

Surname	Centre Number	Candidate Number
First name(s)		2



GCE AS

B110U10-1



TUESDAY, 16 MAY 2023 – AFTERNOON

**GEOGRAPHY – AS component 1
CHANGING LANDSCAPES**

2 hours 15 minutes

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
Either 1 and 2 or 3 and 4	15	
	20	
5.	10	
6.	31	
7.	34	
8.	10	
Total	120	

ADDITIONAL MATERIALS

A calculator.

INSTRUCTIONS TO CANDIDATES

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.

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).

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 answers. 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.



JUN23B110U10101

Section A: Changing Landscapes

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

Where possible, make full 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: Coastal landscape at Newbiggin, North Yorkshire, UK



Source: www.walkingbritain.co.uk

1. (a) Use **Figure 1** to describe the characteristics of this coastal landscape. [5]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



(b) Examine the relative importance of geology in the formation of **one or more** landforms of coastal erosion. [10]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Additional space for Question 1(b):

.....

.....

.....

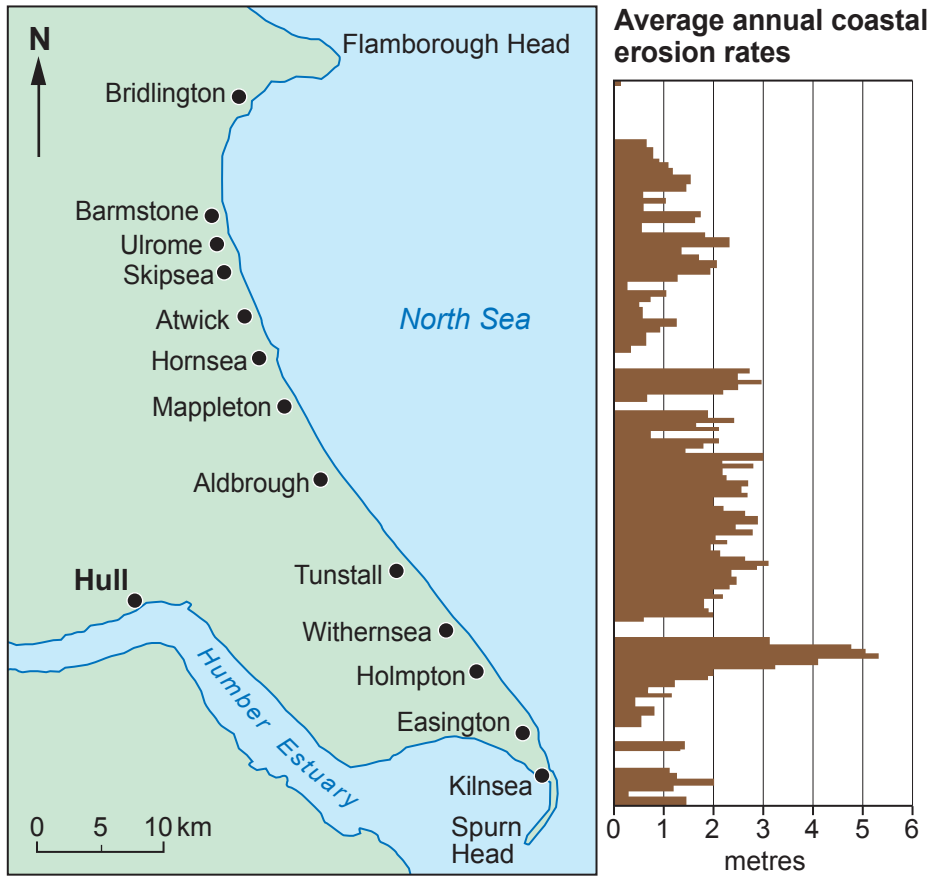
.....

.....

.....



Figure 2: Average annual coastal erosion rates, Holderness, 2003–2017



Source: Urbanrim.org.uk

2. (a) Use **Figure 2** to analyse the pattern of erosion along this coastline. [5]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



- (b) Discuss the view that human activity has a greater impact on coastal landscapes than natural processes. [15]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



.....

.....

.....

.....

.....

Additional space for Question 2(b):

.....

.....

.....

.....

.....



BLANK PAGE

**PLEASE DO NOT WRITE
ON THIS PAGE**

B110U101
07



07

Or: Glaciated Landscapes

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

Figure 3: Glaciated landscape at Striding Edge and Red Tarn, Lake District, UK



Source: <https://www.kisekistudio.com>

3. (a) Use **Figure 3** to describe the characteristics of this glaciated landscape. [5]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



(b) Examine the relative importance of depositional processes in the formation of **one or more** glacial landforms.

