Cambridge Assessment International Education

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CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

8409012730

GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **May/June 2023**

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.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

This document has **20** pages. Any blank pages are indicated.

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1 Students visited three beaches along the coast in their local area. They wanted to investigate wave frequency and its possible effects on beach characteristics.

(a) Before they began their fieldwork, their teacher suggested how they needed to prepare so that they were safe on their visit to the beaches.

Explain why the teacher made the following suggestions.

Make sure that your mobile (cell) phone is charged.

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Check the weather forecast for the local area.

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Organise yourselves into groups of three.

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Check the time of day when it will be low tide.

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[4]

The students investigated the following hypotheses:

Hypothesis 1: *The profile of the beach is steeper where wave frequency is higher.*

Hypothesis 2: *Beach material is larger where wave frequency is higher.*

Wave frequency is the number of waves that break on the beach in one minute.

(b) The students measured wave frequency at the three beaches.

(i) Describe a fieldwork method to measure wave frequency.

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..... [3]

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(ii) The results of the students' measurements at the three beaches are shown in Table 1.1 (Insert). **Complete the graph** in Fig. 1.1 to show the average wave frequency at beach C. [1]

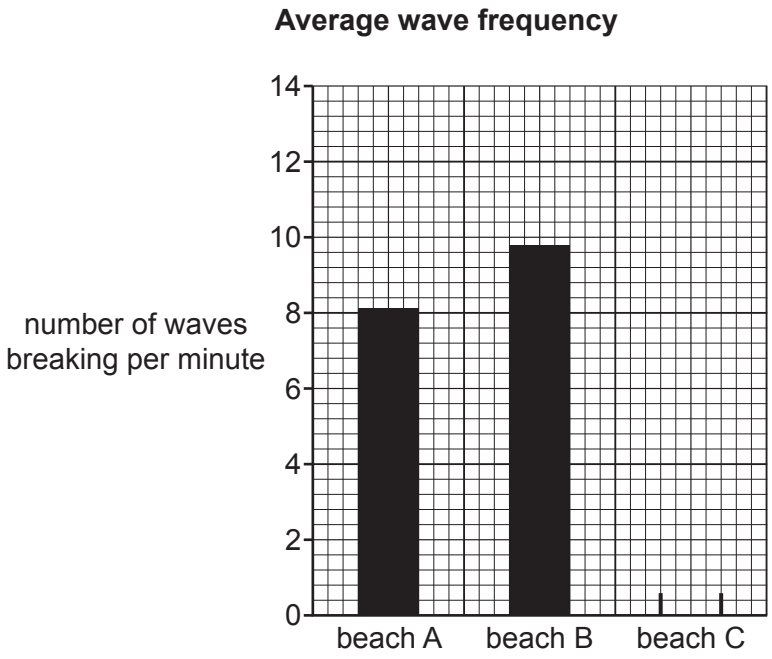


Fig. 1.1

(c) To investigate **Hypothesis 1**: *The profile of the beach is steeper where wave frequency is higher*, the students measured the profile of the three beaches.

(i) Fig. 1.2 (Insert) shows the method the students used to measure each profile. Describe how the students made their measurements.

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(ii) The results of their measurements are shown in Table 1.2 (Insert). **Plot the angle of slope** from site 2 to site 3 at beach A on Fig. 1.3. [1]

(iii) Use the results in Table 1.2 to **plot the average angle of slope** at beach B on Fig. 1.3. [1]

