Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

9290761894

GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **October/November 2020**

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

[Turn over

1 Students investigated differences in weather in a city centre square. Fig. 1.1 (Insert) shows the square which is pedestrianised. They identified five sites in the square where they could measure temperature, wind direction and wind speed at midday (12:00 hours) and in the early evening on eight consecutive days.

The students investigated the following hypotheses:

Hypothesis 1: *Midday temperatures are higher at sites A, B and C than at sites D and E.*

Hypothesis 2: *Wind direction and wind speed vary more at site C than at site E.*

(a) To measure the temperature the students considered using a traditional maximum-minimum thermometer at each site.

(i) Suggest why their teacher thought that it was **not** a good idea to use a maximum-minimum thermometer in the city centre square when they wanted to make their measurements.

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..... [2]

(ii) As an alternative method the students decided to use a digital thermometer to measure temperature at each site around midday (12:00 hours) and in the early evening. Give **three** advantages of using a digital thermometer.

1 .....

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2 .....

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3 .....

..... [3]

(b) The results of the students' midday temperature measurements are shown in Table 1.1 (Insert).

(i) Use the results in Table 1.1 **to complete Fig. 1.2 on the page opposite by plotting the midday temperatures** of days 6, 7 and 8 at site A. [2]

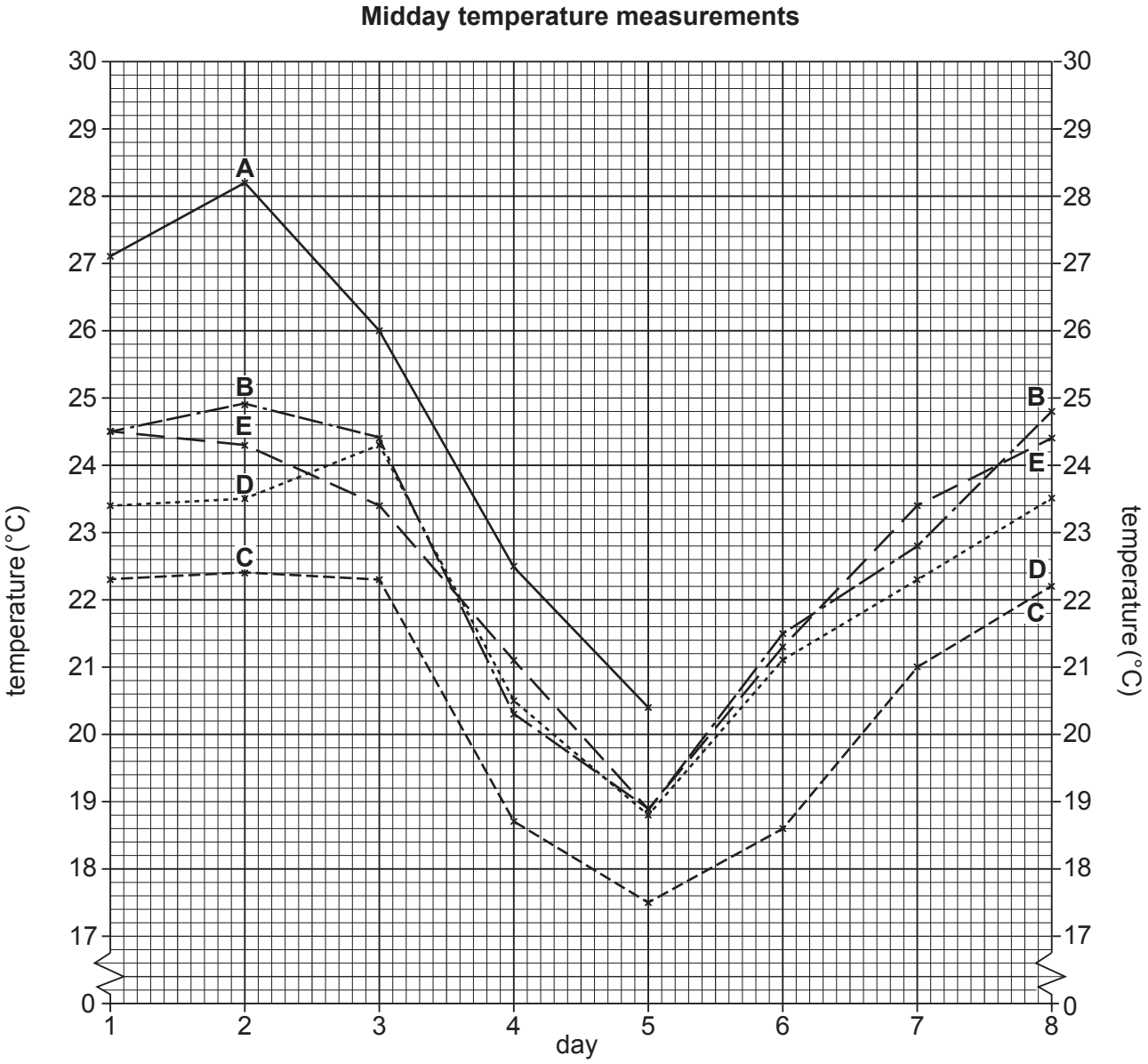

Fig. 1.2

(ii) What is your conclusion to **Hypothesis 1:** *Midday temperatures are higher at sites A, B and C than at sites D and E*? Support your decision with evidence from Fig. 1.2 and Table 1.1.

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(c) Early evening temperatures in the square also varied. These temperatures are shown in Fig. 1.3 (Insert). Use Fig. 1.3 to:

(i) Describe **one** difference in early evening temperatures between the sites. Do **not** use statistics in your answer.

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..... [1]

(ii) Describe **one** difference in early evening temperatures during the eight days. Do **not** use statistics in your answer.

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..... [1]

(d) To investigate **Hypothesis 2:** *Wind direction and wind speed vary more at site C than at site E*, the students took measurements at midday on each day.

(i) What is the instrument called which is used to measure wind **direction**? Tick (✓) your choice below.

	Tick (✓)
wind dial	
wind gauge	
wind vane	

[1]

(ii) The students' results of measuring wind direction are shown in Table 1.2 (Insert). Use these results **to complete the wind directions** at site **B** in Fig. 1.4 below. [2]

