

Surname	Centre Number	Candidate Number
First name(s)		2



GCE AS

B110U10-1



TUESDAY, 17 MAY 2022 – AFTERNOON

GEOGRAPHY – AS component 1
CHANGING LANDSCAPES

2 hours 15 minutes

ADDITIONAL MATERIALS

A calculator.

INSTRUCTIONS TO CANDIDATES

In Section **A**, answer **either** questions 1 **and** 2 **or** questions 3 **and** 4.

Answer **all** questions in Section **B** (Tectonic Hazards) and **all** questions in Section **C** (Challenges in the 21st Century).

Use black ink or black ball-point pen. Do not use gel pen or correction fluid. You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Write your answers in the spaces provided in this booklet.

If you run out of space, use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [] at the end of each question or part-question; you are advised to divide your time accordingly.

This paper requires that you make as full use as possible of appropriate examples and reference to data to support your answer. Sketch maps and diagrams should be included where relevant.

A plain page is available at the end of each section for you to add any relevant sketch maps and diagrams you may wish to include. The question number(s) should be clearly shown.

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
Either 1 and 2 or 3 and 4	18	
	17	
5.	40	
6.	35	
7.	10	
Total	120	

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Section A: Changing Landscapes

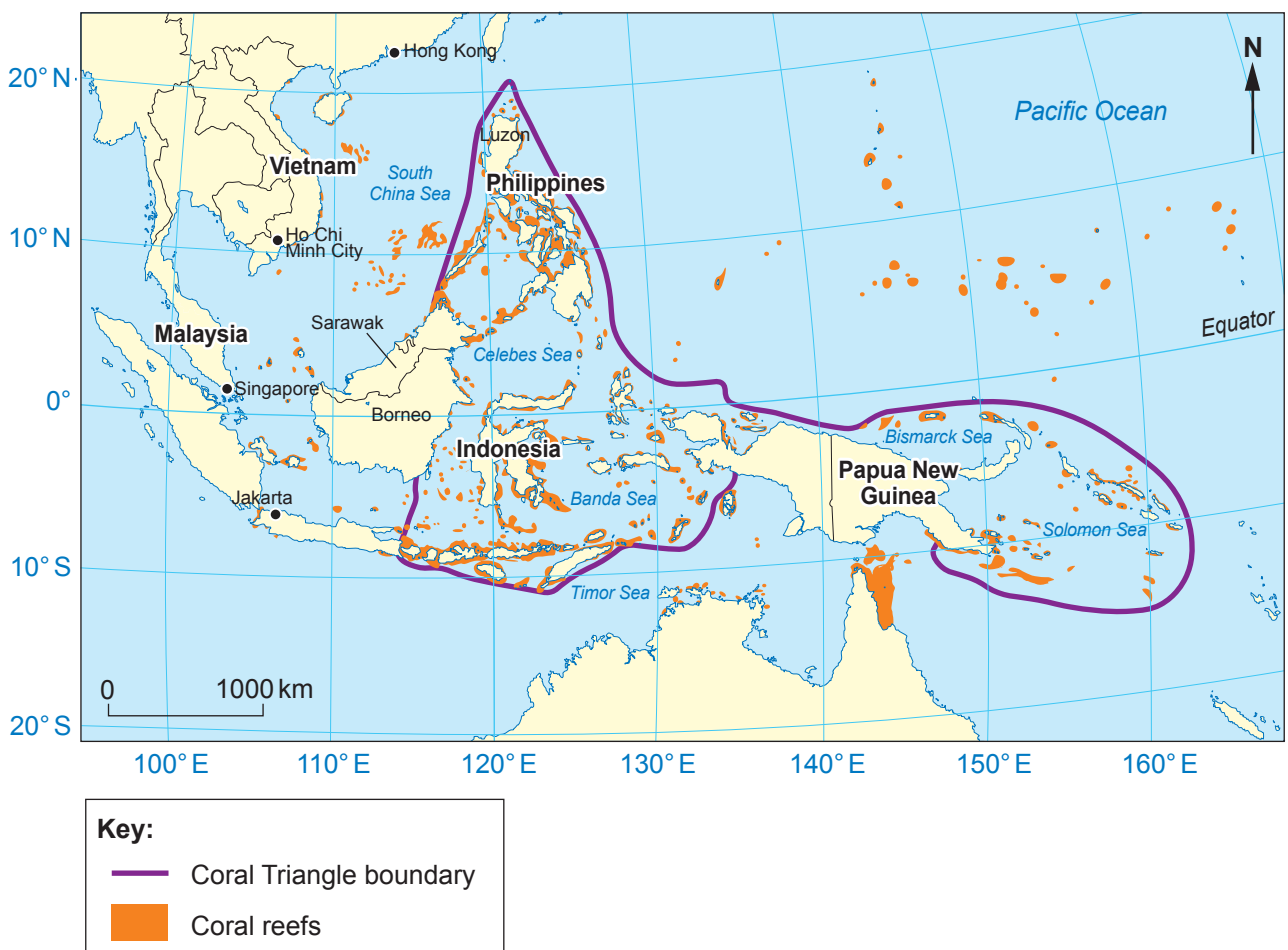
Answer **either** questions 1 **and** 2 **or** questions 3 **and** 4 from your chosen landscape.

