OCR
Oxford Cambridge and RSA

Wednesday 17 November 2021 – Afternoon

GCSE (9–1) Geography B (Geography for Enquiring Minds)

J384/01 Our Natural World

Time allowed: 1 hour 10 minutes

8280082831

You must have:
- the Resource Booklet (inside this document)

You can use:
- a ruler (cm/mm)
- a scientific or graphical calculator

J384O1

Please write clearly in black ink. **Do not write in the barcodes.**

Centre number | | | | | | Candidate number | | | | |

First name(s) _____

Last name _____

INSTRUCTIONS
- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.
- Answer **all** the questions.

INFORMATION
- The total mark for this paper is **63**.
- The marks for each question are shown in brackets **[ ]**.
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- Spelling, punctuation and grammar (SPaG) and the use of specialist terminology will be assessed in questions marked with a pencil (✎).
- This document has **16** pages.

ADVICE
- Read each question carefully before you start your answer.

SECTION A

Answer **all** the questions.

Global Hazards

1 **(a)** What type of winds are usually associated with low pressure systems?

..... **[1]**

(b) Explain how the global circulation system causes extremes of rainfall in **one** part of the world.

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..... **[2]**

(c) **(i)** Select the correct definition of drought.

A not enough water to drink

B prolonged period with unusually low rainfall

C two weeks without rainfall

D two years of low rainfall

Write the correct letter in the box. ☐ **[1]**

(ii) Study **Fig. 1** in the separate Resource Booklet, which shows overall drought risk in South America.

Describe the pattern of areas at high risk of drought shown in **Fig. 1**.

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(d) CASE STUDY – non-UK based natural weather hazard event

Name of chosen non-UK based natural weather hazard:

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Evaluate the main causes of a **non-UK** based natural weather hazard event.

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Changing Climate

2 (a) (i) Study **Fig. 2** in the separate Resource Booklet, which shows a section of an ice core.

Using **Fig. 2**, state how many years of snow accumulation are shown by this ice core.

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..... **[1]**

(ii) Which of the following would be the **most** useful piece of information which could be added to **Fig. 2**.

A scale showing the dates before present

B thickness in cm

C thickness in km

D where the ice core came from

Write the correct letter in the box. ☐ **[1]**

(b) Outline the theory of how sunspots are linked to climate change.

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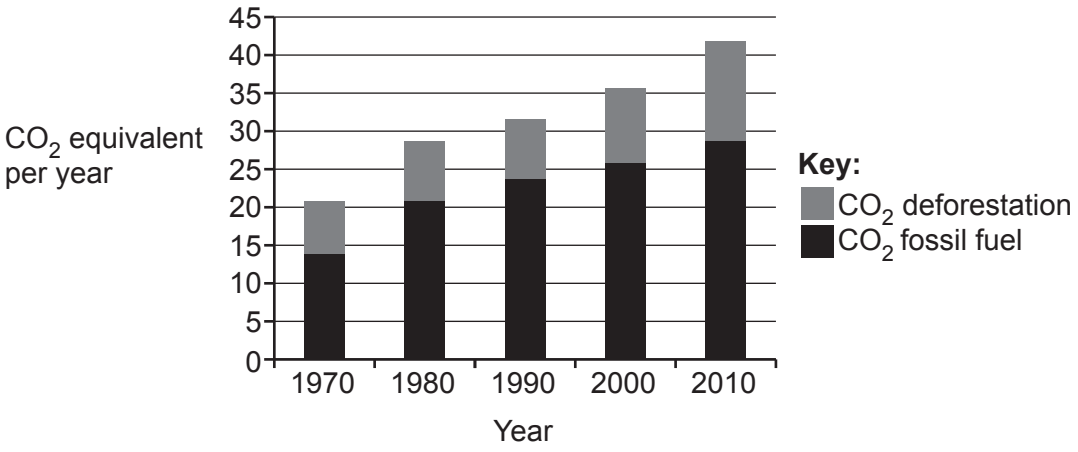
(c) Look at the graph below.



(i) Describe the overall change in atmospheric CO_2 between 1970 and 2010.

..... **[1]**

(ii) Identify the largest contributor to atmospheric CO_2.

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(d) Examine the possible economic impacts of climate change on the UK.

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Distinctive Landscapes

3 **(a)** Which of the following is a type of biological weathering?

A rainwater containing acid breaks down rocks

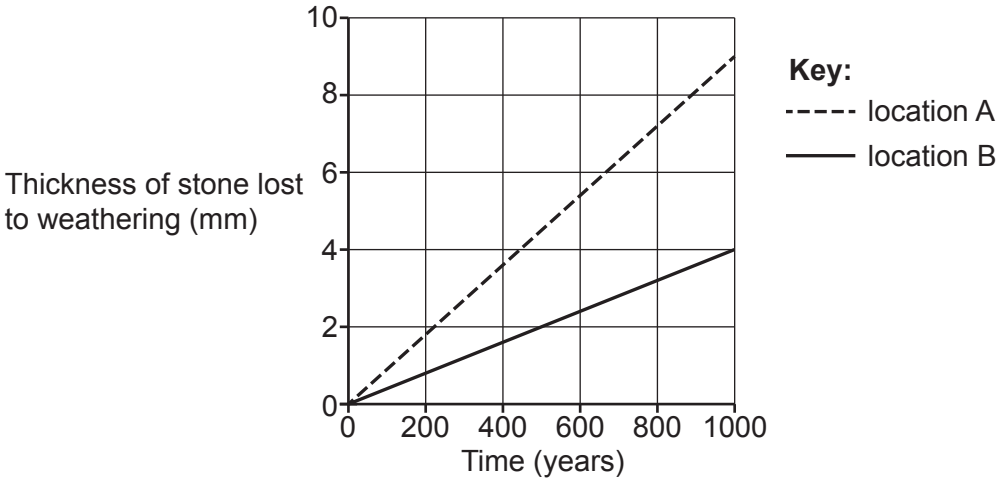
B rainwater containing dissolved CO_2 breaks down rocks

C tree roots split open cracks in rocks

D water melts and freezes in cracks in rocks to split them open

Write the correct letter in the box. ☐ **[1]**

(b) The graph below shows the rate of weathering for two identical pieces of limestone that were weathered in different locations.