Wind direction at 5 measuring sites

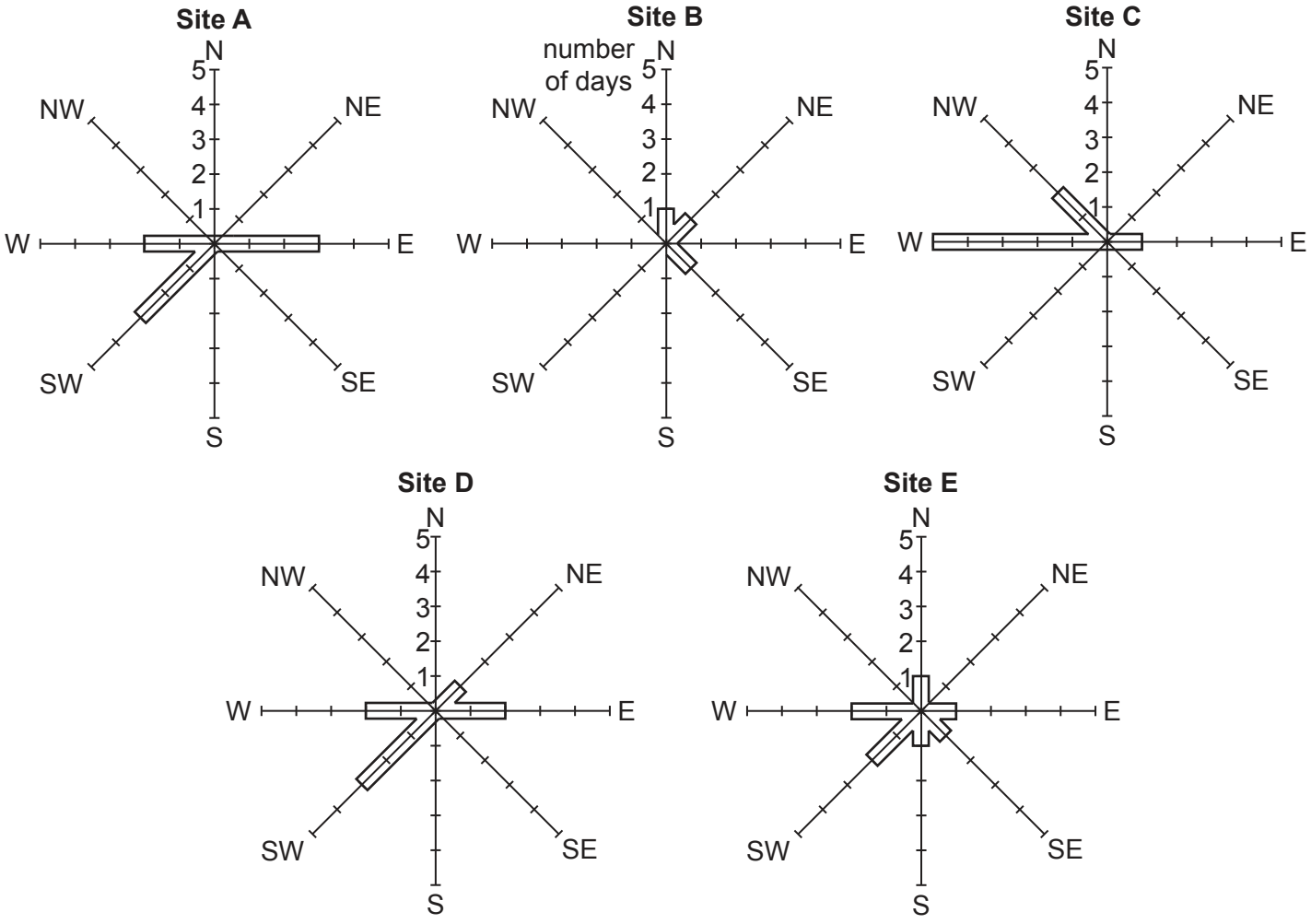

Fig. 1.4

(iii) Explain how an anemometer, like that shown in Fig. 1.5 (Insert), measures wind speed.

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..... [2]

(iv) The students' results of measuring wind speed are shown in Table 1.3 (Insert). In Fig. 1.6 below, **plot the wind speed measurements** at site B on days 1 and 7. [2]

