UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

GEOGRAPHY **2217/21**

Paper 2 **October/November 2011**

2 hours 15 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Ruler
Protractor
Plain paper

1:25 000 Survey Map Extract is enclosed with this Question Paper.

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 IN ANY BARCODES.

Section A
Answer **all** questions.
Section B
Answer **one** question.

Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.
Insert 1 contains Photograph A for Question 3.
Insert 2 contains Figs 10 and 11 for Question 7, and Figs 15, 16 and 17 for Question 8.
The Survey Map Extract and the Inserts are **not** required by the Examiner.

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 document consists of **25** printed pages, **3** blank pages and **2** Inserts.

UNIVERSITY of CAMBRIDGE International Examinations

[Turn over

Section A

For Examiner's Use

Answer **all** questions in this section.

1 Study the 1:25 000 map of Rose Belle, Mauritius.

(a) (i) Give the six-figure grid reference for the Cremation Ground at La Rosa.

.....[1]

(ii) In which compass direction is La Rosa from New Grove (094763)?

.....[1]

(b) (i) Measure the distance along the main B road from the motorway junction to the main A road junction in New Grove. Give your answer in metres.

.....[1]

(ii) At what height above sea level is the bench mark at the road junction in New Grove?

.....[1]

(iii) The change in height along the main B road, from the motorway junction to the main A road junction in New Grove, is 18 metres. Use this information and your answer to **(b)(i)** to calculate the gradient of this road.

.....

.....

Gradient = 1 in .....[1]

(c) Compare the route of the motorway with the route of the main A road, in the area west of grid line 11.

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.....[3]

(d) Study the grid square shown in Fig. 1.

For Examiner's Use

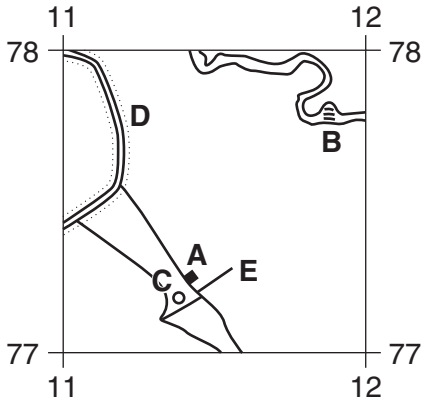

Fig. 1

(i) Name the feature at **A**.

.....[1]

(ii) Name the river feature at **B**.

.....[1]

(iii) Name feature **C**.

.....[1]

(iv) Name the feature that follows the route of the road at **D**.

.....[1]

(v) What type of routeway continues from the end of the track at **E**?

.....[1]

(e) Study the area of the map shown in Fig. 2.

For Examiner's Use

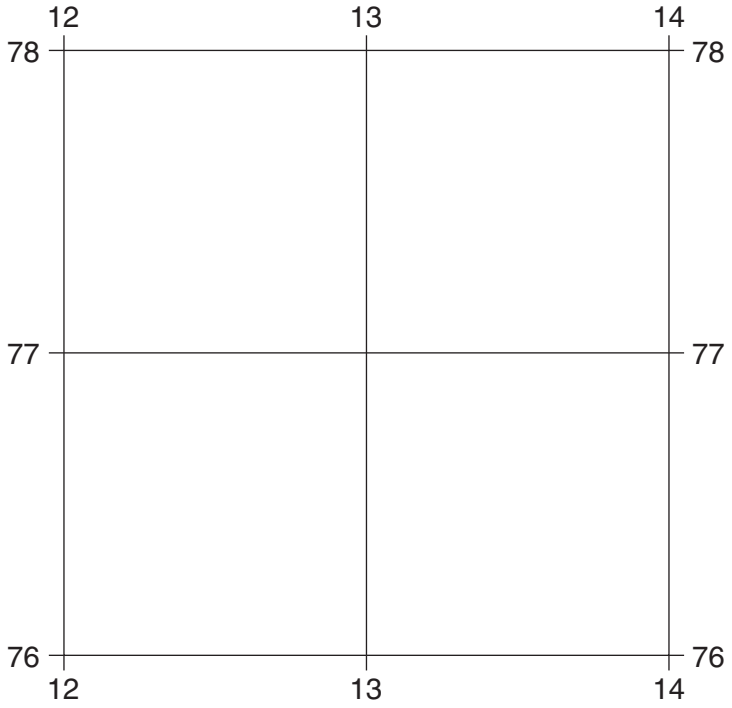

Fig. 2

(i) Describe the River La Chaux in this area.

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.....

.....[3]

(ii) Suggest why the sugar cane plantation does not reach the River La Chaux.

.....

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.....

.....[2]

(f) Describe the pattern of settlement in the area of the map.

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.....[2]

[Total: 20 marks]

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PLEASE TURN OVER FOR QUESTION 2.

2 Study Fig. 3, which shows changes in numbers of refugees and internally displaced persons (IDPs) between April and September 2009, in central Africa.

For Examiner's Use

Definitions of key words

Refugee – A person who has fled to a different country to escape a danger or problem.
IDP – A person who has fled to another part of the same country.