Make the fullest possible use of examples and data to support your answers.

Either: Coastal Landscapes

Answer questions 1 **and** 2 if this is your chosen landscape.

Figure 1: The Coral Triangle



Source: www.ctatlas.reefbase.org



1. (a) Use **Figure 1** to describe the location of the Coral Triangle. [5]

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- (b) Outline **one** factor that contributes to the development of coral reefs. [3]

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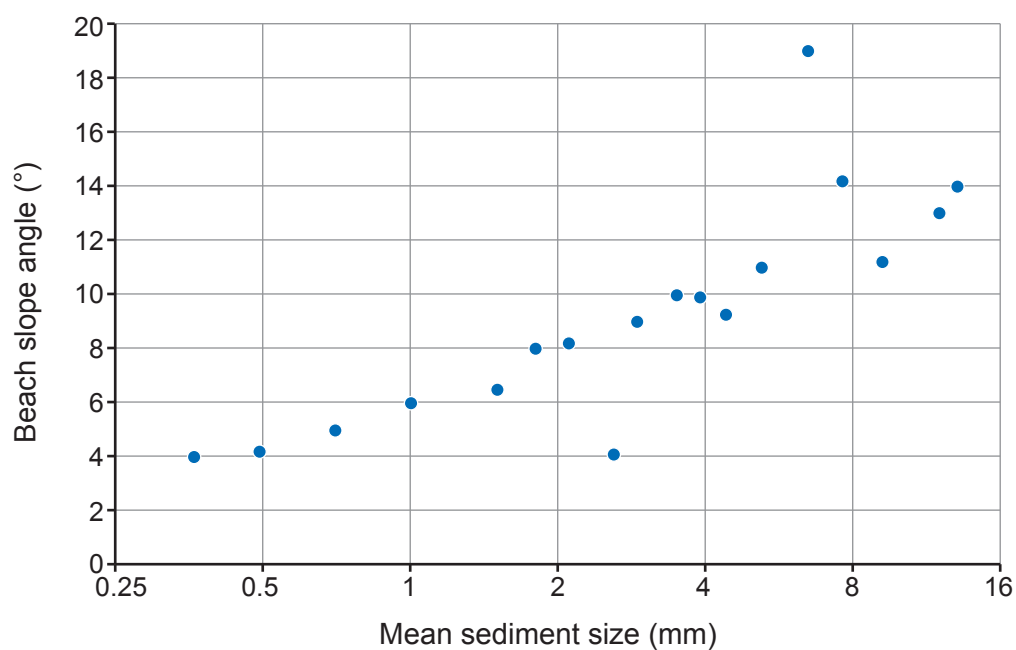
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[10]



Figure 2: Relationship between mean sediment size and beach slope angle on selected beaches, South Island, New Zealand



Source: Adapted from New Zealand Journal of Geology

2. (a) Use **Figure 2** to analyse the relationship between mean sediment size and beach slope angle.