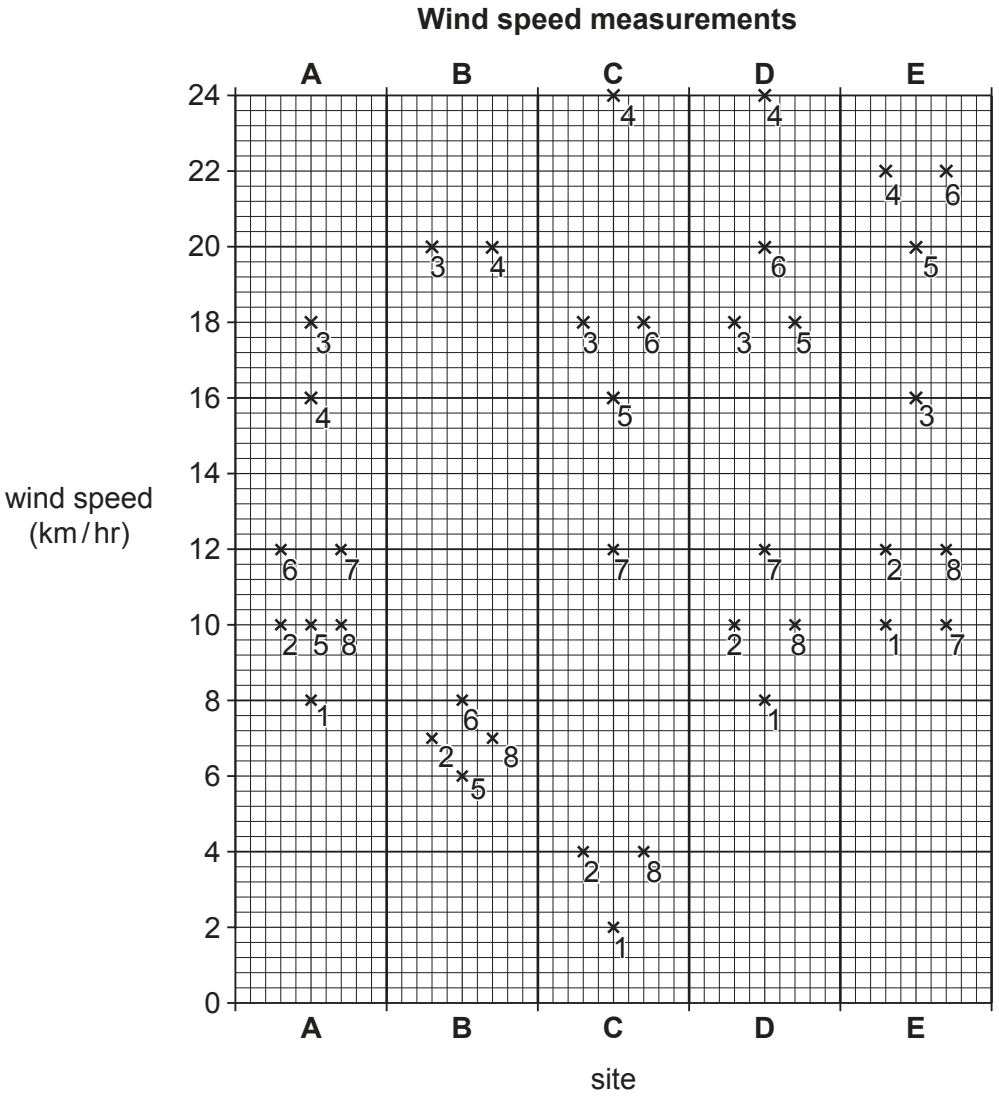

Fig. 1.6

(v) The students decided that **Hypothesis 2:** *Wind direction and wind speed vary more at site C than at site E*, was partly true. Which part of the hypothesis is **true**? Tick your decision below and support your decision with data from Figs. 1.4 and 1.6 and Tables 1.2 and 1.3.

	Tick (✓)
Wind direction varies more at site **C** than at site **E**	
Wind speed varies more at site **C** than at site **E**	

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..... [3]

(e) Look again at Fig. 1.1 (Insert). Suggest reasons why temperatures and wind direction and speed vary between the sites in the city centre square.

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..... [3]

(f) Another feature of weather which may vary over a small area is relative humidity.

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

Definition	Tick (✓)
the amount of moisture in the air during the day compared to the night	
the amount of moisture in the air as a percentage of the total moisture it could hold at that temperature	
the maximum amount of moisture in the air when it is warmed up	
the percentage of moisture in the air when it is raining compared to when it stops raining	

[1]

(ii) Relative humidity is calculated by using a wet-and-dry bulb thermometer (hygrometer). This is shown in Fig. 1.7 (Insert). Explain how the students would use this instrument to work out relative humidity.

