GradeMax

Cambridge IGCSE

**Cambridge International Examinations**
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

*7915136208*

**GEOGRAPHY** **0460/41**

Paper 4 Alternative to Coursework **May/June 2018**

**1 hour 30 minutes**

Candidates answer on the Question Paper.

Additional Materials: Calculator
Protractor
Ruler

**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 the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1.1, 1.2, 1.3, 1.5 and 1.6 and Tables 1.2 and 1.3 for Question 1, and Figs. 2.1 and 2.3 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 approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **14** printed pages, **2** blank pages and **1** Insert.

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CAMBRIDGE International Examinations

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**1** Students carried out fieldwork at two beaches in eastern Scotland. Bervie beach is in a bay surrounded by cliffs and St Cyrus beach is a long, straight beach.

**(a)** Before they began their fieldwork their teacher reminded them of the need to be safe near the sea.

The table below shows three possible threats to their safety. Suggest **one** different precaution that the students could take to reduce the risk of accident in each situation.

| Possible threat to safety | Possible precaution |
|---|---|
| Sea conditions may be rough | ……<br>……<br>…… |
| There may be a high tide during the time scheduled for fieldwork | ……<br>……<br>…… |
| An individual student may become separated from the class | ……<br>……<br>…… |

[3]

**(b)** In class the students studied the difference between destructive and constructive waves. The two types of wave are shown in Figs 1.1, 1.2 and 1.3 (Insert).

**(i)** Destructive waves have a higher frequency than constructive waves.
Explain why destructive waves erode beaches and constructive waves deposit material.

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**(ii)** Describe a method the students could use on a field visit to measure wave frequency.

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The students tested the following hypotheses through fieldwork at the two beaches:

**Hypothesis 1:** *Destructive waves produce a steeper beach profile.*

**Hypothesis 2:** *There is larger beach material where there is a steeper beach profile.*

**(c)** To investigate **Hypothesis 1** the students first needed to find out if there was a difference in wave frequency between the two beaches. The results of their measurements at each beach are shown in Table 1.1 below.

**Table 1.1**

**Results of measurements**

**Bervie beach**

| Measurement number | 1 | 2 | 3 | 4 | 5 | 6 | **7** | 8 | 9 | 10 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wave frequency (number of waves per minute) | 11 | 14 | 15 | 12 | 15 | 16 | **13** | 14 | 15 | 12 | ..... |

**St Cyrus beach**

| Measurement number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wave frequency (number of waves per minute) | 6 | 6 | 7 | 8 | 7 | 7 | 6 | 8 | 7 | 8 | 7 |

**(i)** Calculate the average wave frequency at Bervie beach. **Write your answer in Table 1.1.**
[1]

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**(ii)** Use the results in Table 1.1 **to complete Fig. 1.4**, below, by plotting the result of measurement 7 at Bervie beach. [1]