[10]

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

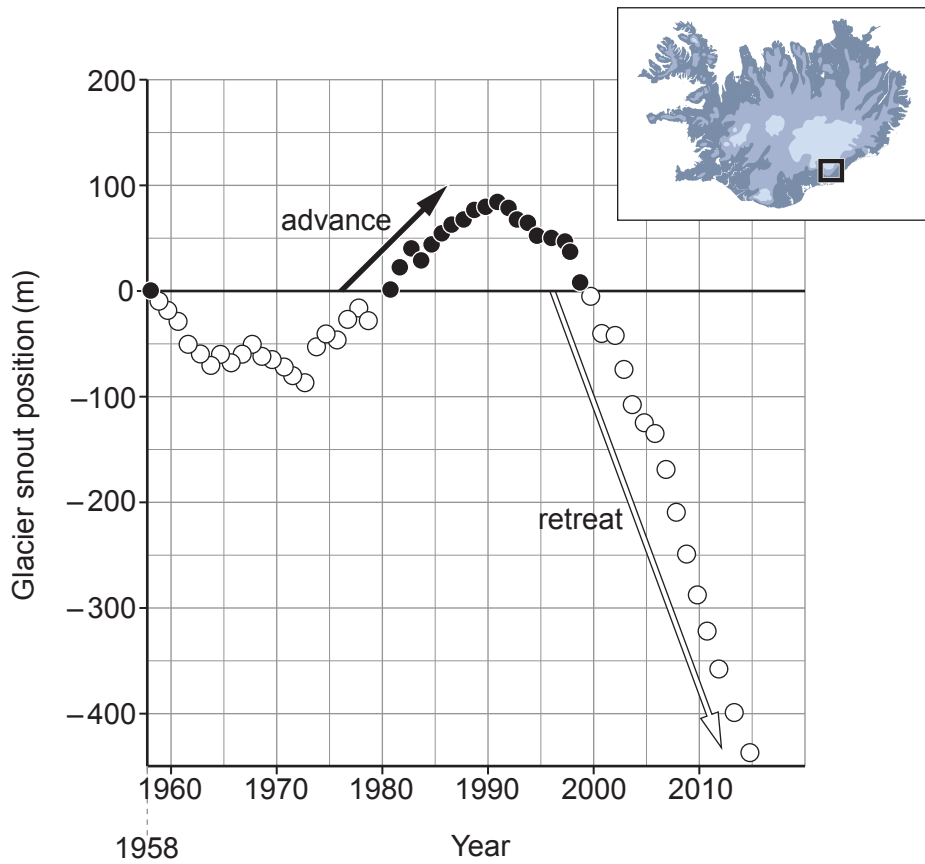
Additional space for Question 3(b):

.....
.....
.....
.....
.....

B110U101
09



Figure 4: Changes in the glacier snout position of Virkisjökull–Falljökull glacier, Iceland, 1958–2014



Source: <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2014JF003165>

4. (a) Use Figure 4 to analyse changes in the position of the glacier snout. [5]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



.....

.....

.....

.....

.....

Additional space for Question 4(b):

.....

.....

.....

.....

.....





Section B: Tectonic Hazards

Answer **all** questions.

Where possible, make full use of examples and data to support your answers.

Figure 5: Eruption of Mount Agung, Bali, Indonesia, 2017



Source: Indonesia National Disaster Management Agency



5. (a) Use **Figure 5** to describe social impacts of the eruption on Bali.

[5]

.....

.....

.....

.....

.....

.....

.....

.....

.....