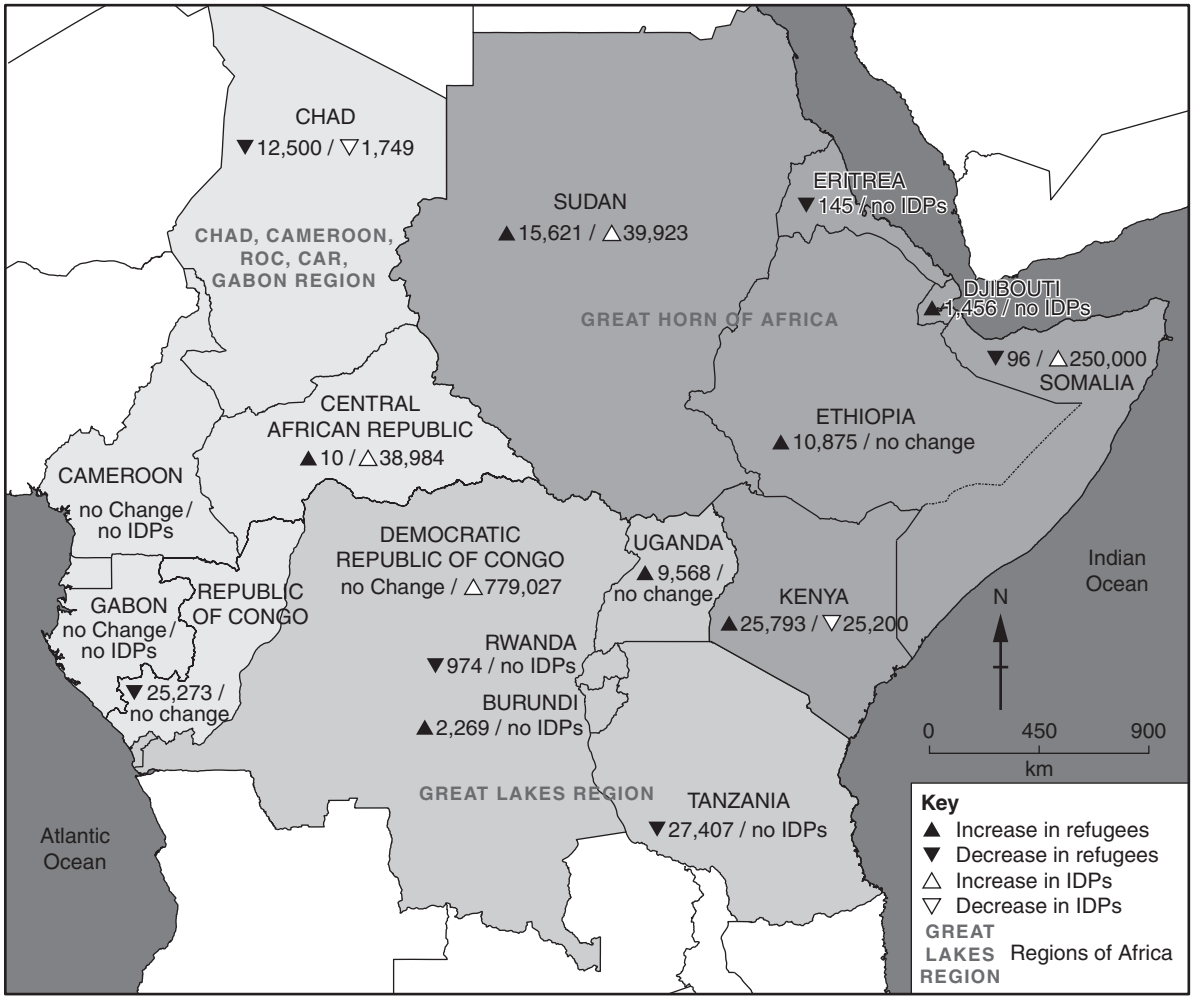

Fig. 3

(a) (i) Which country had the largest:

- increase in refugee numbers;

.....

- decrease in refugee numbers?

.....[2]

(ii) How many countries had a decrease in the number of IDPs?

.....[1]

(iii) Name a country on the west coast of Africa that has no IDPs.

.....[1]

(iv) In which **three** countries could refugees arrive on foot from Somalia?

.....[1]

(b) Fig. 4 shows the percentage of total refugees in the three regions shown on Fig. 3.

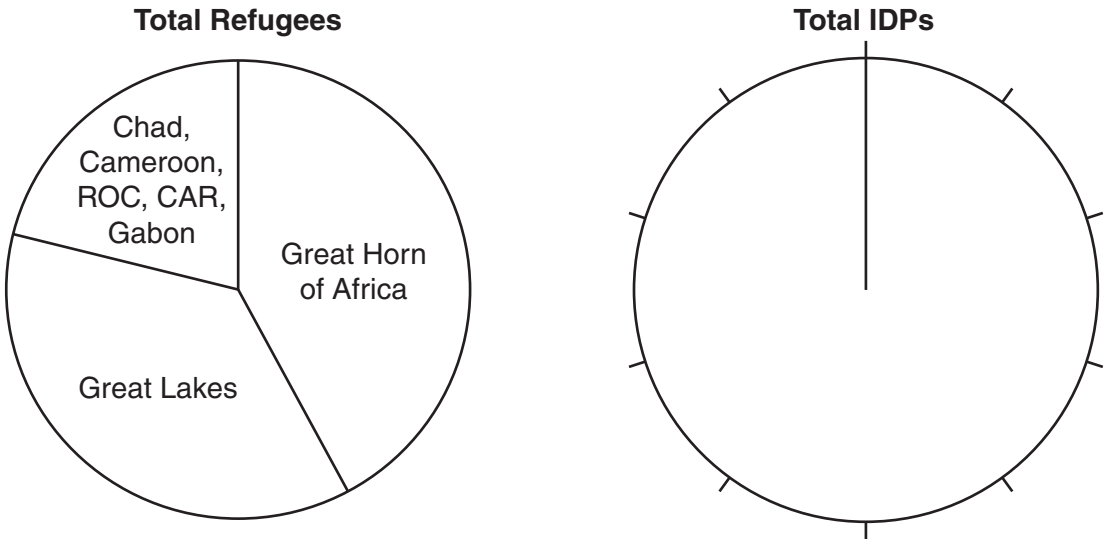

Fig. 4

(i) Use the data from Table 1 to show the total IDPs on Fig. 4.

Table 1

Great Horn of Africa	70%
Great Lakes Region	27%
Chad, Cameroon, ROC, CAR, Gabon Region	3%

[2]

(ii) Which region has the largest number of displaced people?

.....[1]

[Total: 8 marks]

3 Study Photograph A (Insert 1) of a rural location in Zimbabwe.

(a) Describe the relief of the area.

.....

.....

