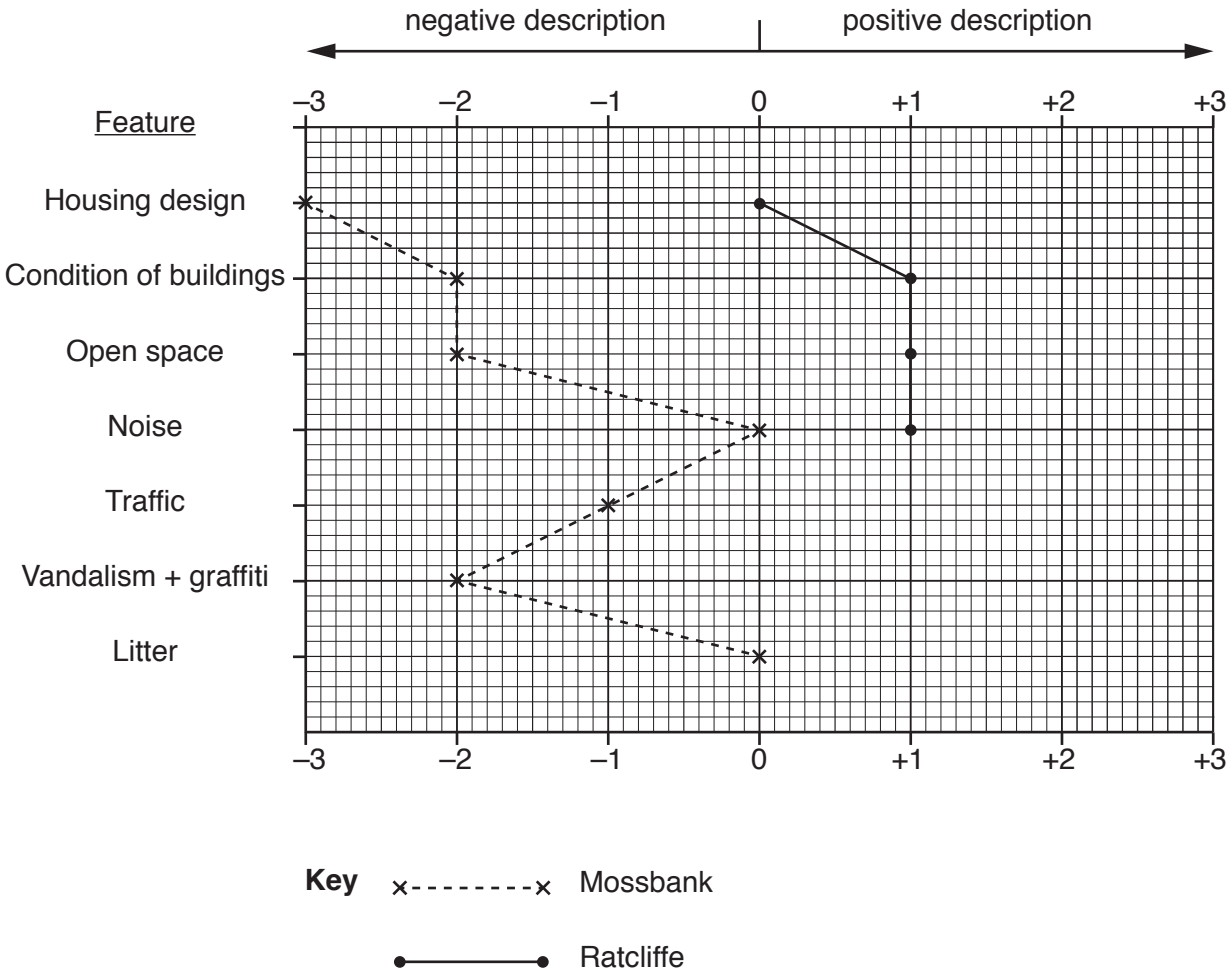

Fig. 2.3

[2]

(ii) What conclusion would the students make about **Hypothesis 1:** *Ratcliffe has a better quality of environment than Mossbank*? Use evidence from Fig. 2.3 and Table 2.1 to support your answer.

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(c) To investigate **Hypothesis 2:** *Residents of Ratcliffe have a better quality of life than residents of Mossbank*, the students used a questionnaire with 25 residents in each area.

(i) Name and describe **one** sampling method the students could use to select 25 people to take part in their survey.

Name of sampling method: .....

Description: .....

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(ii) Explain why it was necessary for the students to take a sample of people.

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(d) The questionnaire is shown in Fig. 2.4 (Insert). In the first part of the questionnaire the students asked local residents to complete the same survey which they had used to investigate **Hypothesis 1**. The average result of the 25 residents in each area is shown in Table 2.2 (Insert).

(i) Compare the residents' results in Table 2.2 with those of the students in Table 2.1.