Angle of slope measurements at the three beaches

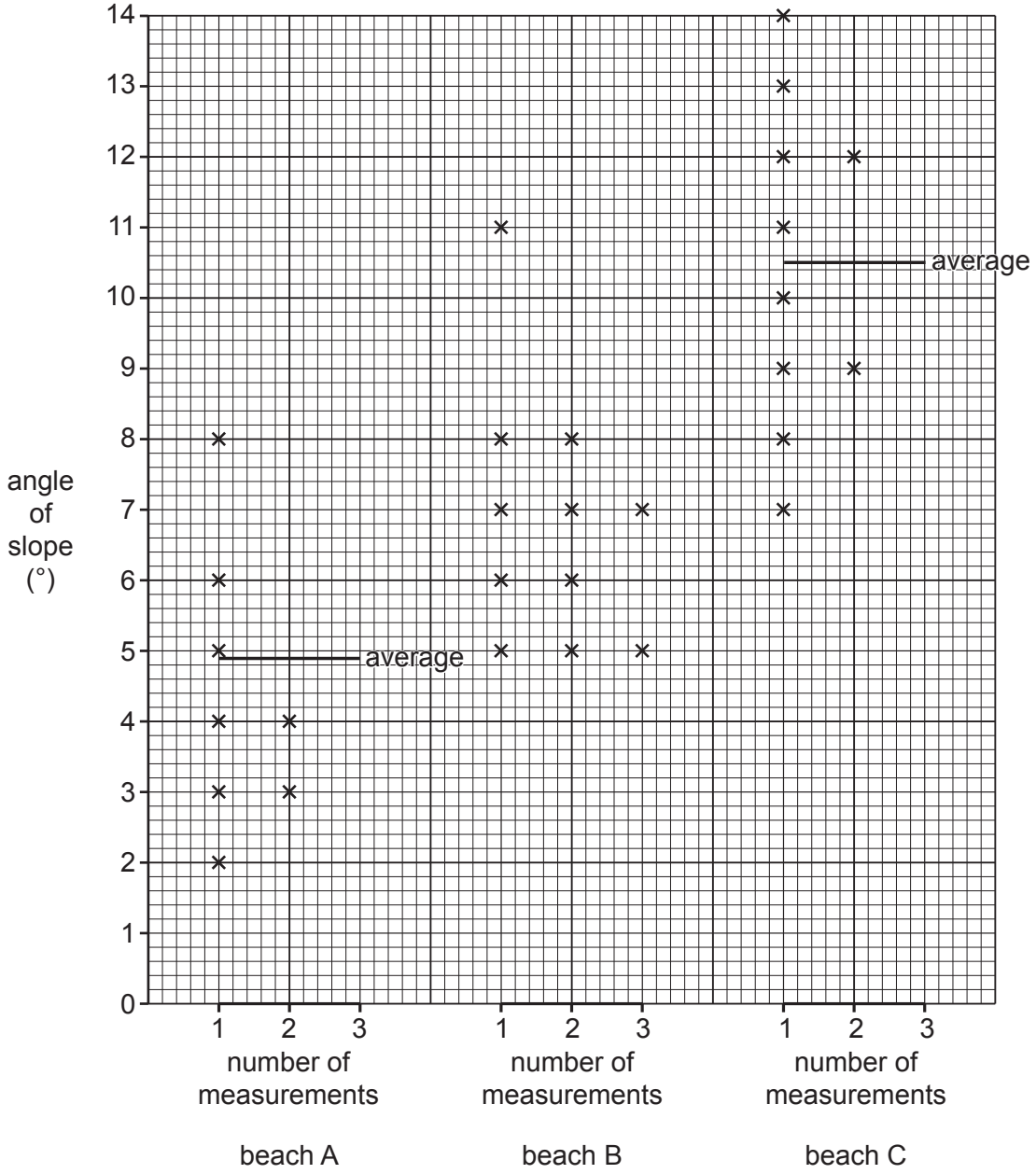


Fig. 1.3

(iv) What conclusion would the students make about **Hypothesis 1**: *The profile of the beach is steeper where wave frequency is higher*? Support your decision with evidence from Fig. 1.1 and Table 1.1, and Fig. 1.3 and Table 1.2.

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..... [3]

(d) To investigate **Hypothesis 2**: *Beach material is larger where wave frequency is higher*, the students collected a sample of 30 pebbles from each beach.

(i) The sizes of the pebbles collected at beach C are shown in Table 1.3 (Insert). Suggest how the students measured the size of each pebble they picked up.

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(ii) Use the results in Table 1.3 to **complete the histogram for beach C** in Fig. 1.4. [3]