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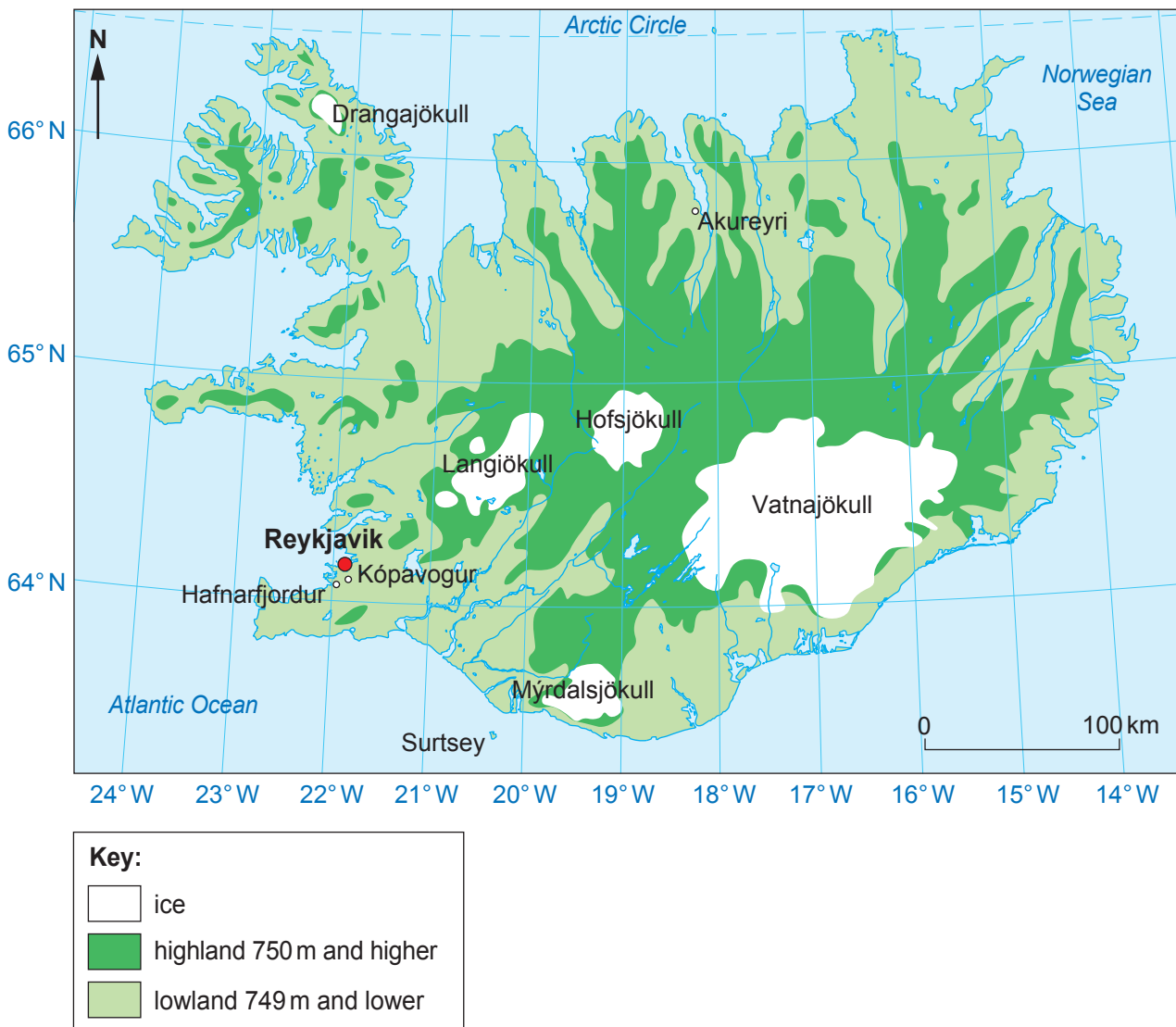
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Or: Glaciated Landscapes

Answer questions 3 **and** 4 if this is your chosen landscape.

Figure 3: Ice masses in Iceland



Source: Wikimedia commons



3. (a) Use **Figure 3** to describe the location of the Vatnajökull ice cap. [5]

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(b) Outline **one** difference between warm-based and cold-based glaciers. [3]