.....[2]

(b) Apart from buildings, what evidence is there of human activity in this area?

.....

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.....[3]

(c) Study Fig. 5, a sketch map of the area. Photograph A was taken from the position shown.

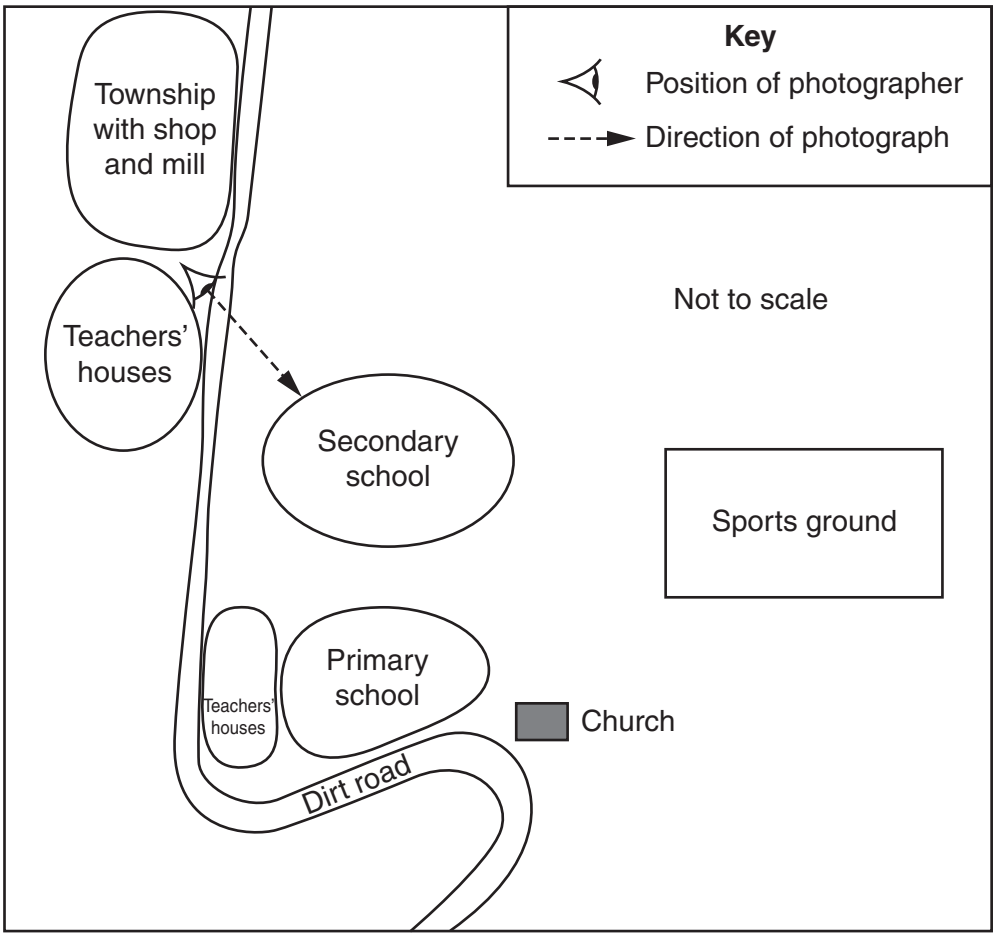

Fig. 5

(i) What are the buildings shown in the photograph?

.....[1]

For Examiner's Use

(ii) Name **four** other services that are available in this settlement.

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.....[2]

[Total: 8 marks]

4 Study Fig. 6, a climate graph for a place in Africa. Complete the paragraphs below.

For Examiner's Use

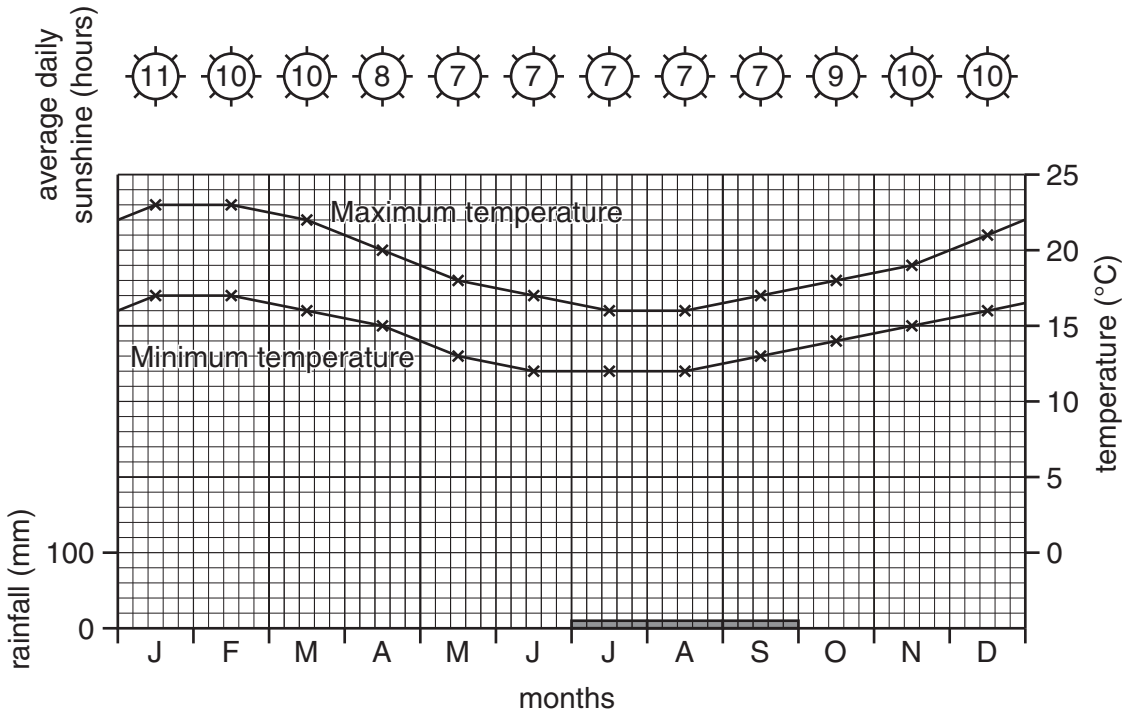


Fig. 6

Highest temperatures are experienced in …… and ……, when the maximum is 23 °C. The lowest minimum temperature of …… °C occurs from June to August.