Results of pebble measurements at the three beaches

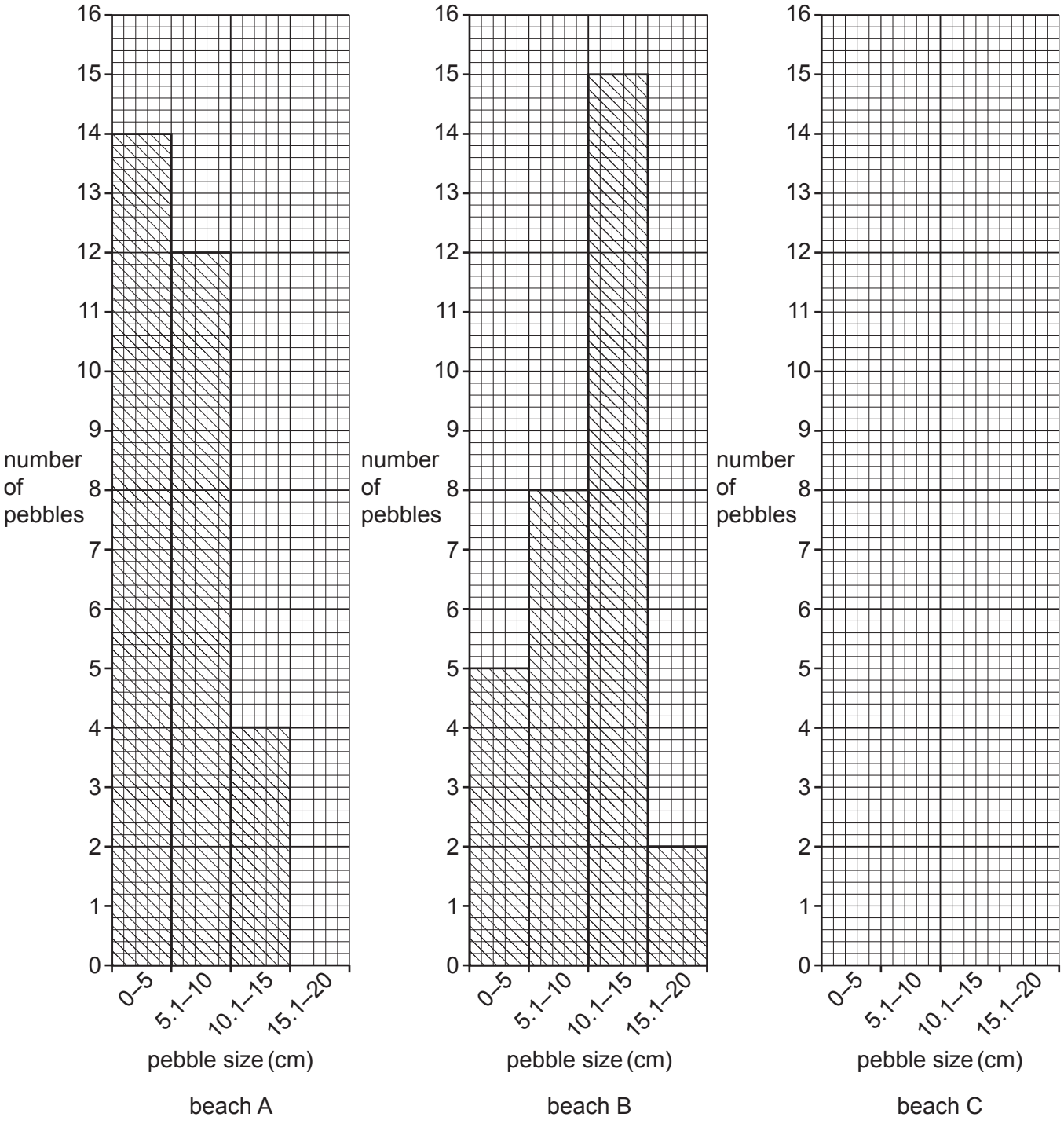


Fig. 1.4

(iii) The students made the conclusion that **Hypothesis 2**: *Beach material is larger where wave frequency is higher*, was **partially true**. Support their decision with evidence from Fig. 1.1 and Table 1.1, and Fig. 1.4 and Table 1.3.

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..... [4]

(e) The students learned that waves could be classified as constructive or destructive based on their frequency and other characteristics. In the table describe **three** differences between constructive and destructive waves. An example for each has been done for you.

constructive waves	destructive waves
wave spills forward (a spilling wave)	wave plunges down (a plunging wave)
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[3]

[Total: 30]

2 A student from the city of Biratnāgar in Nepal (an LEDC) visited the village of Chamaita where his family lived. Chamaita and other villages in eastern Nepal were affected by an earthquake, landslides and heavy monsoon rains which caused flooding during the years that the student was away.

(a) Which **one** of the following describes all three hazards? Tick (✓) your answer.

	tick (✓)
climatic	
man-made	
natural	
tectonic	

[1]

The student did a fieldwork investigation to compare economic development in Chamaita and another local village, Kanyam.

