Surname	Centre Number	Candidate Number
Other Names		2

GCE AS – NEW

B110U10-1

S18-B110U10-1

GEOGRAPHY – AS component 1
CHANGING LANDSCAPES

TUESDAY, 15 MAY 2018 – AFTERNOON

2 hours 15 minutes

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**15**	
2.	**20**	
3.	**15**	
4.	**20**	
5.	**40**	
6.	**35**	
7.	**10**	
Total	**120**	

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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** and **all** questions in Section **C**.

Use black ink or black ball-point pen.

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 further space is required you should use the continuation pages at the end of this booklet. The question number(s) should be clearly shown.

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.

Examiner only

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: Coastal landscape at Llantwit Major, South Wales

1. *(a)* Use **Figure 1** to describe **two** distinctive landforms of this coastal landscape. [5]

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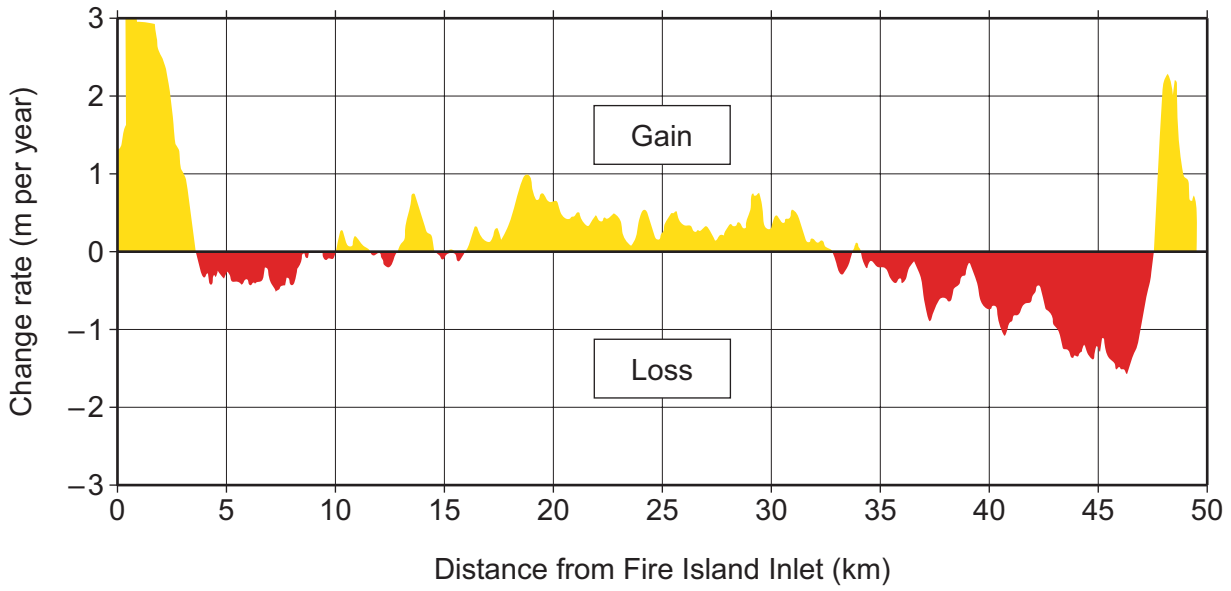
(b) Examine the role of sub aerial processes in the formation of **one or more** landforms of coastal erosion. [10]

Additional space:

Examiner only

Figure 2: Sediment gain and loss along the coastline at Fire Island, New York State, USA, 1933-2012



Source: https://coastal.er.usgs.gov

2. *(a)* Use **Figure 2** to describe the pattern of sediment gain and loss along this coastline. [5]

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(b) Discuss the view that the impacts of human activity on coastal environments are mainly negative. [15]

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Or: Glaciated Landscapes

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

Figure 3: Clogwyn Du'r Arddu, Snowdonia National Park, North Wales

3. *(a)* Use **Figure 3** to describe **two** distinctive landforms of this glacial landscape. [5]

Examiner only

(b) Examine the role of abrasion in the formation of **one or more** landforms of glacial erosion. [10]