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..... [3]

[Total: 30]

2 A group of students in The Gambia visited Bafoloto quarry. The location of the quarry is shown in Fig. 2.1 (Insert).

(a) The Gambia is a small country in Africa. It is about 50 km wide at the coast and narrows to only 24 km wide inland. Use Fig. 2.1 to measure the length of The Gambia from west to east. Tick (✓) your answer below.

	Tick (✓)
300 km	
330 km	
410 km	
460 km	

[1]

(b) Mining and quarrying contribute a small proportion of the total GDP of The Gambia. This is shown in Table 2.1 below.

Table 2.1

Economic sector	% of GDP
Services	**59**
Transport	**16**
Agriculture	15
Manufacturing	4
Construction	3
Administration	2
Mining and quarrying	1

GDP is a measurement of the total value of goods and services produced in a country.

(i) Which **one** of the following sectors of industry produces the highest percentage of The Gambia's GDP? Circle your answer below.

Primary Secondary Tertiary

[1]

(ii) Use the data in Table 2.1 to **complete the pie graph**, Fig. 2.2 below. [2]

Percentage of GDP produced by each economic sector

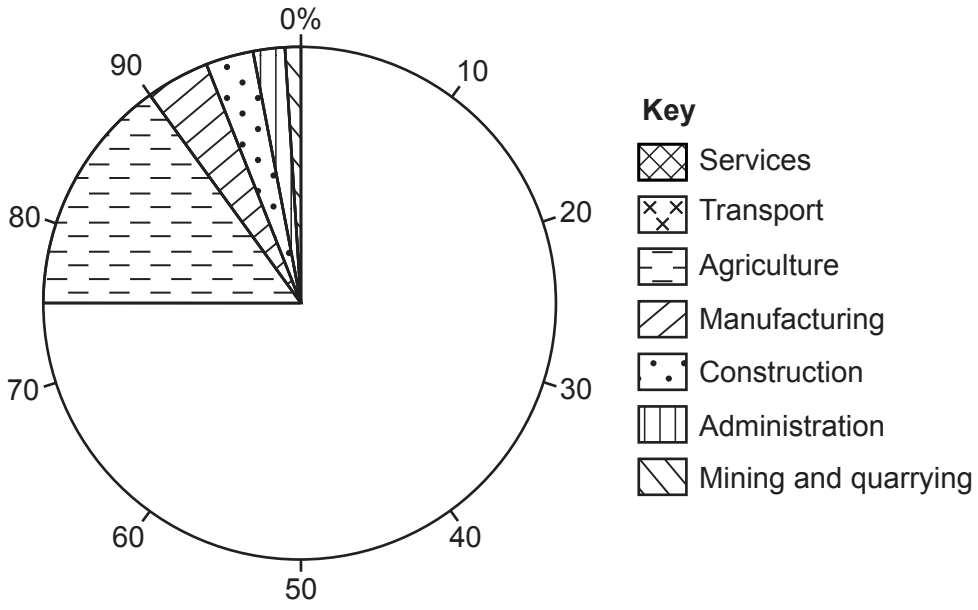

Fig. 2.2

(c) Bafoloto quarry is shown in Fig. 2.3 (Insert). Laterite, which is used in building, is dug out at the quarry.