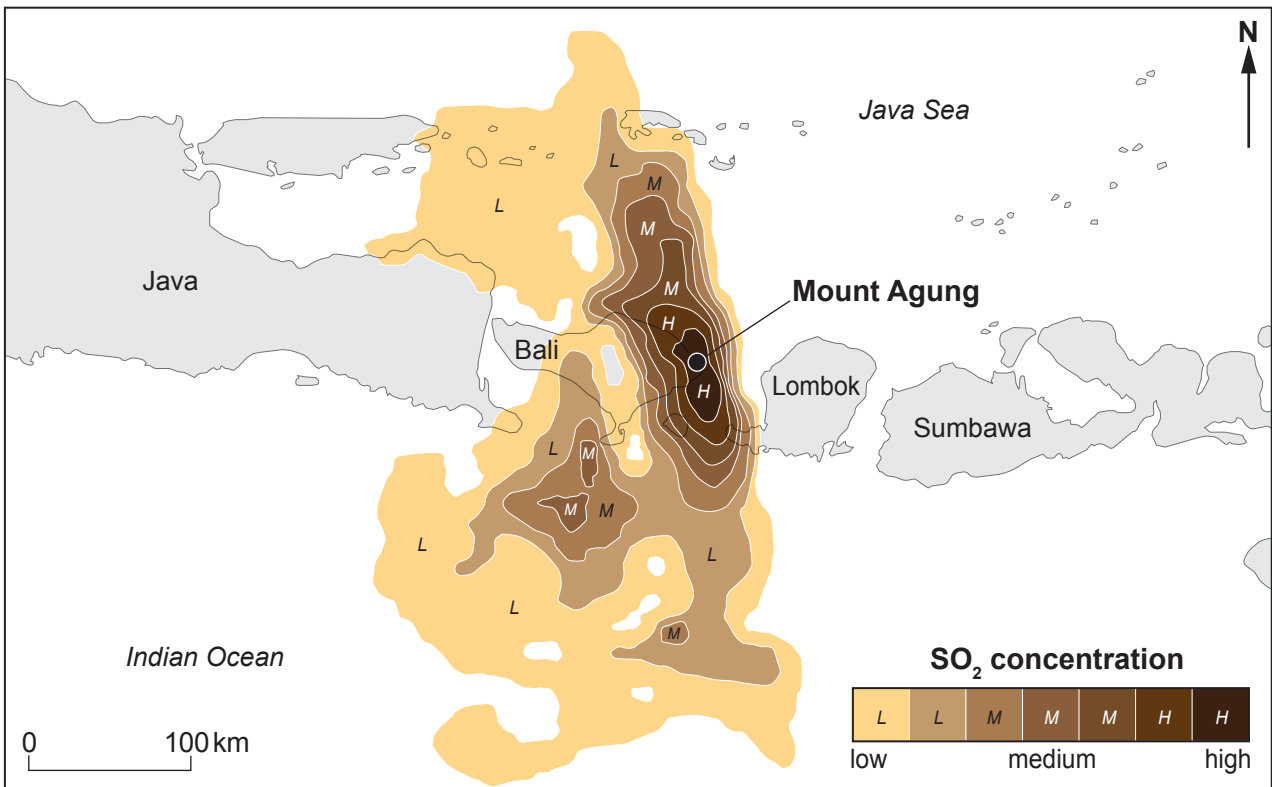
.....

.....

B110U101
15



Figure 6: Sulphur dioxide (SO₂) emissions from Mount Agung, 27 November 2017



Source: <https://www.nnvl.noaa.gov>

(b) Use **Figure 6** to analyse the pattern of sulphur dioxide (SO₂) emissions. [5]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



BLANK PAGE

**PLEASE DO NOT WRITE
ON THIS PAGE**



Figure 7: Selected data for the tsunami wave originating from the Tōhoku earthquake, 11 March 2011.

Location	Distance from epicentre (km)	Length of time taken for tsunami wave to travel to location (minutes)	Mean velocity of tsunami wave (km/hr)	Height of tsunami wave at the location (metres)
Midway Island	4100	302		1.27
Vanuatu	6345	596	639	0.69
Hilo, Hawaii	6535	503	780	1.41
Fiji	7300	585	749	0.21
Los Angeles, California	8480	660	771	0.50
Galapagos Islands, Ecuador	13200	1065	744	2.26
Valparaiso, Chile	16900	1335	760	1.54

Source: <https://nctr.pmel.noaa.gov>

6. (a) (i) Use **Figure 7** to calculate the mean velocity of the tsunami wave as it travels from the epicentre to Midway Island. Show your working. Give your answer correct to the nearest whole number. Insert your answer into the highlighted cell in **Figure 7**.

[2]

- (ii) Use **Figure 7** to calculate the **median** mean velocity of the tsunami wave.

[1]

Median (km/hr)



- (iii) Use **Figure 7** to calculate the range in the heights of the tsunami waves. Show your working. [2]

Range (metres)

- (iv) State **one** suitable cartographic (mapping) technique for representing the length of time for the tsunami wave to travel to the locations in **Figure 7**.