Two of the hypotheses which he investigated were:

Hypothesis 1: *Inhabitants of Chamaita have a higher level of education than inhabitants of Kanyam.*

Hypothesis 2: *The **importance** of the fuels used for cooking and lighting is different in the two villages.*

(b) The student made a questionnaire to find out about economic development. This is shown in Fig. 2.1 (Insert). He used the questionnaire with 100 residents in each village.

(i) The student used a random sampling method to select people for his survey. Give **one** advantage and **one** disadvantage of random sampling.

Advantage

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.....

Disadvantage

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.....

[2]

(ii) Name and describe **one** other sampling method the student could have used to select people.

Name of sampling method .....

Description

.....

.....

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..... [3]

(c) To collect primary data, the student gave his questionnaire (shown in Fig. 2.1) to the selected people.

(i) What is meant by *primary data*?

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..... [1]

(ii) Suggest **two** practical difficulties for the student of using this questionnaire to collect primary data.

1 .....

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2 .....

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[2]

(iii) Name another method the student could have used to collect the primary data.

Choose from the following and (circle) your answer.

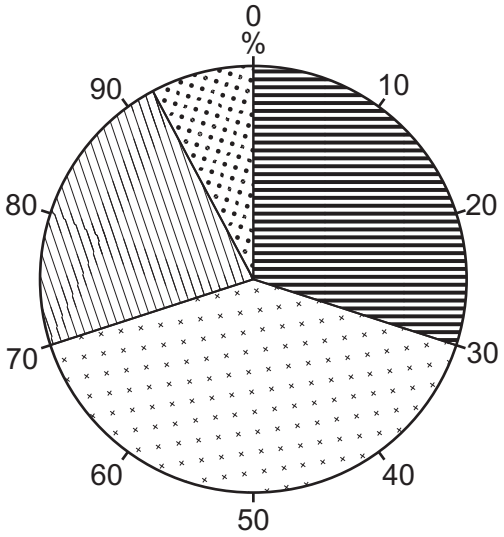
environmental quality survey field sketch interview

[1]

(d) The results of Question 1 in the questionnaire are shown in Table 2.1 (Insert).

(i) **Plot the results** for inhabitants of Kanyam on the pie graph in Fig. 2.2. [3]

Level of education of Chamaita inhabitants



Key

- no formal education
- primary school education
- secondary school education
- higher education

Level of education of Kanyam inhabitants

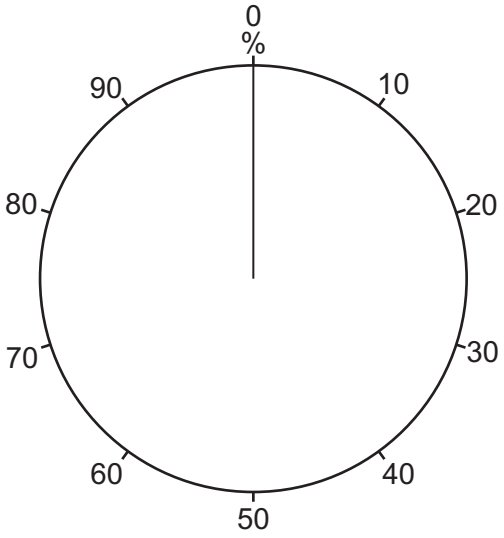


Fig. 2.2

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(ii) What conclusion would the student make about **Hypothesis 1**: *Inhabitants of Chamaita have a higher level of education than inhabitants of Kanyam*? Support your decision with evidence from Fig. 2.2 and Table 2.1.

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..... [3]

(e) To test **Hypothesis 2**: *The **importance** of the fuels used for cooking and lighting is different in the two villages*, the student used the results of Questions 2 and 3 in the questionnaire. The results are shown in Table 2.2 (Insert) and Table 2.3 (Insert).