**Results of measurements of wave frequency**

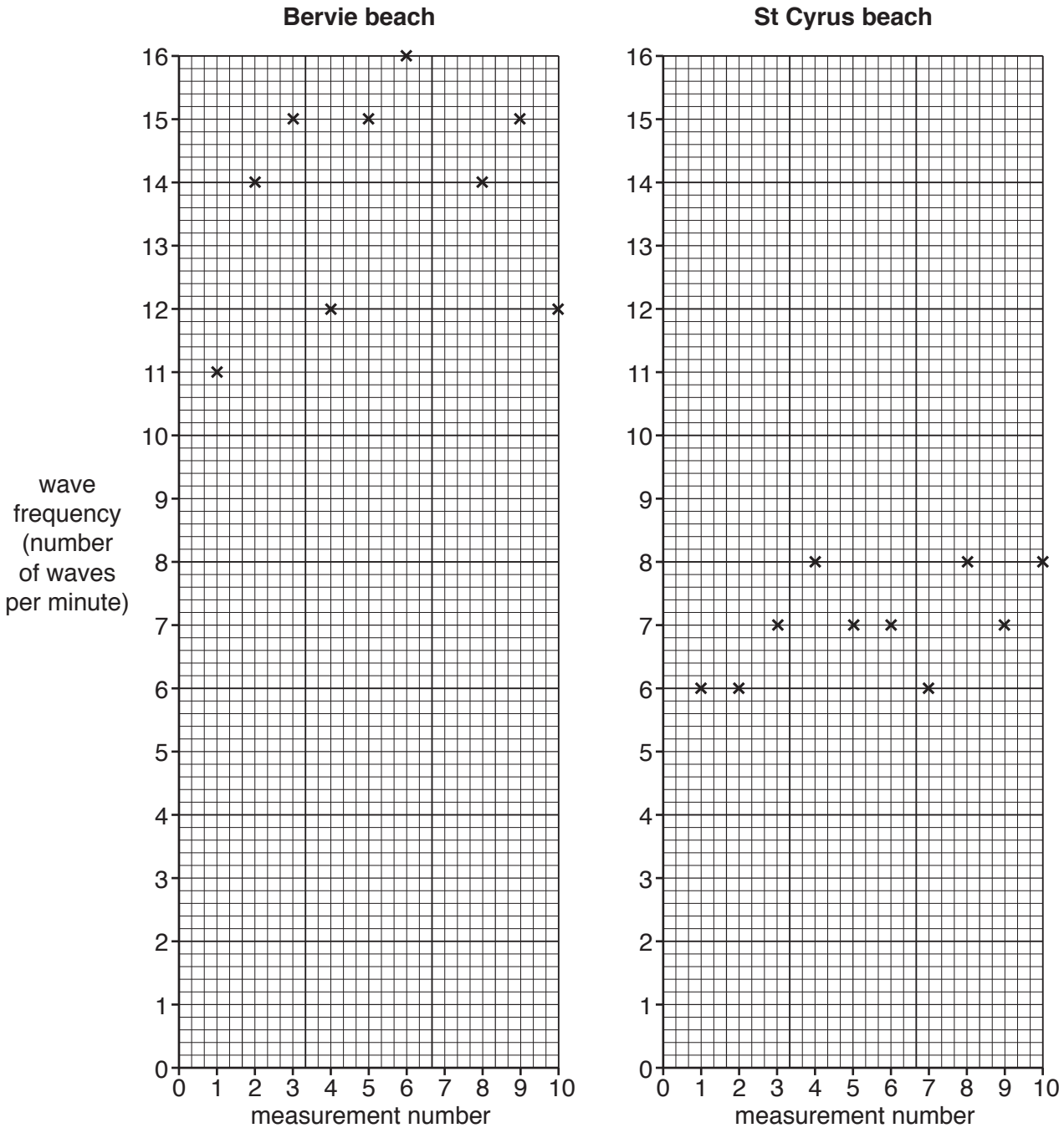



**Fig. 1.4**

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**(d)** Next the students measured the angles of slope at the two beaches and used their results to draw the two profiles shown in Fig. 1.5 (Insert).

**(i)** Describe a method to measure the beach profiles.

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**(ii)** What conclusion would the students make about **Hypothesis 1:** *Destructive waves produce a steeper beach profile*? Support the conclusion with evidence from Table 1.1, and Figs 1.4 and 1.5.

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**(e)** To investigate **Hypothesis 2:** *There is larger beach material where there is a steeper beach profile*, the students used a quadrat at three sites on each beach. This quadrat is shown on Bervie beach in Fig. 1.6 (Insert).
Their results are shown in Tables 1.2 and 1.3 (Insert).