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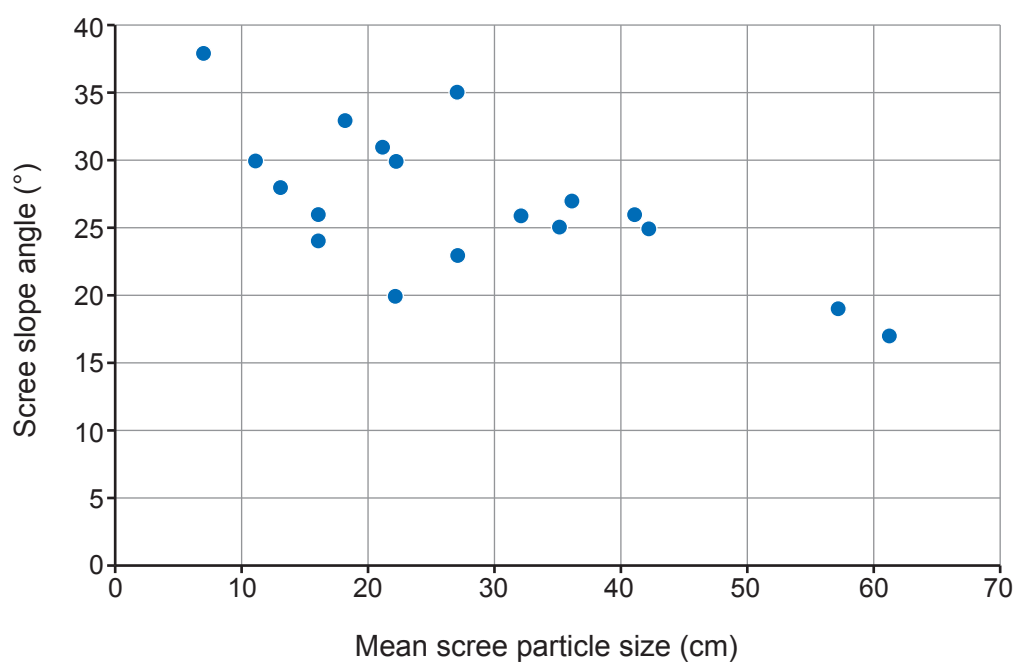
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[10]



Figure 4: Relationship between mean scree particle size and scree slope angle on selected screes, Mewslade, Gower



4. (a) Use **Figure 4** to analyse the relationship between mean scree particle size and scree slope angle. [5]

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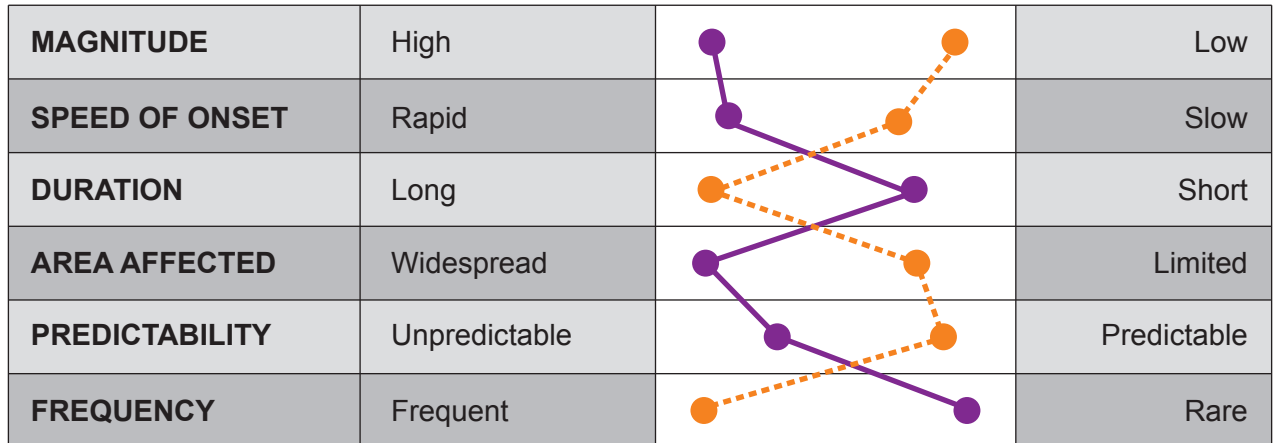


Section B: Tectonic Hazards

Answer **all** questions.

Make the fullest possible use of examples and data to support your answers.

Figure 5: Hazard profiles for the Kilauea eruption (2018) and the Asian tsunami (2004)



Key:

-----●----- Kilauea eruption

————●———— Asian tsunami

5. (a) Use **Figure 5** to compare the **two** hazard profiles.

