GradeMax

Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

7665516386

GEOGRAPHY **0460/41**

Paper 4 Alternative to Coursework **October/November 2021**

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. Any blank pages are indicated.

DC (JP/SG) 199724/5
© UCLES 2021

[Turn over

GradeMax

1 Students from a school in Kenya wanted to find out more about two squatter settlements in their city. Settlement A had grown rapidly in the previous three years and settlement B had grown up over the last 20 years.

(a) What is a *squatter settlement*?

.....

..... [1]

(b) Fig. 1.1 (Insert) shows the location of some squatter settlements in the city.

(i) How far is squatter settlement A from the CBD? Circle your answer below. [1]

3.0 km 4.5 km 6.0 km 7.5 km

(ii) Describe the distribution of squatter settlements in the city shown in Fig. 1.1.

.....

.....

.....

..... [2]

(iii) Give **two** reasons to explain the location of the squatter settlements in the city.

1 .....

.....

2 .....

..... [2]

© UCLES 2021

GradeMax

The students decided to investigate the following hypotheses:

Hypothesis 1: *Residents in squatter settlement B have a better quality of life than residents in squatter settlement A.*

Quality of life is the general well-being of a person in terms of health and happiness rather than wealth.

Hypothesis 2: *Most residents in squatter settlements work in the informal sector of employment.*

The informal sector is work done without control by the city authorities or government.

(c) The students decided to test their hypotheses by asking people who lived in each squatter settlement to complete a questionnaire.

(i) The students discussed what would be a suitable sample size of people to complete their questionnaire. One student suggested a sample of 20 people, another student suggested a sample of 500 people. These suggestions were not approved by their teacher.

Explain why:

a sample of 20 people is too small

.....

.....

a sample of 500 people is too big.

.....

..... [2]

(ii) Fig. 1.2 below is the questionnaire which the students used.

Resident Questionnaire

Squatter settlement	**A**	✓	**B**	
Gender	Male	✓	Female	

I am a student at a local school. Please answer the following questions for my school coursework.

1 What is your house built of?

Brick	
Corrugated iron	
Scrap materials	✓

2 Where do you get your water supply?

Tap in the home	
Standpipe (tap in the street)	
Collect rainwater or water from the river	

3 How do you get your electricity supply?

From the city authority	
By attaching a cable into the official supply	
No electricity supply	

4 What is your housing tenure?

Own the house	
Rent from the city authority	
Rent from private landlord	
No legal tenure	

5 How do you earn a living?

Work in a factory	
Work in a shop	
Work for the city authority	
Selling homemade items on the street	
Other informal job	

Thank you

Fig. 1.2

© UCLES 2021

Complete the questionnaire in Fig. 1.2 by adding the following answers given by a resident. **Put ticks (✓) in the correct boxes in Fig. 1.2**. The first one has been done for you. [1]

I built my house from wood which I found nearby.
I carry buckets of water from the river.
I use an oil lamp.
I do not own or rent my house, I just live here.
I polish the shoes of office workers in the city centre.

(d) The results of the students' questionnaire survey are shown in Table 1.1 (Insert).

(i) Use the results in Table 1.1 to **complete the bar graph** for settlement A in Fig. 1.3 below. [1]