In January there are …… hours of sunshine per day, with a temperature range for that month of ……°C

Rainfall is unlikely except in ……, …… and …… . The rainfall total is only …… mm, making this a …… climate.

The location is in the …… hemisphere. [8]

[Total: 8 marks]

5 Fig. 7 shows two types of weathering.

For Examiner's Use

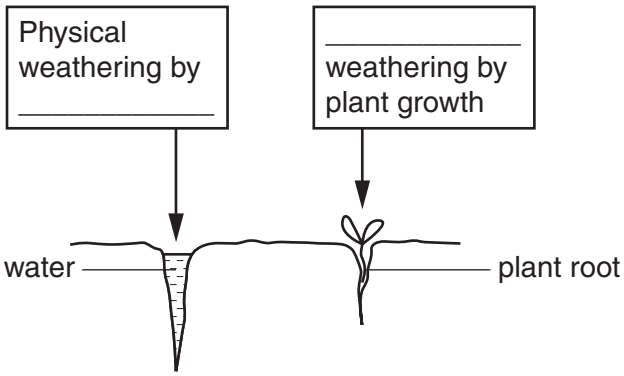


Fig. 7

(a) (i) Complete the labels on Fig. 7. [2]

(ii) For **one** of the examples shown on Fig. 7, describe how the crack in the rock will be enlarged by the weathering process.

.....

.....

.....[2]

(b) Using the axes below, sketch a graph to show that, in a moist environment, chemical weathering increases as temperature increases. You should also label the axes of the graph.

[2]

(c) Suggest how industrial pollution can cause an increase in weathering.

.....

.....

.....

.....[2]

[Total: 8 marks]

6 Study Fig. 8, which is about soil erosion on cropland in the USA.

For Examiner's Use

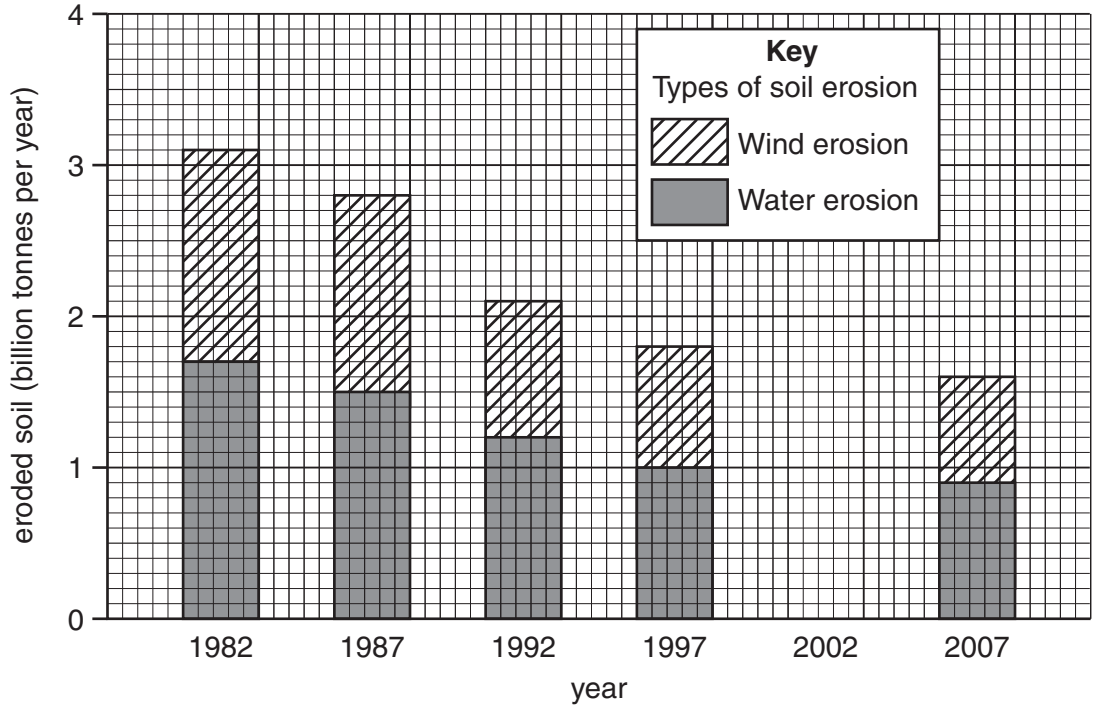


Fig. 8

(a) (i) Use the data for 2002 to complete Fig. 8.

Water erosion = 1.0 billion tonnes per year
Wind erosion = 0.7 billion tonnes per year [2]

(ii) Between which years was the greatest decrease in soil erosion?

.....[1]

(iii) Which type of soil erosion has decreased most between 1982 and 2007?

.....[1]

(b) Under what conditions will wind erosion be greatest?

Circle **two** statements.

Slow wind speed Fast wind speed

Low rainfall High rainfall

[2]

(c) Fig. 9 describes some of the methods that have been used in the USA to decrease soil erosion.

For Examiner's Use

Government policy in the USA has encouraged soil conservation. Farmers have been paid to plant grass or trees on fragile cropland with 14 million hectares being transferred to permanent vegetation cover by 1990.

Alternative cultivation methods are also being used. By 1994, 26% of planted cropland was under mulch tillage. This is when crop residue is left on the soil surface.

Fig. 9

Name **two** soil conservation methods described in Fig. 9.

.....

.....[2]

[Total: 8 marks]

Section B

For Examiner's Use

Answer **one** question in this section.

7 Students in a class in Beijing, China, were learning about the sphere of influence of settlements and services.

(a) (i) Which **one** of the following is the correct definition of 'sphere of influence'? Tick your choice in the table below.