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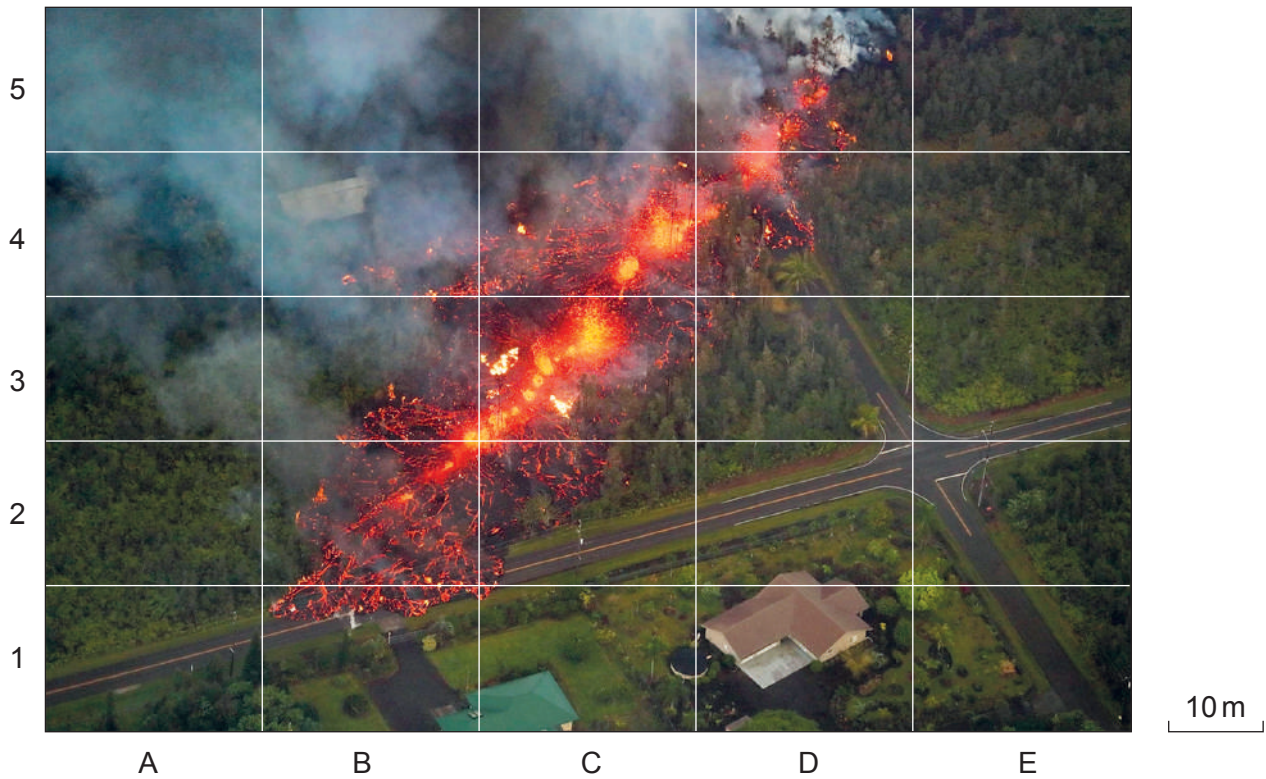
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Figure 6: Effusive eruption, Pahoehoe, Hawaii, May 2018

- (b) Use **Figure 6** to describe the likely impacts of this eruption on people and the built environment.

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Figure 7: Total number of earthquakes of magnitude 3+ (Mw) in selected US states, 2010–2015

US state	Year					
	2010	2011	2012	2013	2014	2015
Hawaii	17	3	40	30	26	53
California	546	195	243	240	191	130

Source: USGS

(c) Use **Figure 7** to:

- (i) Calculate the median value for the number of earthquakes per year in California from 2010 to 2015. [2]

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- (ii) Calculate the mean number of earthquakes per year in California from 2010 to 2015. [2]

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- (iii) Outline **one** disadvantage of using the mean value when studying the frequency of earthquakes in California from 2010–2015. [3]

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Figure 8: Number of earthquakes worldwide by magnitude, 2016–2018

Magnitude (Richter scale)	Year		
	2016	2017	2018
>8.0	0	1	1
7.0–7.9	16	3	16
6.0–6.9	130	104	117
5.0–5.9	1550	1455	1674
Total	1696	1563	1808

Earthquakes below
magnitude 5 are too
numerous to quantify
accurately.

Source: Statista.com

- (iv) Use only **Figure 8** to analyse the relationship between earthquake magnitude and frequency. [4]

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(d) Explain how tectonic plates are thought to move.

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(e) Evaluate the importance of prediction and mitigation in reducing risks associated with volcanic activity.

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Additional space for Question 5(e):

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Additional space for Question 6(a):

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Additional space for Question 6(b):

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TURN OVER FOR QUESTION 7



Section C: Challenges in the 21st Century

Answer **all** questions.

Make the fullest possible use of examples and data to support your answers.

7. 'Human innovation and investment in places minimise negative impacts of change.' Discuss. [10]

In your answer to question 7, you may make use of the material in **Figures 9a, 9b** and **9c** and apply your own knowledge and understanding.

Figure 9a: Coastal protection, Hornsea, Yorkshire



Figure 9b: Dams provide water supply and power



Figure 9c: Cardiff Bay (i) derelict docks and (ii) after redevelopment

(i)



(ii)



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