Fuels used for cooking

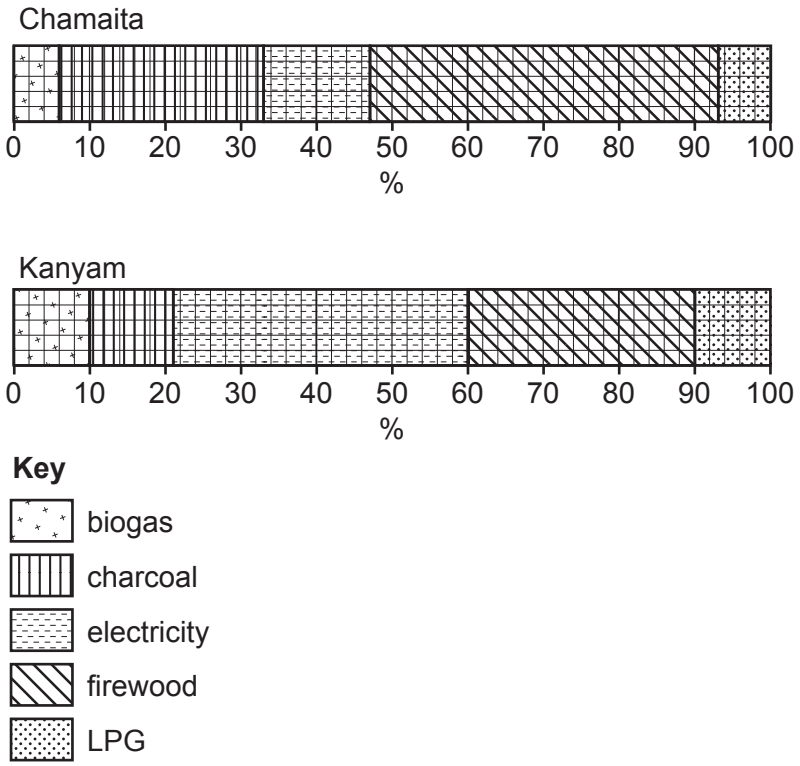


Fig. 2.3

(i) Use the results in Table 2.3 to **complete Fig. 2.4**. [2]

Fuels used for lighting

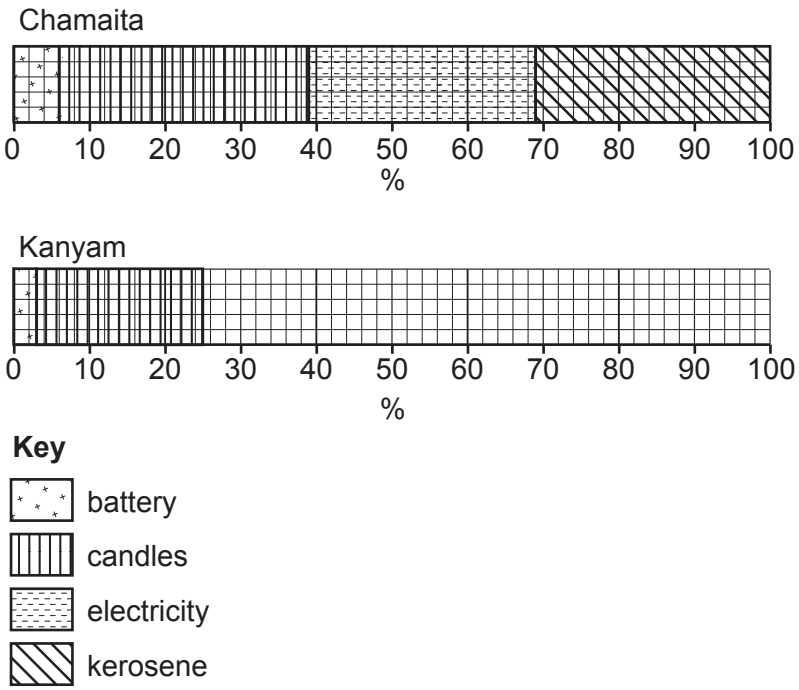


Fig. 2.4

(ii) The student decided that **Hypothesis 2**: *The **importance** of the fuels used for cooking and lighting is different in the two villages* was **true**. What evidence from his results (in Fig. 2.3, Table 2.2, Fig. 2.4 and Table 2.3) supports this decision? Use data in your answer.

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..... [3]

(f) The student included two more questions in his questionnaire which is shown in Fig. 2.1 (Insert). The results for Question 4 (What is your main type of work or employment?) are shown in Table 2.4 (Insert) and Table 2.5 (Insert).