Cartographic technique [1]

- (v) Use **Figure 7** to analyse the nature of the relationship between the length of travel time and the heights of the tsunami waves. [4]

.....

.....

.....

.....

.....

.....

.....

.....

.....



(b) Explain how underwater earthquakes may produce tsunamis.

[6]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(c) Examine the role that quality of governance can play in reducing the risks from earthquakes.

[15]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Additional space for Question 6(c):

.....

.....

.....

.....

.....



.....
.....
.....

Additional space for Question 7(a):

.....
.....
.....
.....
.....
.....

(b) Evaluate the usefulness of the physical hazard profile when comparing tectonic hazard events. [20]

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....



A large rectangular area with a solid border, containing 25 horizontal dotted lines for writing.



Additional space for Question 7(b):

.....

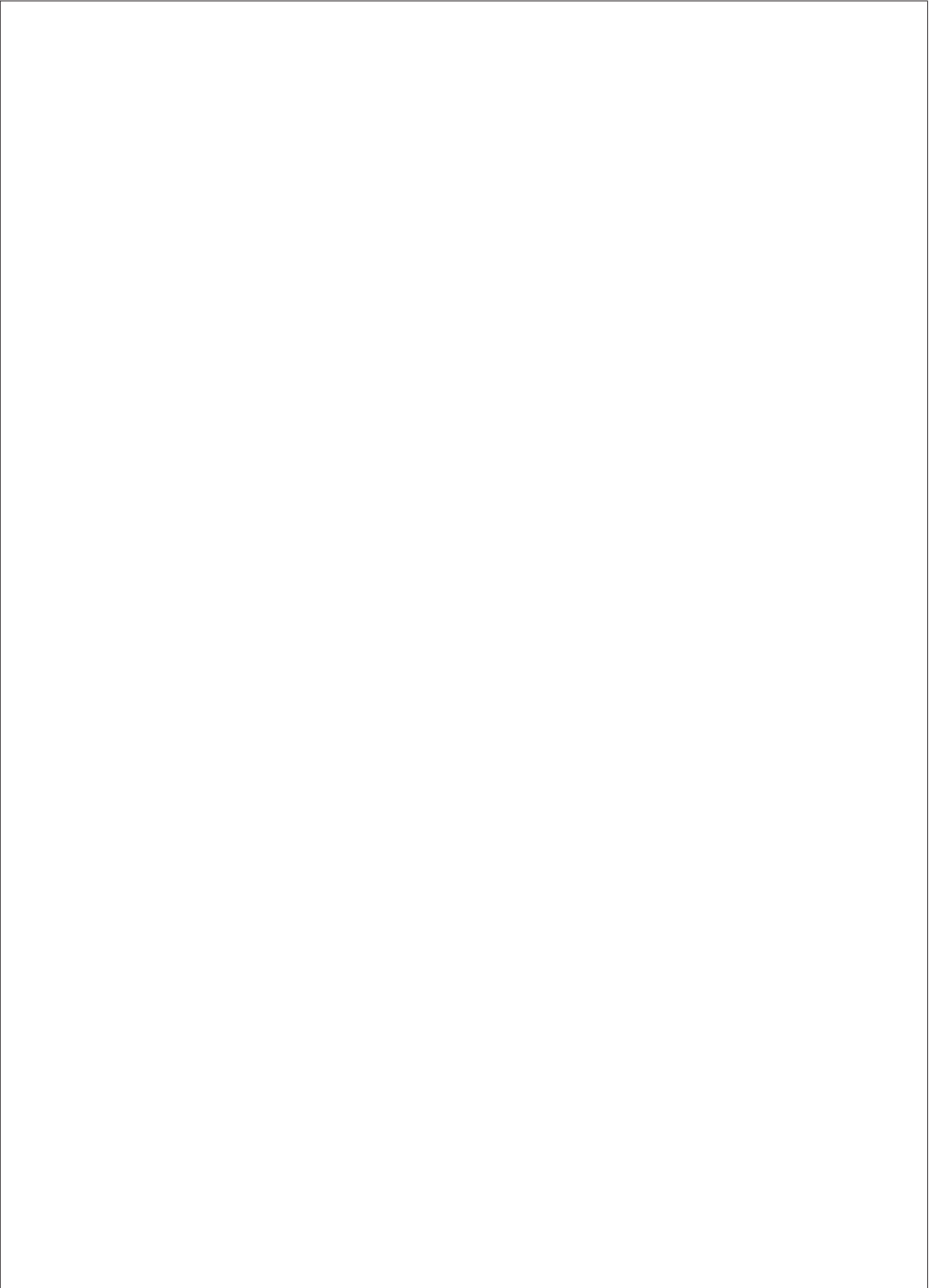
.....