Definition	Tick ✓
area around a town or shop	
area where people have migrated from	
area where people go to work in a town	
area served by a settlement or service	
area next to a particular service	

[1]

(ii) Why does the sphere of influence vary between different sized settlements?

.....

.....

.....

.....

.....

.....[3]

Some of the students decided to investigate the sphere of influence of their school.
They agreed to test the following hypotheses:

For Examiner's Use

Hypothesis 1: *The number of students coming to our school decreases as distance from the school increases.*

Hypothesis 2: *Students travel to school in different ways but most travel by car.*

(b) To collect data to test these hypotheses the students produced a questionnaire which they showed to their teacher. This is shown in Fig. 10 (Insert 2).

(i) Their teacher did not give a positive response about the questionnaire.
Suggest **one** weakness of **each** question.

Question 1 .....

.....

Question 2 .....

.....

Question 3 .....

.....[3]

(ii) The students changed the questionnaire on the advice of their teacher.
Their amended version is shown in Fig. 11 (Insert 2).
The students decided to ask 10% of all the students in the school to complete their questionnaire. This would result in 125 questionnaires being completed.

Do you think that this is an appropriate sample size? Explain your answer.

.....

.....

.....

.....[2]

(iii) Describe a suitable method of selecting the students to complete the questionnaire in order to get a fair, representative sample.

.....

.....

.....

.....[2]

[Turn over

(c) Having completed their survey the students tabulated the results of the questionnaire. The results for Question 1 (*In which municipality of Beijing do you live?*) are shown in Table 2 below.

For Examiner's Use

Table 2

Answers to Question 1: *In which municipality of Beijing do you live?*

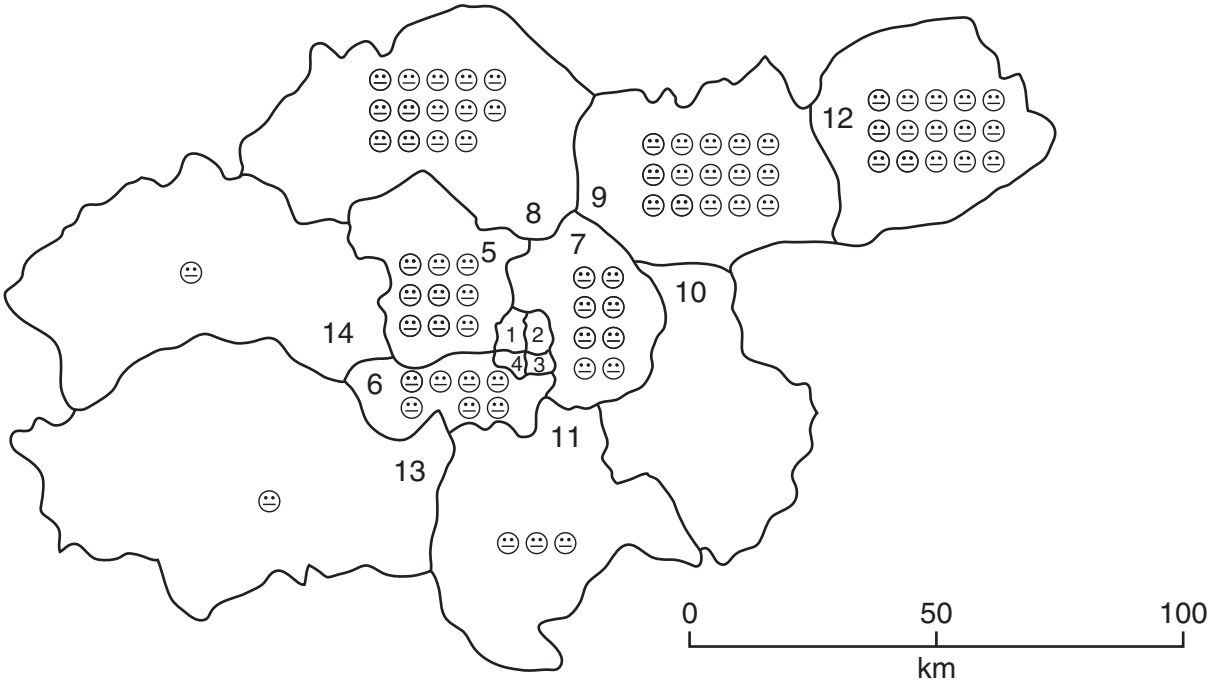
	Municipality	**Tally**	**Number**
1	Xi Cheng	𝍸 𝍸 𝍸 III	18
2	Dong Cheng	𝍸 𝍸	10
3	Chong Wen	𝍸 𝍸 III	13
4	Xuan Wu	IIII	4
5	Hai Dian	𝍸 IIII	9
6	Feng Tai		
7	Chao Yang	𝍸 III	8
8	Chang Ping	𝍸 𝍸 IIII	14
9	Shung Yi	𝍸 𝍸 𝍸	15
10	Tong Zhou	𝍸 II	7
11	Da Xing	III	3
12	Ping Gu	𝍸 𝍸 𝍸	15
13	Fang Shan	I	1
14	Men Tou Go	I	1
	Total		125

(i) Seven students live in Feng Tai municipality. Insert this information to complete Table 2. [1]