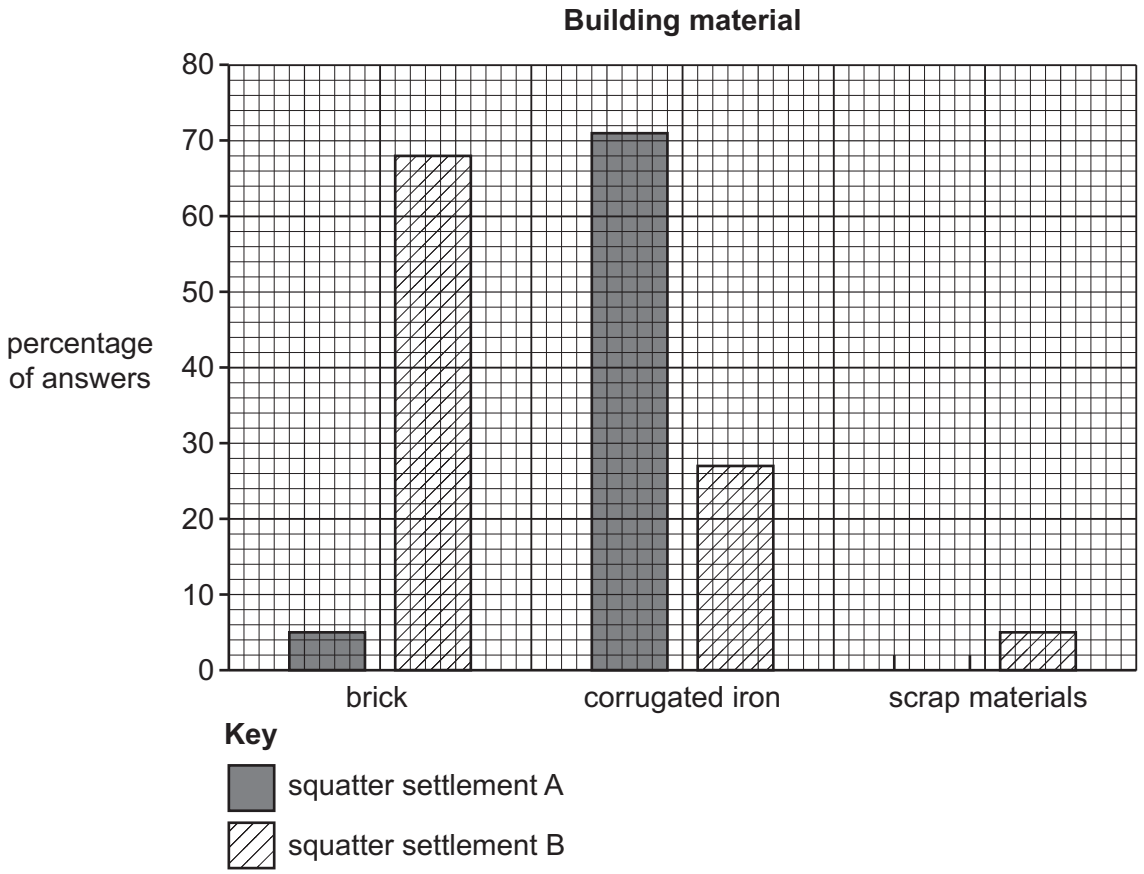


Fig. 1.3

GradeMax

(ii) Use the results in Table 1.1 to **complete the horizontal bar graph** for settlement B in Fig. 1.4 below. [1]