**(i)** Describe how the students used the quadrat to collect their results.

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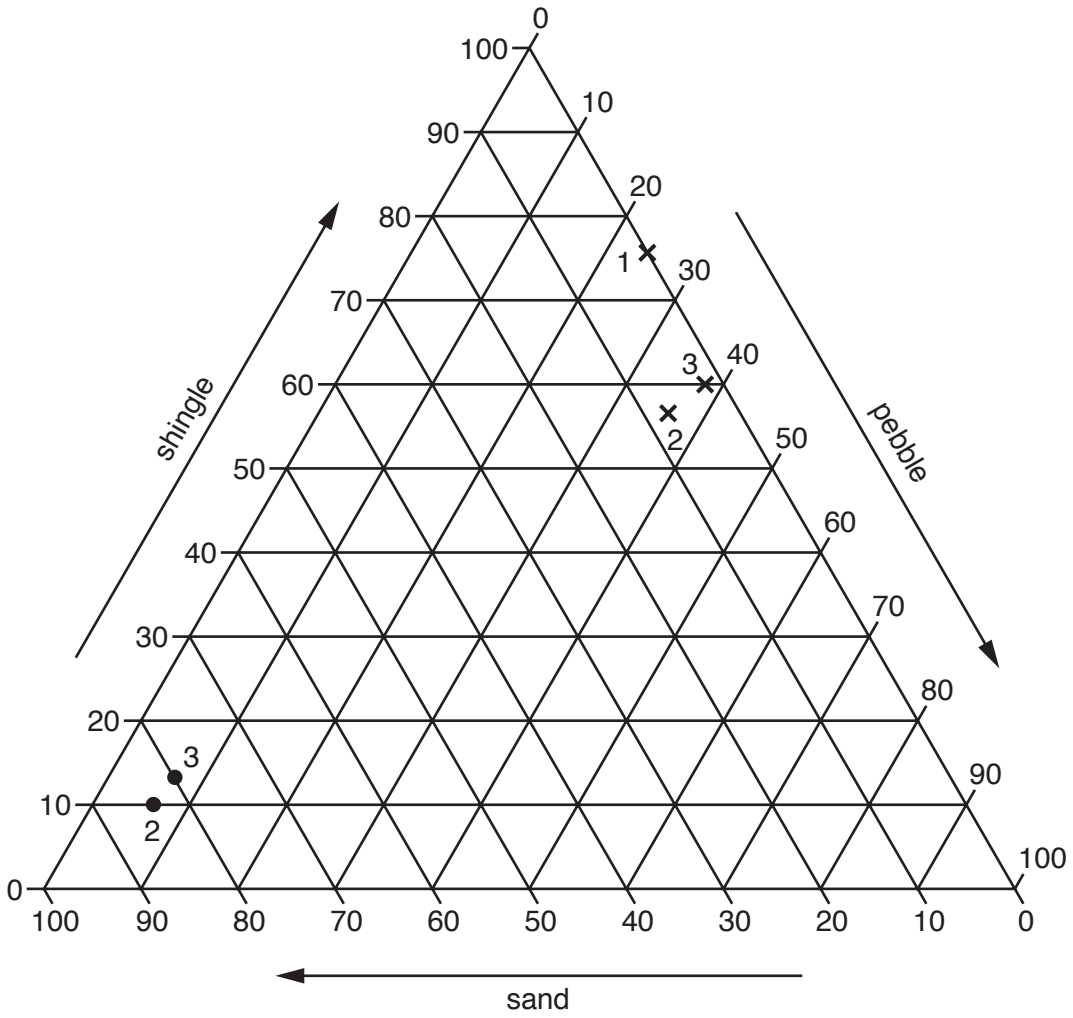
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**(ii)** Use Table 1.3 **to plot the result at site 1** on St Cyrus beach **in Fig. 1.7 below**. [1]

**Types of beach material**




**Key**

× sites on Bervie beach

● sites on St Cyrus beach

**Fig. 1.7**

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**(iii)** Do the results of the fieldwork support **Hypothesis 2:** *There is larger beach material where there is a steeper beach profile*? Support your decision with data from Tables 1.2 and 1.3 and Figs. 1.5 and 1.7.

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**(f)** Bervie beach and St Cyrus beach are popular for tourism. Describe a fieldwork method to compare how tourists may have polluted the two beaches.

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[Total: 30]

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**2** Students in the UK wanted to investigate the impact of tourism on a town in the Lake District National Park. They wanted to find out if there were both positive and negative effects.

They decided to test the following hypotheses:

**Hypothesis 1:** *Most of the shops and services in the town centre are for tourists.*

**Hypothesis 2:** *Tourism creates more benefits than problems for local people.*

**(a)** To investigate **Hypothesis 1** the students did some fieldwork to identify and map the different shops and services in the town centre. Fig. 2.1 (Insert) shows part of their map.