Describe **two** features of work at the quarry which are shown in Fig. 2.3.

1 .....

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2 .....

..... [2]

The two hypotheses which the students tested were:

Hypothesis 1: *Over half of the quarry workers are male and from The Gambia*.

Hypothesis 2: *People gained benefits from going to work at Bafoloto quarry*.

(d) To investigate these hypotheses the students used a questionnaire with 50 of the 400 workers at the quarry. This questionnaire is shown in Fig. 2.4 (Insert).

(i) Before using the questionnaire, the students thought about the best way to make use of it. Name and describe a suitable sampling method for the students to use to select 50 workers. Explain why you have chosen this method.

Name of sampling method

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Description of sampling method

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.....

Why this sampling method was chosen

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..... [3]

(ii) Two age groups are missing from the questionnaire in Fig. 2.4. Add the **two** missing age groups to the table below.

Age group
Under 20
Over 60

[2]

(iii) Answers to Question 1 in the questionnaire (*Which country do you come from?*) are shown in Table 2.2 (Insert). Use this data **to plot the numbers of male and female workers** from Senegal on Fig. 2.5 below. [2]

Where workers at the quarry came from

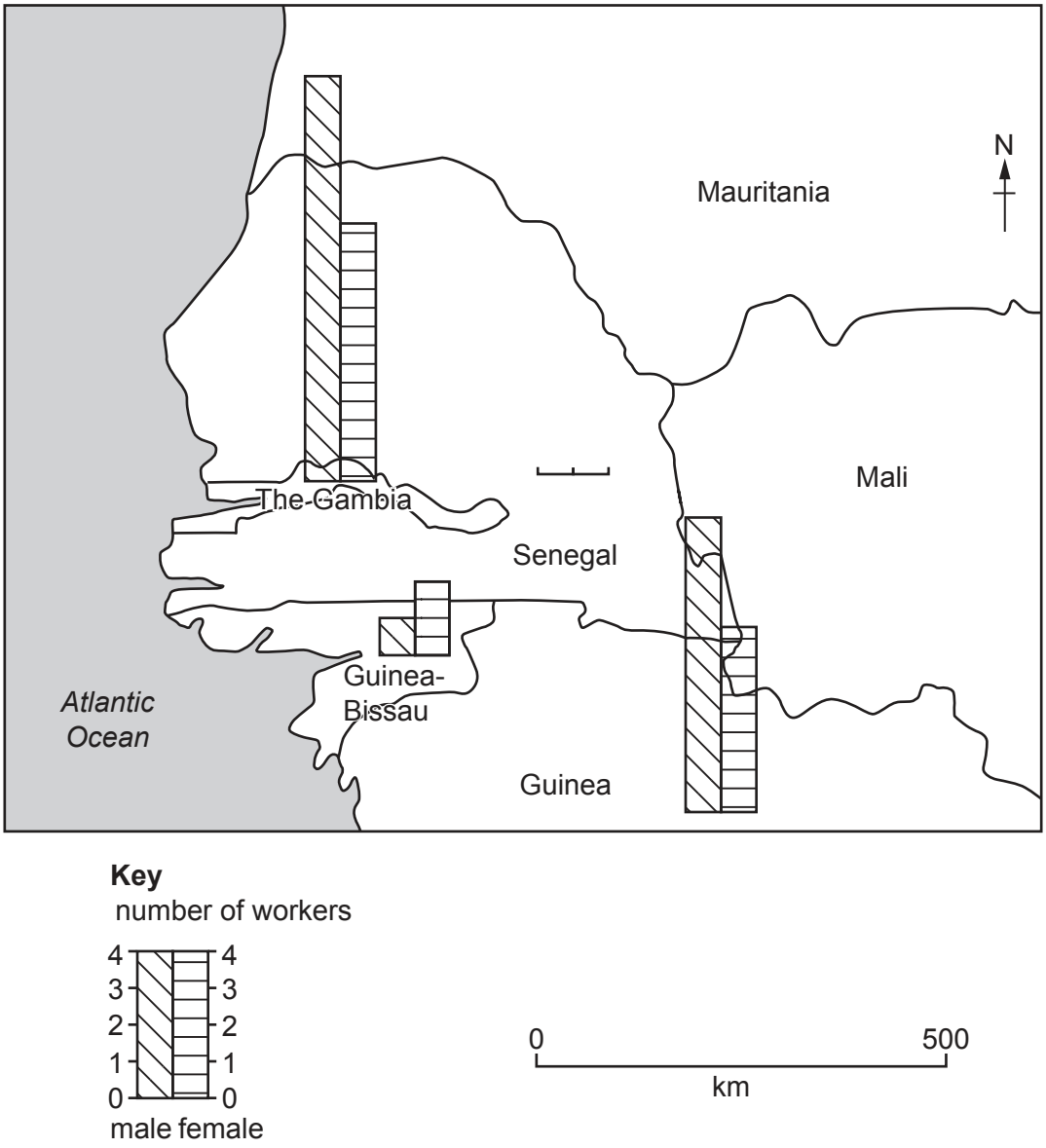

Fig. 2.5

(iv) What conclusion did the students make to **Hypothesis 1:** *Over half of the quarry workers are male and from The Gambia*? Support your answer with evidence from Fig. 2.5 and Table 2.2.

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(v) Answers to Question 2 in the questionnaire (*How long have you worked at the quarry?*) are shown in Table 2.3 (Insert). Use these results **to complete the divided bar graph** in Fig. 2.6 below. [2]