(i) Use the results in Table 2.5 to **complete the graph** for Kanyam in Fig. 2.5. [1]

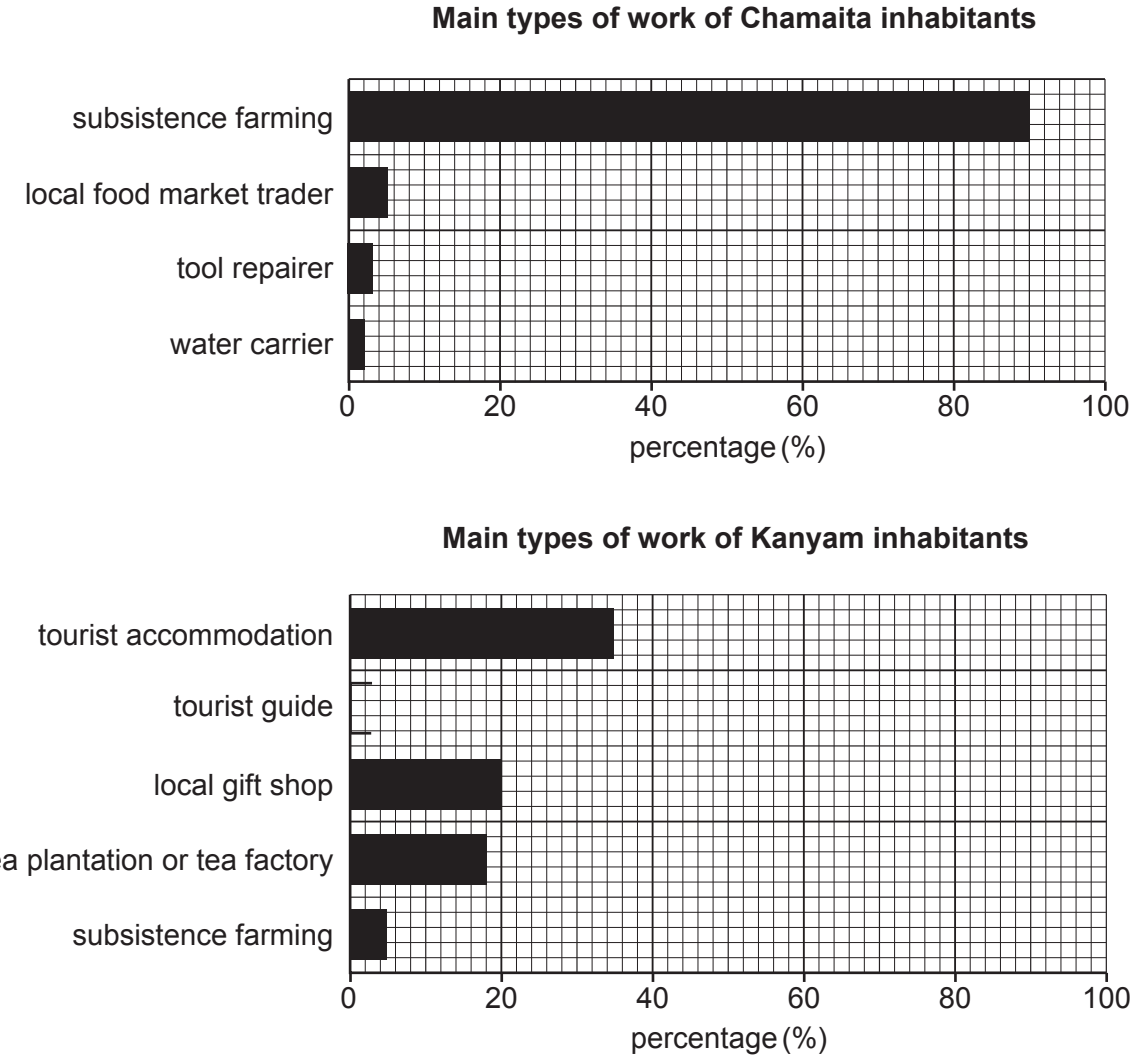


Fig. 2.5

(ii) What evidence from these results (in Fig. 2.5, Table 2.4 and Table 2.5) shows that more economic development has taken place in Kanyam than in Chamaita?

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..... [3]

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(g) The answers given by inhabitants of Chamaita to Question 5 in the questionnaire (What are the main problems which restrict economic development in the village?) are shown in Table 2.6 (Insert). Use these results to explain how and why these problems could restrict economic development. Refer to the problems in Table 2.6 but do **not** use statistics.

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[Total: 30]

Additional pages

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