**(i)** Identify the building located 120 m north east of the tourist information office.

.....[1]

**(ii)** Three shops on Fig. 2.1 are described in the table below. Use the key to identify the number of each shop and write this number in the table.

| Description of shop | Shop number |
|---|---|
| It sells equipment for mountaineering and outdoor activities, including walking boots and waterproof coats. | ..... |
| It sells jewellery, craft objects and artistic materials. The goods are made in the town and are speciality products of the local area. | ..... |
| It sells bread and cakes which are made in the shop. These are usually made and sold on the same day. | ..... |

[3]

**(b)** When the students completed the land use map of the town centre they classified the shops and services into three groups:

- for tourists only
- for local residents only
- for tourists and local residents

The results of this classification are shown in Table 2.1 (Insert).

**(i)** Why might the students have found it difficult to classify some shops and services into the three groups?

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

**Students' classification of shops and services**

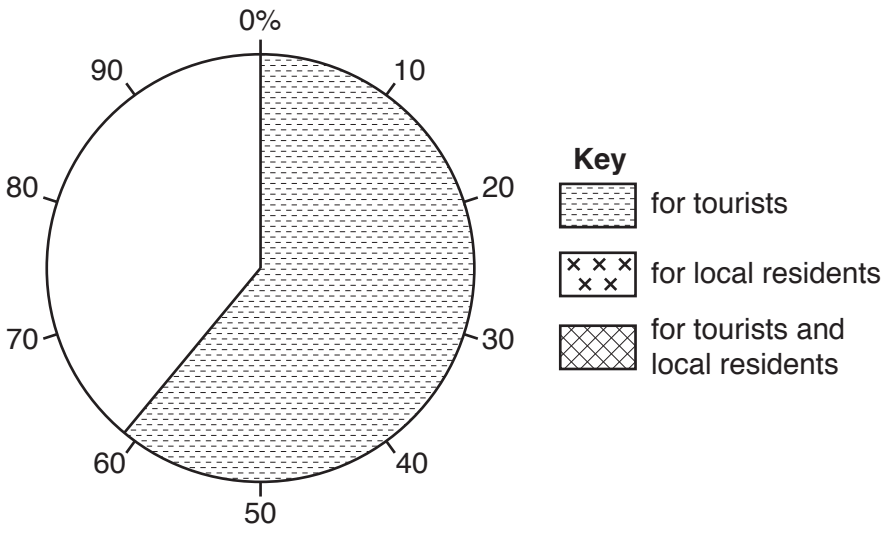



**Fig. 2.2**

**(iii)** The students made the conclusion that **Hypothesis 1:** *Most of the shops and services in the town centre are for tourists* was correct. Do you agree with their conclusion? Support your answer with evidence from Table 2.1 and Fig. 2.2.

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**(c)** To investigate **Hypothesis 2:** *Tourism creates more benefits than problems for local people*, the students used a questionnaire with people who lived in the town. The questionnaire is shown in Fig. 2.3 (Insert). They decided on a sample size of 100 residents and to ask people to complete the questionnaire on a Saturday morning in the town centre.

**(i)** Why did the students ask Question 1: *Are you a resident of the town?*

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**(ii)** The students decided to use random numbers as their sampling method. Give **two** advantages of this method.

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2 .....

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**(d)** The answers to Question 2: *What benefits do you think tourists bring to the town?* and Question 3: *What problems do tourists cause for you?* are shown in Table 2.2 (Insert).