.....

.....

.....





BLANK PAGE

**PLEASE DO NOT WRITE
ON THIS PAGE**



Section C: Challenges in the 21st Century

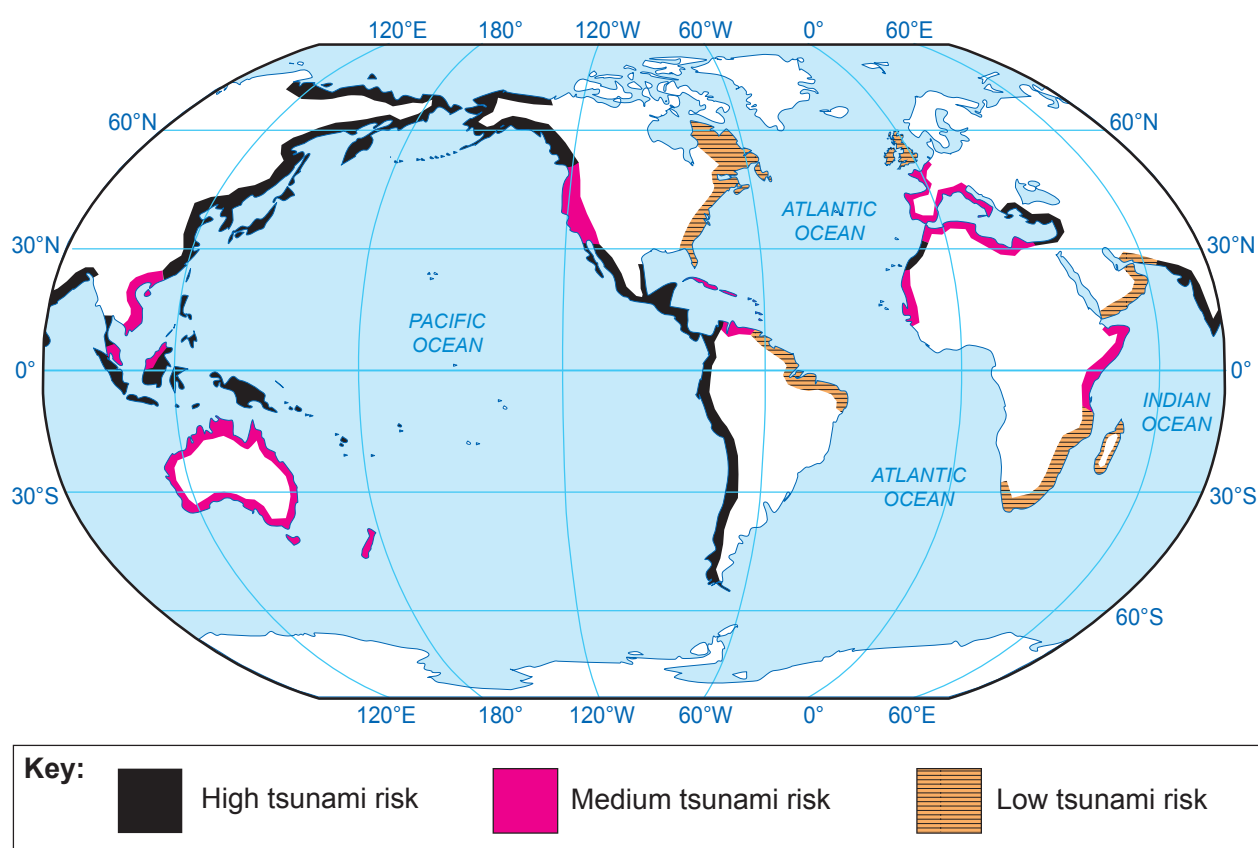
Answer **all** questions.

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

8. Assess the view that the most significant challenges that places face are the result of physical processes. [10]

In your answer to Question 8, you may make use of the material in **Figures 8a** and **8b** and apply your own knowledge and understanding.

Figure 8a: A map of potential tsunami risk along selected coastlines



Adapted from: www.sciencedirect.com



Figure 8b: Mount Etna eruption, Sicily, February 2021



Source: www.guardian.co.uk

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



.....

.....

.....

.....

.....

Additional space for Question 8:

.....

.....

.....

.....

.....

END OF PAPER