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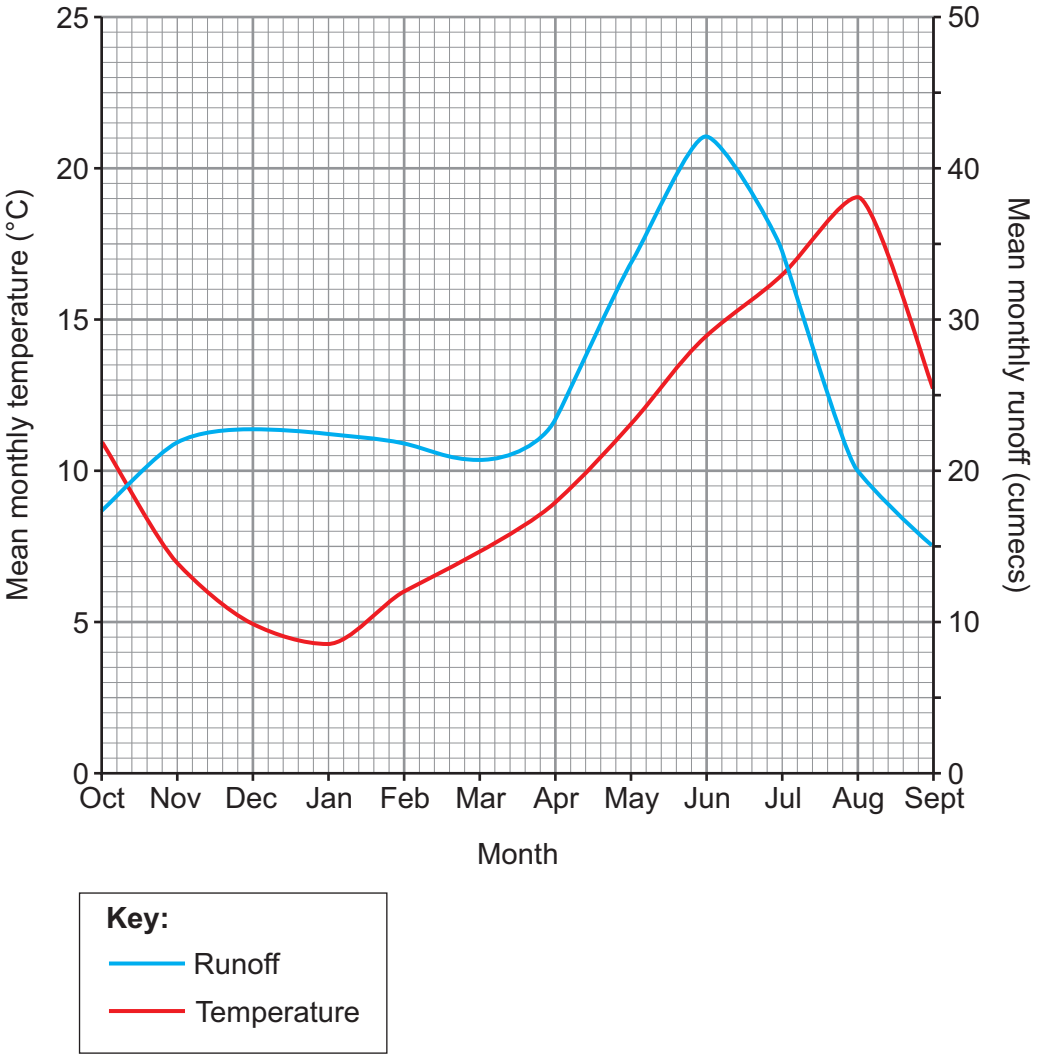
Figure 4: Mean monthly temperature and mean monthly runoff near Silver Creek Glacier, Washington State, USA



Adapted from glaciers.pdx.edu

4. *(a)* Use **Figure 4** to describe the relationship between runoff and temperature. [5]

Examiner only

(b) Discuss the view that the relationship between glaciated landscapes and human activity is mainly negative. [15]

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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 5a: Amatrice, Italy, before and after the earthquake of 24th August 2016

Before earthquake After earthquake

Source: mic.com

Figure 5b: Extract from UK newspaper, 2016

August earthquake in Italy expected to cost 34 million euros in property damage

- 3 British tourists killed
- Regional heritage destroyed
- Only 1% of homes have earthquake insurance

5. *(a)* (i) Use **Figure 5a** to describe the immediate impacts of the earthquake. [5]

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(ii) Use **Figures 5a and 5b** to suggest the possible long-term economic impacts of the earthquake. [5]

(b) Outline the characteristics of **two** types of earthquake (seismic) waves. [5]

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(c) Explain how earthquakes can cause liquefaction. [3]

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Figure 6: Spearman Rank correlation for the magnitude and depth of earthquakes

The null hypothesis (H0) is that there is no significant correlation between the magnitude and depth of an earthquake.

The alternative hypothesis (H1) is that there is a significant correlation between the magnitude and depth of an earthquake.