**(i)** Use the results in Table 2.2 **to complete Figs 2.4 and 2.5 below**. [2]

**Residents' answer to Question 2**

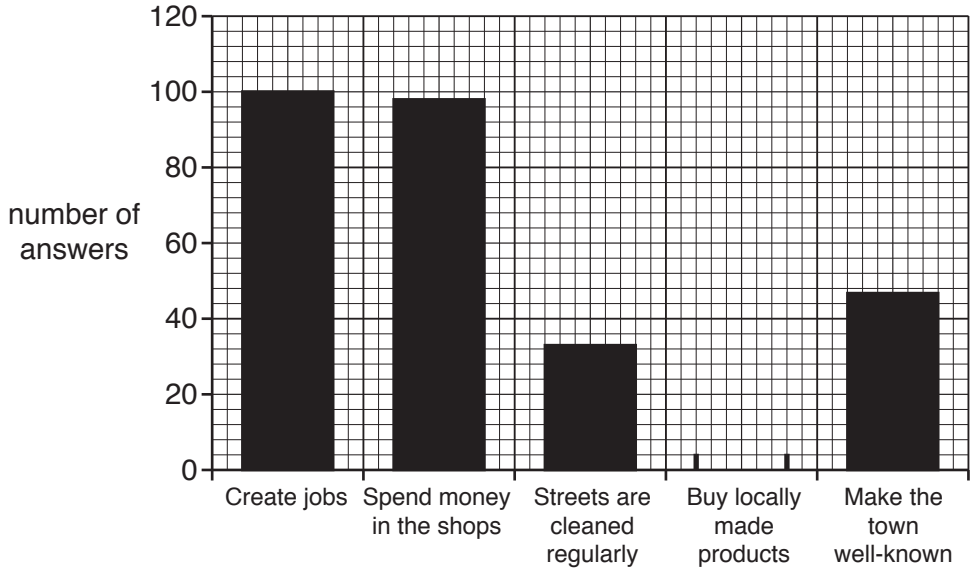



**Fig. 2.4**

**Residents' answer to Question 3**

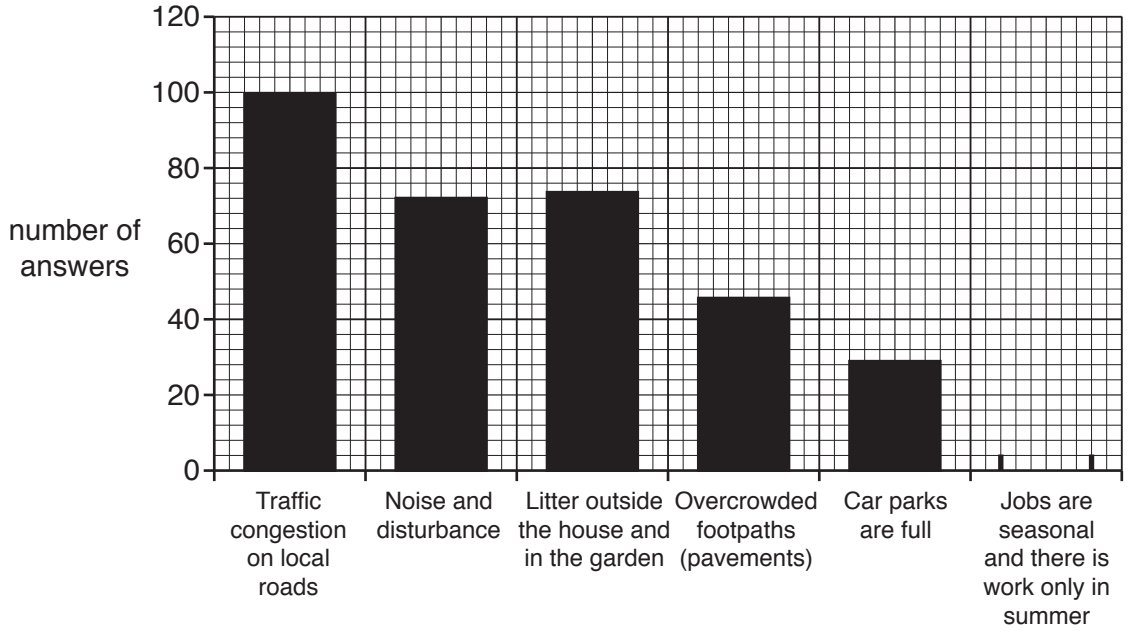



**Fig. 2.5**

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**(ii)** What conclusion can you make about **Hypothesis 2:** *Tourism creates more benefits than problems for local people*? Support your conclusion with evidence from Table 2.2 and Figs. 2.4 and 2.5.

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**(e)** Local residents identified traffic congestion as a main problem of tourism.

**(i)** Suggest why this is a problem in many towns popular with tourists.

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**(ii)** Suggest **three** ways to reduce traffic congestion in tourist towns.

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2 .....

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3 .....

.....[3]

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**(f)** As an extension study the students decided to do a traffic survey at six sites around the town centre. They chose a day in summer when there were many tourists in the town.
The results of the traffic survey at one site are shown in Table 2.3 (Insert). Describe the students' fieldwork method which produced these 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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