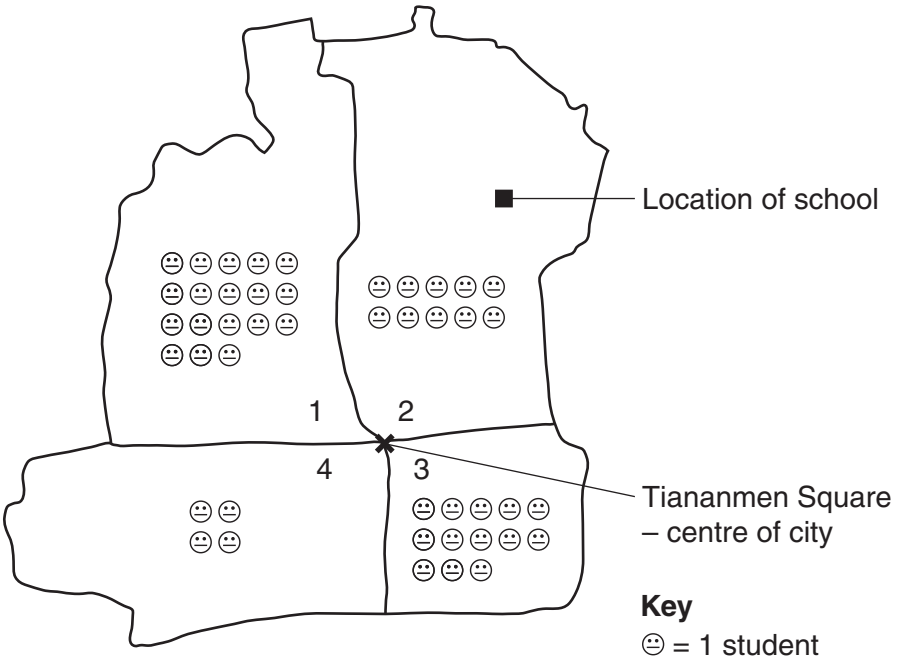
For Examiner's Use

The students displayed the results for Question 1 in two different types of map. These are shown in Fig. 12 (below) and Fig. 13 (on page 18).

Pictogram to show where students travel from



Large-scale map of central municipalities



Key to municipalities

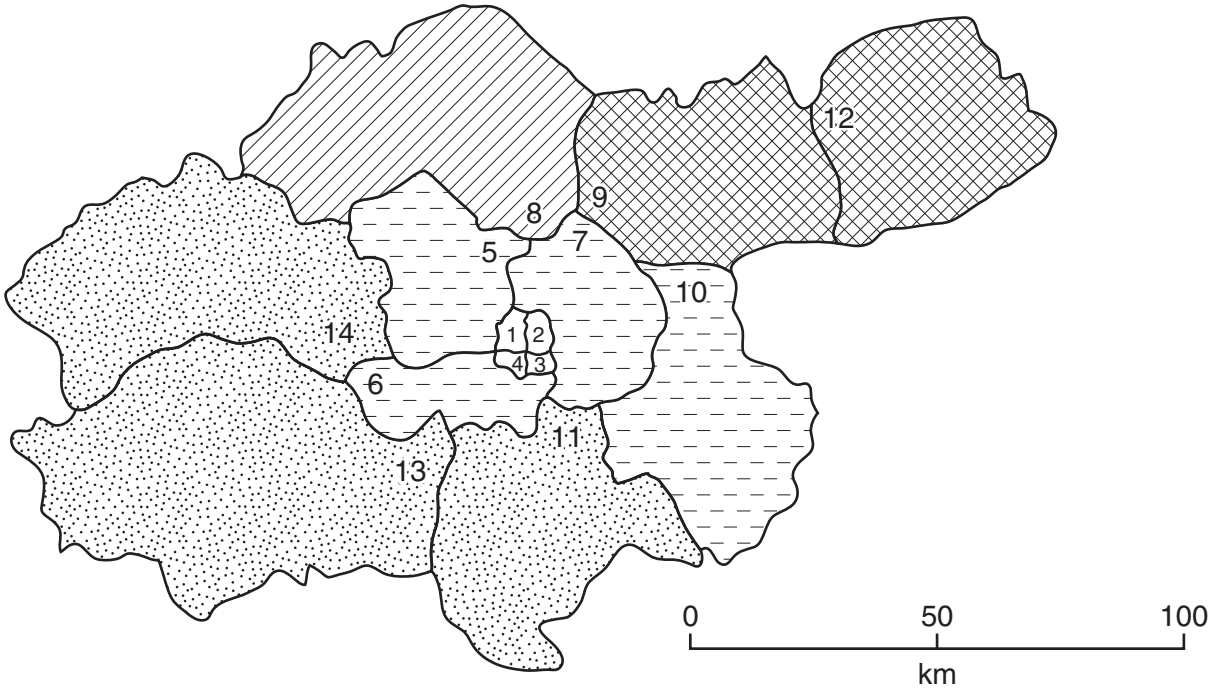
	Municipality
1	Xi Cheng
2	Dong Cheng
3	Chong Wen
4	Xuan Wu
5	Hai Dian
6	Feng Tai
7	Chao Yang
8	Chang Ping
9	Shung Yi
10	Tong Zhou
11	Da Xing
12	Ping Gu
13	Fang Shan
14	Men Tou Go

Fig. 12

(ii) Complete Fig. 12 by inserting the number of students who live in Tong Zhou municipality. [1]