Figure 6a: Magnitude and depth of selected earthquakes

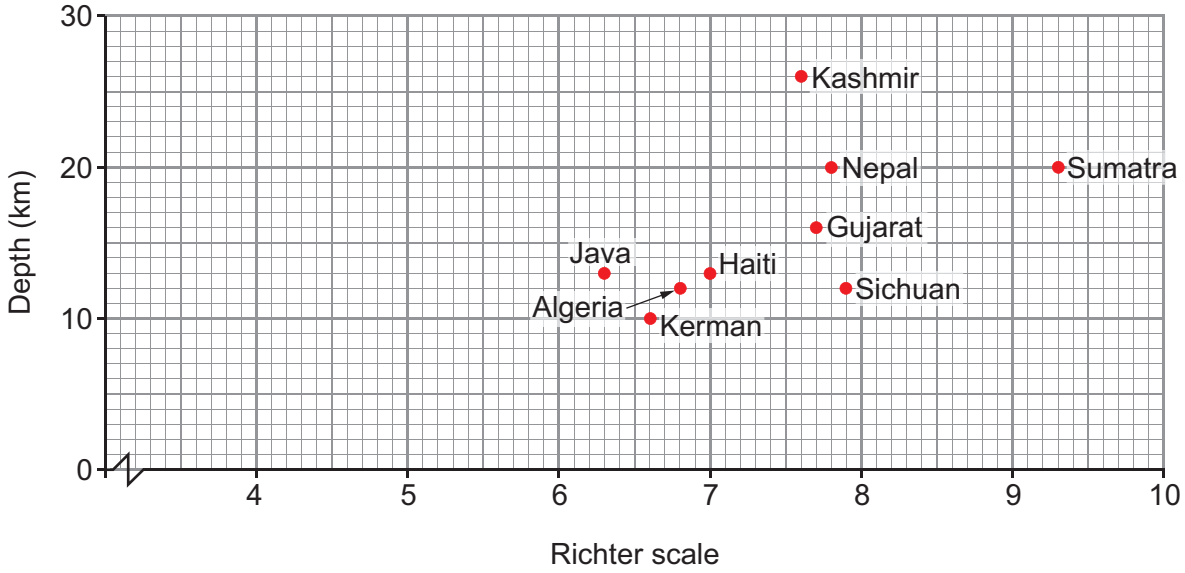

Figure 6b: Spearman Rank data table

Earthquake	Magnitude – Richter scale	Rank	Depth (km)	Rank	d	d^2
Sumatra	9.3	1	20	3.5	–2.5	6.25
Miyagi	9.0	2	24	2	0	0
Sichuan	7.9	3	12	8.5	–5.5	30.25
Nepal	7.8	4	20	3.5	0.5	0.25
Gujarat	7.7	5	16	5	0	0
Kashmir	7.6	6	26	1		
Haiti	7.0	7	13	6.5	0.5	0.25
Algeria	6.8	8	12	8.5	–0.5	0.25
Kerman	6.6	9	10	10	–1	1
Java	6.3	10	13	6.5	3.5	12.25
						$\sum d^2$ =

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(c) (i) Use **Figure 6b** to plot the data for Miyagi onto **Figure 6a**. [2]

(ii) Calculate the missing values for d and d^2 for Kashmir and insert them into **Figure 6b**. [2]

(iii) Calculate the sum of d^2 and insert it into **Figure 6b**. [1]

(iv) Calculate the value of the Spearman Rank correlation coefficient using the formula below, where *n* is the number of pairs of data (*n* = 10). Give your answer to 2 decimal places. [3]

$$r_s = 1 - \frac{6\Sigma d^2}{n^3 - n}$$

(v) Using the table below, state the statistical significance of the result of the Spearman Rank calculation. [2]

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Significance (confidence level)		
n	**95% (0.05)**	**99% (0.01)**
8	0.64	0.83
9	0.60	0.79
10	0.56	0.75

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(d) 'Of all the hazards resulting from earthquake activity, tsunami have the greatest impact.' Discuss. [12]

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6. *(a)* Assess the significance of processes operating at plate margins in explaining the global pattern of volcanic activity. [15]

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(b) 'The best way to reduce the risks associated with tectonic hazards is through the use of technology.' Discuss. [20]

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Please turn to Section C on page 26

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Section C: Challenges in the 21st Century

7. Suggest how hazards can affect connections between places. [10]

*In your answer to question 7, you may use the material in **Figures 7a** and **7b**, but should apply your knowledge and understanding of the connections between different aspects of this area across the whole specification.*

Figure 7a: Flights grounded across Europe by volcanic ash cloud, 2010

Figure 7b: International aid arrives for survivors of the Nepal earthquake, 2015

Source: nepal.iom.int

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