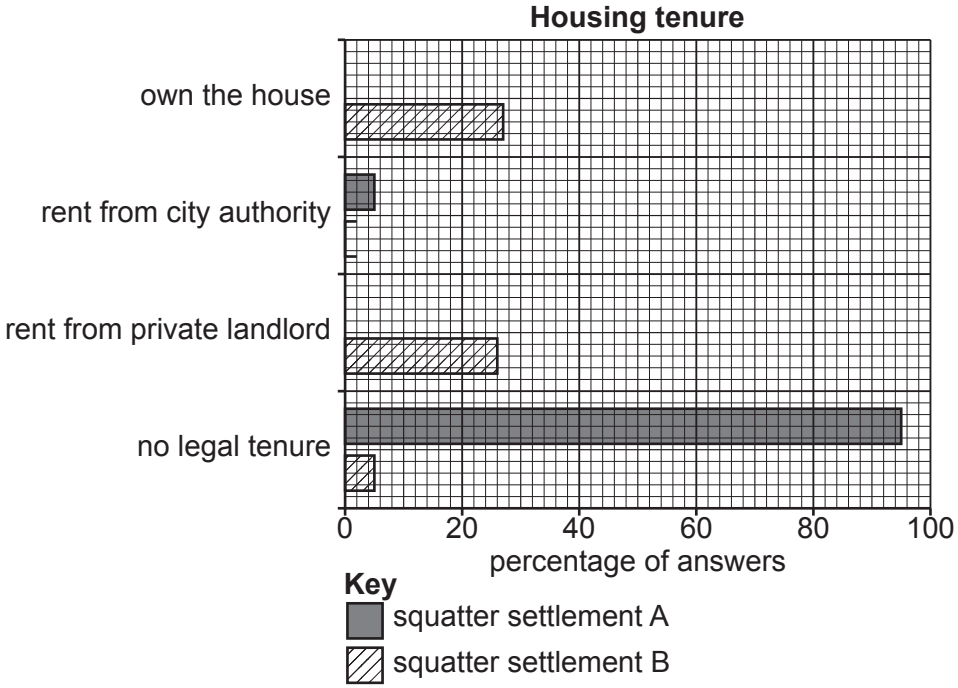


Fig. 1.4

(iii) The students decided that the results of questions 1 to 4 in the questionnaire support **Hypothesis 1**: *Residents in squatter settlement B have a better quality of life than residents in squatter settlement A.*
Use information from Table 1.1 to explain why the students made this decision.
Do **not** use data in your answer.

building materials

.....

.....

water supply

.....

.....

electricity

.....

.....

housing tenure

.....

..... [4]

© UCLES 2021

(e) The results of question 5 in the questionnaire are shown in Table 1.2 (Insert).

(i) Use the results in Table 1.2 to **complete the graph** for settlement B in Fig. 1.5 below.

[2]

Answers to question 5: How do you earn a living?