For Examiner's Use

Choropleth map to show where students travel from



Large-scale map of central municipalities

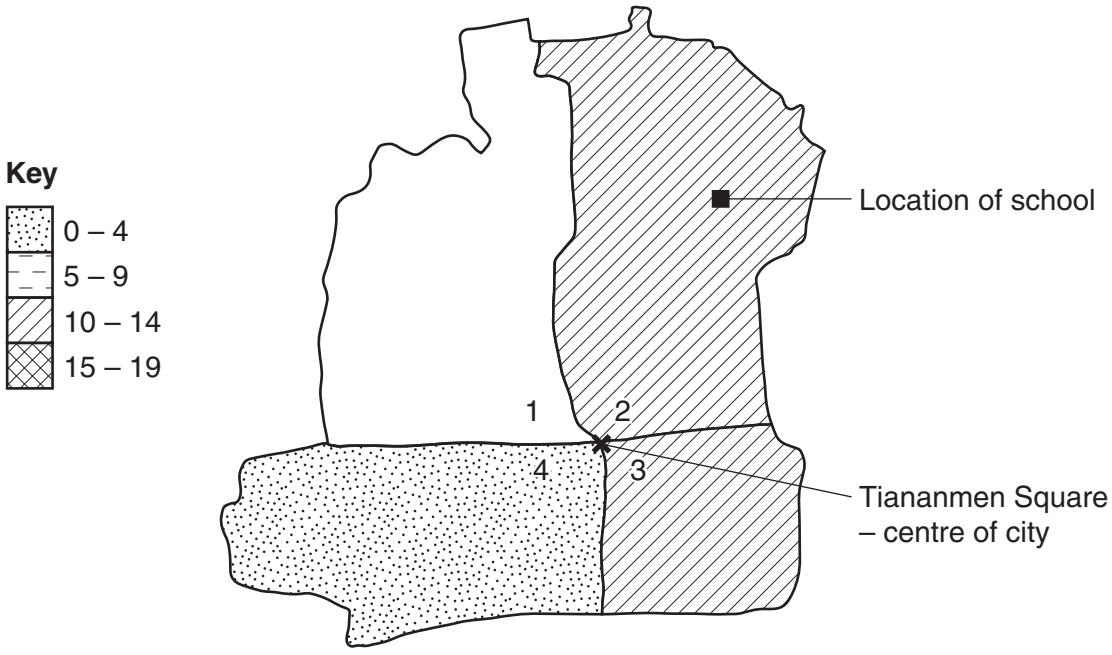


Fig. 13

(iii) Complete Fig. 13 by shading the municipality of Xi Cheng. [1]

(iv) Give **two** advantages of each type of map for showing data.

For Examiner's Use

Pictogram:

Advantage 1: .....

.....

Advantage 2: .....

.....

Choropleth map:

Advantage 1: .....

.....

Advantage 2: .....

.....[4]

(v) Do you agree with **Hypothesis 1:** *The number of students coming to our school decreases as distance from the school increases*?
Explain your conclusion and support your answer with data from Figs 12 and 13.

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.....[4]

(d) Table 3, below, shows the results of Question 2 (*How do you usually travel to school?*) in the questionnaire.

Table 3

Answers to Question 2: *How do you usually travel to school?*

Method of travel	Number of students	Percentage
Bus	45	36
Car	39	31
Train	37	
Bike	3	2
Walk	1	1
Total	125	100

(i) Complete the table by calculating the percentage of students who travel to school by train. [1]

(ii) Use the results from Table 3 to complete the pie graph, Fig. 14 below. [2]

Answers to Question 2: *How do you usually travel to school?*

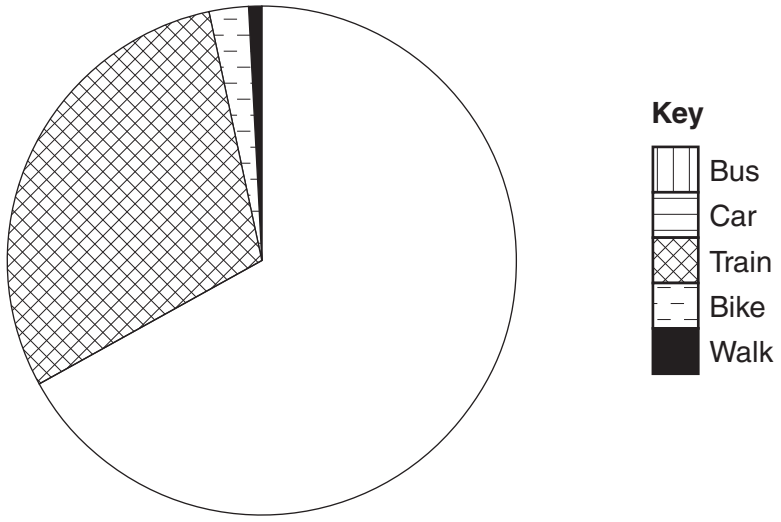

Fig. 14

(iii) The students decided that **Hypothesis 2:** *Students travel to school in different ways but most travel by car* was incorrect.
Give **three** pieces of evidence to support this conclusion.

For Examiner's Use

1 .....

.....

2 .....

.....

3 .....

.....[3]

(iv) Suggest **two** ways that the fieldwork investigation could have been extended to find out more about the students' journeys to school.

1 .....

.....

2 .....

.....[2]

[Total: 30 marks]

8 A class of students were studying how to use weather recording instruments.

(a) What instrument would they use to measure the following?

Temperature …….

Relative humidity ……. [2]

One student noticed that the weather was forecast to change considerably the next day, so he decided to take some measurements to investigate the extent of these changes.

He decided to test the following hypotheses:

Hypothesis 1: *There is a relationship between changes in atmospheric pressure and change in rainfall.*

Hypothesis 2: *There is a relationship between changes in atmospheric pressure and change in wind speed and wind direction.*

He decided to take measurements of rainfall, wind speed, wind direction, cloud type and amount of cloud cover. He would take these measurements every four hours at 07.00, 11.00, 15.00 and 19.00. He also decided to take readings of atmospheric pressure every hour.

(b) The student also decided to take one set of measurements at 12.00 hours on the day before his investigation (Day 1) and another set at 12.00 on the day after his investigation (Day 3).
Suggest why the student decided to take measurements over three days.

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.....

..... [2]

(c) He used the following measuring equipment: rain gauge, anemometer, wind vane, barometer and a diagram of cloud types.

For Examiner's Use

(i) In the space below, draw a labelled diagram of a rain gauge. Explain how the student made his measurements.

.....

.....

.....

.....[4]

(ii) Fig. 15 (Insert 2) and Fig. 16 (Insert 2) show an anemometer and wind vane. Explain how they measure wind speed and wind direction.

Anemometer:

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.....

.....

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Wind vane:

.....

.....

.....

.....[4]

For Examiner's Use

(iii) The barometer in Fig. 17 (Insert 2), measures atmospheric pressure. Explain how and why the index pointer on the barometer is used.

.....

.....

.....

.....[2]

(iv) What unit is used to measure cloud cover?