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(ii) Suggest **two** reasons why the results shown in Tables 2.1 and 2.2 are different.

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[2]

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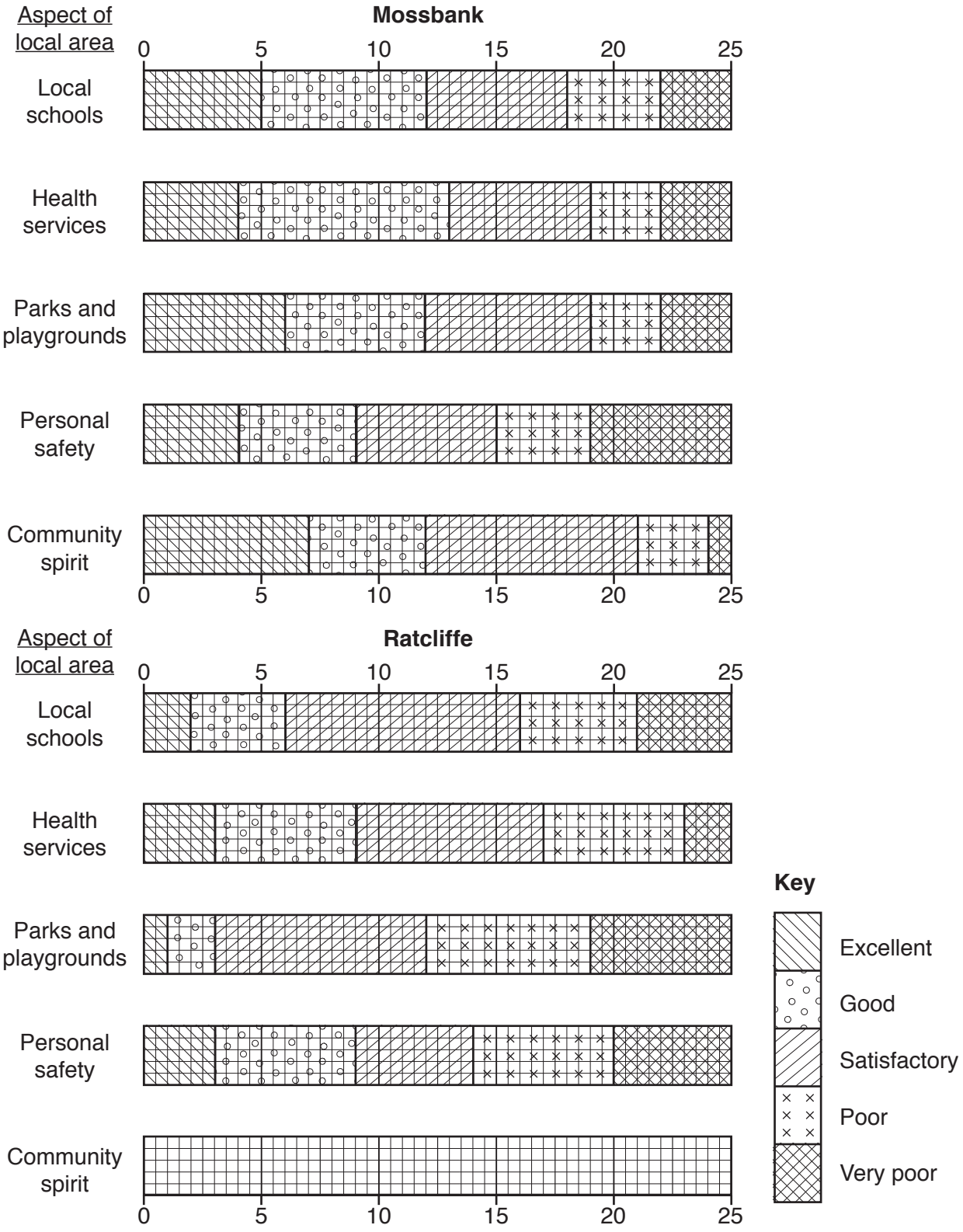
[Turn over

(e) In the second part of the questionnaire the students asked residents to give their opinion about five aspects of the local area. These results are shown in Table 2.3 (Insert).

(i) Use the results in Table 2.3 **to plot in Fig. 2.5** below residents' scores for community spirit in Ratcliffe.



[2]

Fig. 2.5

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(ii) The students' conclusion was that **Hypothesis 2:** *Residents of Ratcliffe have a better quality of life than residents of Mossbank*, was false. What evidence from Table 2.3 and Fig. 2.5 supports this conclusion?

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(f) Describe a piece of fieldwork the students could do to compare housing in Ratcliffe and Mossbank. Include the following in your description:

- which features of the housing they could look at
- fieldwork methods they could use
- how they could record their findings and results

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[Total: 30]

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Additional Pages

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

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