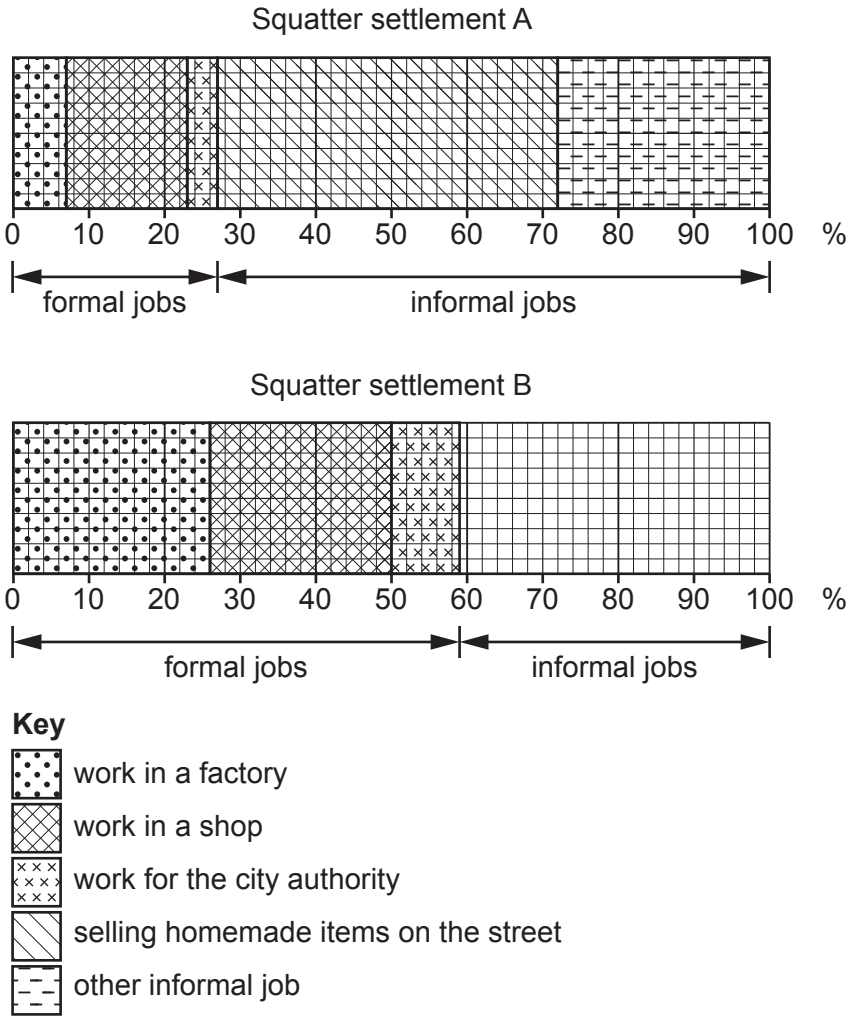


Fig. 1.5

GradeMax

(ii) What conclusions can you make about **Hypothesis 2**: *Most residents in squatter settlements work in the informal sector of employment*? Refer to both squatter settlements A and B in your conclusion. Support your decisions with evidence from Fig. 1.5 and Table 1.2.

Settlement A

Conclusion .....

.....

.....

.....

.....

Settlement B

Conclusion .....

.....

.....

.....

..... [4]

© UCLES 2021

GradeMax

TURN PAGE FOR QUESTION 1 (f)

(f) One student extended his fieldwork by asking people in squatter settlement A what problems they were most worried about. His results are shown in Fig. 1.6 below.



Fig. 1.6

© UCLES 2021

GradeMax

(i) How many people surveyed were worried about being evicted from their house?

..... [1]

(ii) Which group of problems were the residents **most** worried about? Circle your answer below.

employment housing environment services

Suggest why they might be most worried about this group of problems.

.....

.....

.....

..... [3]

(iii) Which group of problems were the residents **least** worried about? Circle your answer below.

employment housing environment services

Suggest why they might be least worried about this group of problems.

.....

.....

.....

..... [3]

(g) The students read about ways to deal with the growth of squatter settlements like settlement A. Two possible methods are described in Fig. 1.7 (Insert).

Describe **two** differences between the methods.

1 .....

.....

2 .....

..... [2]

[Total: 30]

© UCLES 2021

[Turn over

2 Some students did fieldwork at two beaches (X and Y) on the east coast of the UK. The beaches are about 5 km apart in an area where the sea is eroding the coast.

(a) Before they began their fieldwork their teacher reminded them of the need to be safe near the sea. Suggest **three** safety precautions that the students could take to reduce the risk of accident.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

While studying the two different beaches the students tested the following hypotheses:

Hypothesis 1: *At Beach Y there is more change in the type of beach material as distance from the sea increases than at Beach X.*

Hypothesis 2: *The two beaches have different beach profiles.*

(b) To investigate **Hypothesis 1** the students used a quadrat to estimate the percentage of different types of beach material found at three points away from the sea on each beach. A quadrat is shown in Fig. 2.1 (Insert).

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

.....

.....

.....

.....

.....

..... [3]

(ii) The results of the fieldwork are shown in Table 2.1 (Insert).
Suggest **one** problem of classifying beach material into sand, shingle or pebble.

.....

..... [1]

© UCLES 2021

(iii) Use the results in Table 2.1 to **complete the pie graph** in Fig. 2.2 below, to show the beach material 25 m from the sea at beach **X**. [3]