..... [1]

(d) The recording sheet of the student's fieldwork is shown in Table 4, below.

Table 4

Student's recording sheet

	Day 1	Day 2																Day 3
Time	12.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00	12.00
Atmospheric pressure (millibars)		1015	1012	1009	1005	1000	998	997	996	994	992	994	1000	1005	1012	1015	1018	1022
Rainfall (mm)	0		0				3				5				1			0
Wind speed (km per hr)	3		8				26				43				20			5
Wind direction	South East		South East				South				South West				South			South East
Cloud type	Cumulus		Cirrus				Alto-stratus				Nimbo stratus				Stratus			Cirrus
Cloud cover	2		4				6				7				6			3

(i) Look at the barometer in Fig. 17 and use this to fill in the atmospheric pressure at 12.00 hours on Day 1. [1]

For Examiner's Use

Fig. 18, below, is a summary of the student's fieldwork.

Summary of the student's fieldwork

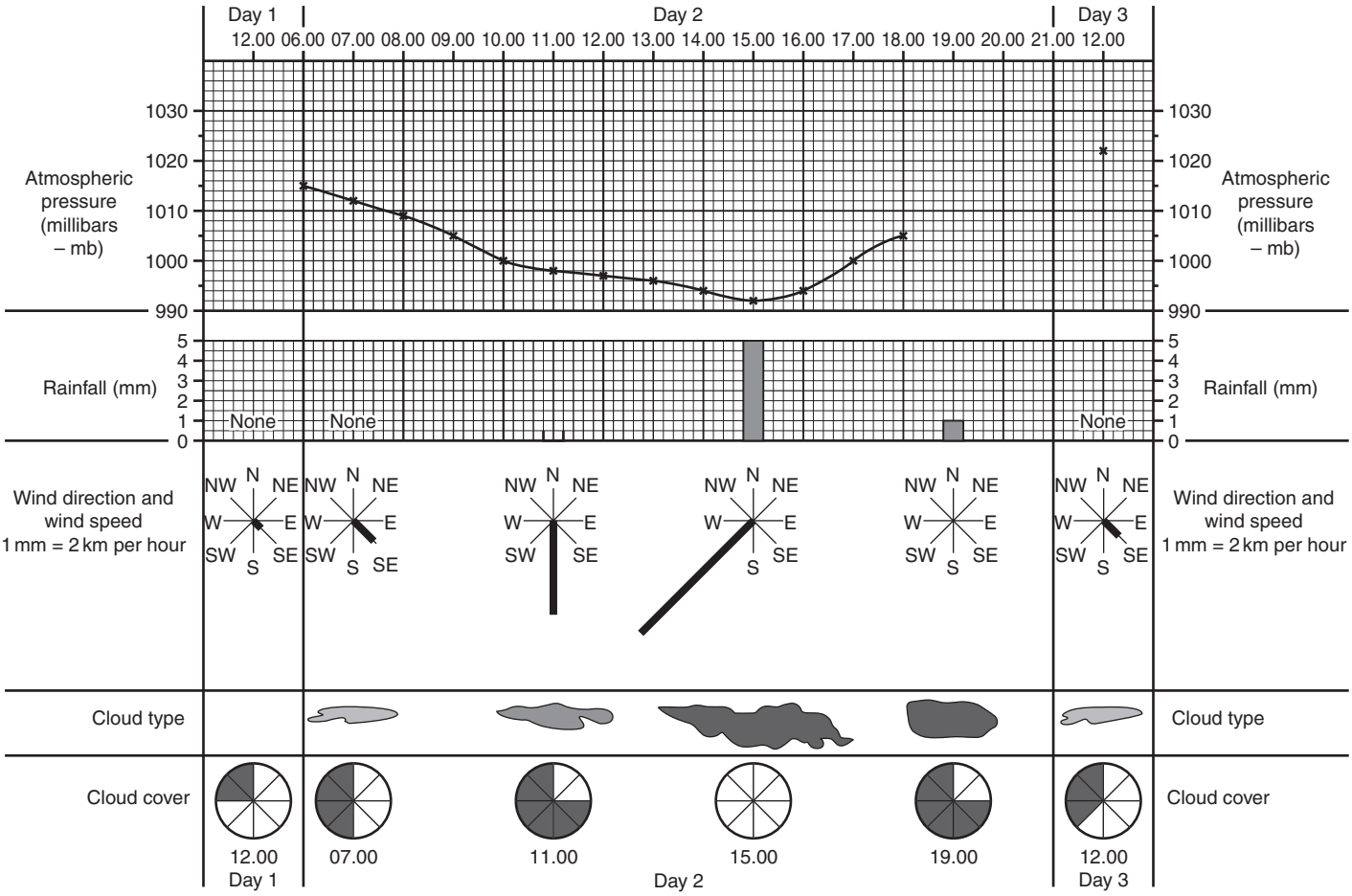

Fig. 18

Use information from Table 4 to complete the following tasks on Fig. 18.

(ii) Draw the rainfall bar at 11.00 hours on Day 2. [1]

(iii) Complete the atmospheric pressure line graph at 19.00, 20.00 and 21.00 hours on Day 2. [2]

(iv) Draw in the wind direction and speed on the rose diagram at 19.00 hours on Day 2. [2]

(v) Draw in the cloud type at 12.00 on Day 1. [1]

(vi) Plot the cloud cover at 15.00 hours on Day 2. [1]

(e) Having completed his comparison table the student looked again at his hypotheses.

For Examiner's Use

(i) He decided that **Hypothesis 1:** *There is a relationship between changes in atmospheric pressure and change in rainfall* was true.
Describe the relationship between atmospheric pressure and rainfall. Support your description with data from Fig. 18.

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.....[3]

(ii) He also decided that **Hypothesis 2:** *There is a relationship between changes in atmospheric pressure and change in wind speed and wind direction* was true.
How did wind speed and wind direction change as atmospheric pressure changed? Support your answer with data from Fig. 18.

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.....[4]

[Total: 30 marks]

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