How long workers have worked at the quarry

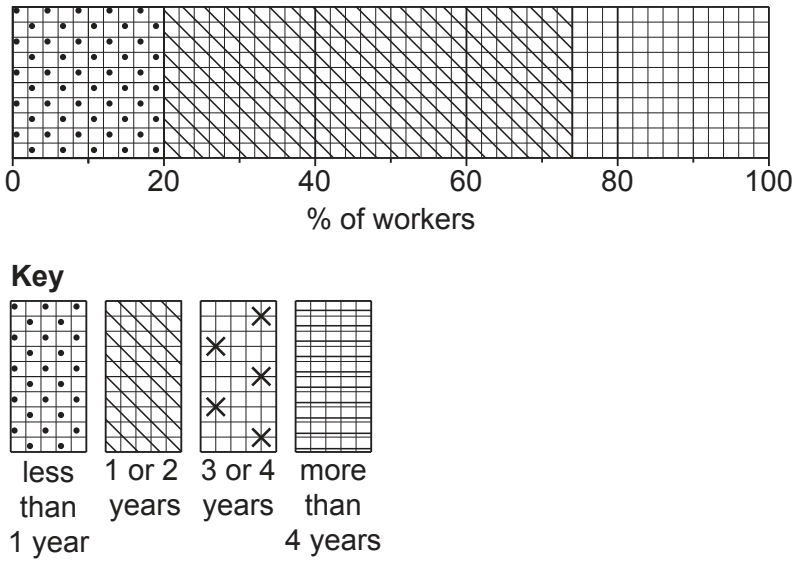

Fig. 2.6

(e) To investigate **Hypothesis 2:** *People gained benefits from going to work at Bafoloto quarry*, the students used the answers to Question 3 in the questionnaire (*Why do you work at the quarry?*). Some answers to Question 3 are shown in Table 2.4 below.

The students reached the conclusion that **Hypothesis 2:** *People gained benefits from going to work at Bafoloto quarry*, was generally **true**.

Which **three** answers in Table 2.4 best support their conclusion? Tick (✓) your **three** choices below.

Table 2.4

Answers to Question 3 (*Why do you work at the quarry?*)

Answers to Question 3	Tick (✓)
Quarry work is better paid than farm work	
No skills to do any other job	
Earn money at the quarry (in the dry season) when there is no work to do on the farm	
Relatives already work at the quarry	
Send money to my family back home	
Have paid for a licence to dig in the quarry	

[3]

(f) To extend their fieldwork the students wanted to find out about working conditions and safety at the quarry.

(i) Describe how they could collect information. Do **not** include a questionnaire survey in your method.

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..... [4]

(ii) Suggest why it might be difficult for the students to collect information about working conditions and safety at the quarry.

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..... [2]

(iii) Suggest **two** possible problems of working at the quarry.

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2 .....

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[2]

[Total: 30]

Additional Pages

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

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