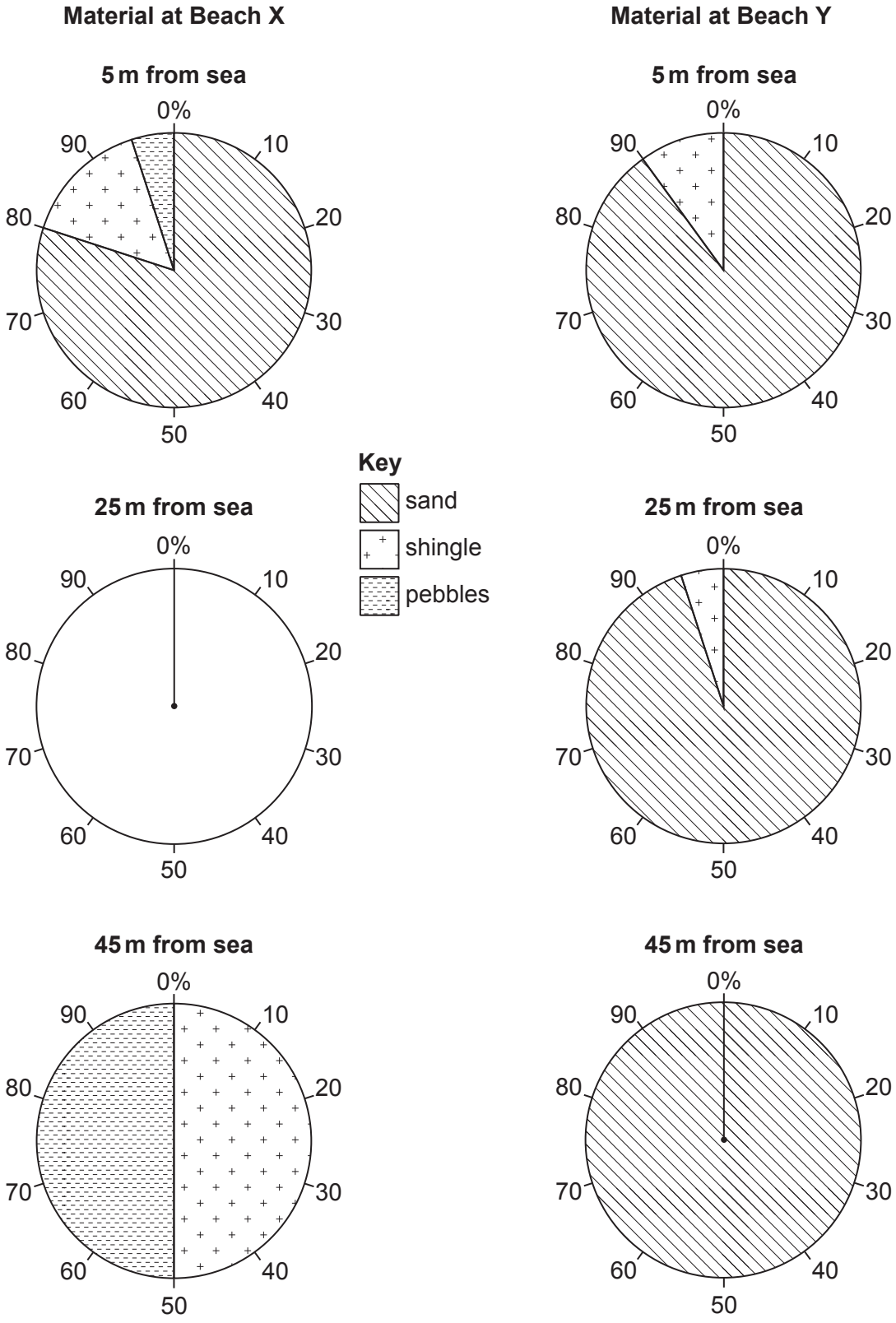


Fig. 2.2

(iv) Do the results of the fieldwork support **Hypothesis 1:** *At Beach Y there is more change in the type of beach material as distance from the sea increases than at Beach X*? Support your decision with data from Table 2.1 and Fig. 2.2.

.....

.....

.....

.....

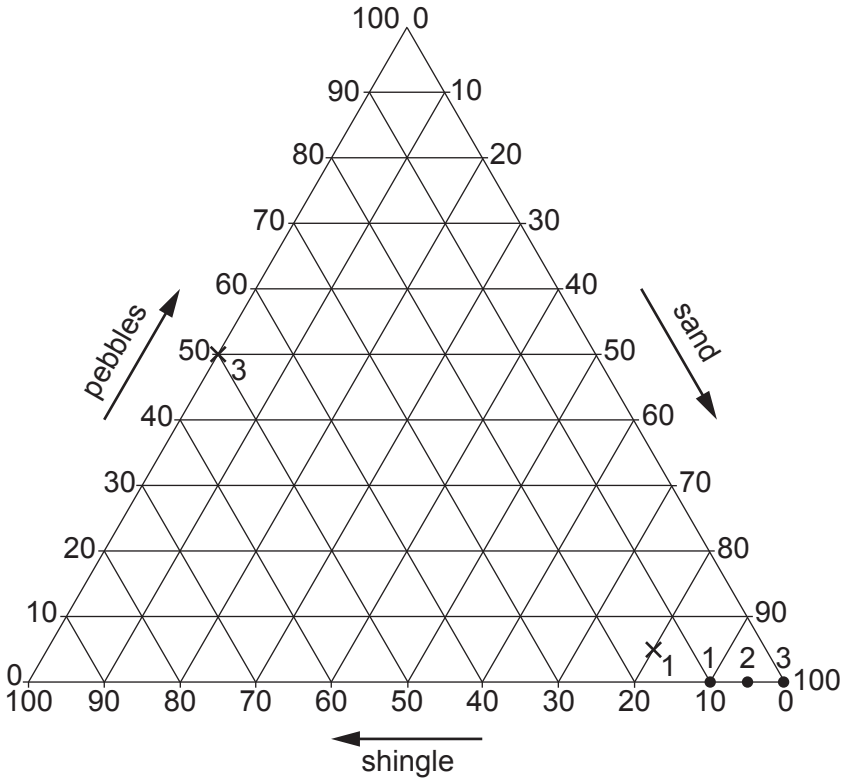
.....

..... [3]

(v) Fig. 2.3 below is another graph which shows the beach materials at the two beaches. **On Fig. 2.3, plot the data** for beach material at 25 m from the sea at beach **X**, shown in Table 2.1.

[1]

Material at beaches X and Y



Key

× beach X 1 at 5 m from sea
2 at 25 m from sea
3 at 45 m from sea

• beach Y 1 at 5 m from sea
2 at 25 m from sea
3 at 45 m from sea

Fig. 2.3

© UCLES 2021

GradeMax

(c) To investigate **Hypothesis 2:** *The two beaches have different beach profiles*, the students measured the different angles of slope at the two beaches. Their fieldwork method is shown in Fig. 2.4 (Insert).

(i) Describe how they made their measurements to draw each profile.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(ii) The students used their results to draw the profiles shown in Fig. 2.5 (Insert).
What conclusion would the students reach about **Hypothesis 2:** *The two beaches have different beach profiles*? Support your decision with evidence from Fig. 2.5.

.....

.....

.....

.....

.....

.....

.....

..... [4]

GradeMax

(d) The students had learned that beach profiles can be different if affected by constructive or destructive waves.

(i) Tick (✓) the correct alternative to complete each of the following sentences about the two types of wave.

In a constructive wave:

	Tick (✓)
backwash is stronger than swash.	
backwash and swash are of equal strength.	
swash is stronger than backwash.	

The frequency of destructive waves is:

	Tick (✓)
less than the frequency of constructive waves.	
the same as the frequency of constructive waves.	
more than the frequency of constructive waves.	

[2]

(ii) Describe a fieldwork method the students could use to measure wave frequency to find out if the waves were constructive or destructive waves.

.....

.....

.....

.....

.....

..... [3]

© UCLES 2021

GradeMax

(e) While doing fieldwork the students saw that parts of the coastline were protected against erosion by the sea.
Name **one** method of coastal protection. Describe the method and explain how it protects the coastline.

Name of coastal protection method .....

.....

.....

.....

.....

..... [3]

[Total: 30]

© UCLES 2021

GradeMax

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.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

GradeMax

BLANK PAGE

The boundaries and names shown, the designations used and the presentation of material on any maps contained in this question paper/insert do not imply official endorsement or acceptance by Cambridge Assessment International Education concerning the legal status of any country, territory, or area or any of its authorities, or of the delimitation of its frontiers or boundaries.

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which itself is a department of the University of Cambridge.

© UCLES 2021