(i) What is the difference in the amount of weathering after 1000 years?

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(ii) At which location has the limestone weathered faster?

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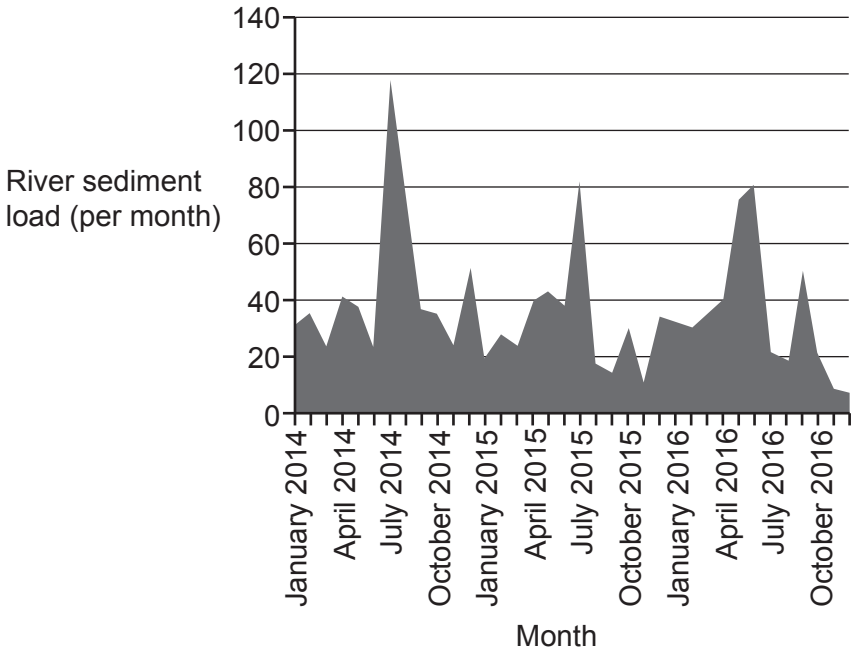
(iii) Suggest **one** factor that could cause this difference in weathering.

..... **[1]**

(c) (i) Look at the graph below showing river sediment load over three years.



Select the correct description of the pattern shown on the graph.

A sediment load changes in equal two-month cycles

B sediment load fluctuates but shows no overall pattern

C sediment load fluctuates each year with a peak in January

D sediment load fluctuates each year with a peak in summer

Write the correct letter in the box. ☐ **[1]**

(ii) Suggest **two** reasons for variations in the sediment load of a river.

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[2]

(d) CASE STUDY – a river basin in the UK

Name of chosen river basin in the UK:

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Explain how **one** landform in the river basin is created by geomorphic processes.

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Sustaining Ecosystems

4 **(a)** Study **Fig. 3** in the separate Resource Booklet, which shows a climate graph for a tropical rainforest.

(i) Calculate the total rainfall for January, February and March.

A 85 mm

B 325 mm

C 525 mm

D 845 mm

Write the correct letter in the box. ☐ **[1]**

(ii) State the annual temperature range for the tropical rainforest climate in **Fig. 3**.

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(b) Explain the importance of nutrient cycling in the rainforest.

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(c)* CASE STUDY – a small-scale example of sustainable management in either the Arctic or Antarctic

Name of small-scale sustainable management example:

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Assess the impact of **one** small-scale example of sustainable management in either the Arctic or the Antarctic ecosystem.

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Turn over for the next question

SECTION B

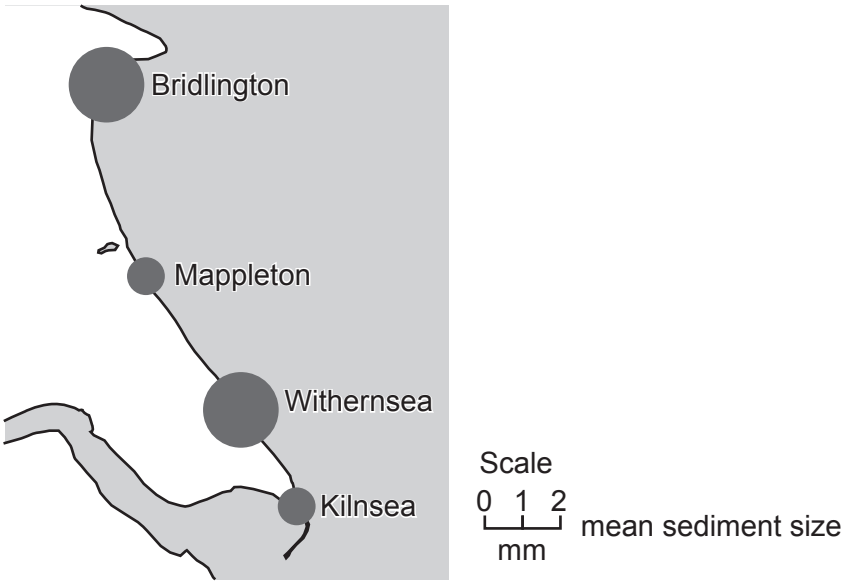
Answer the question.

Physical Geography Fieldwork

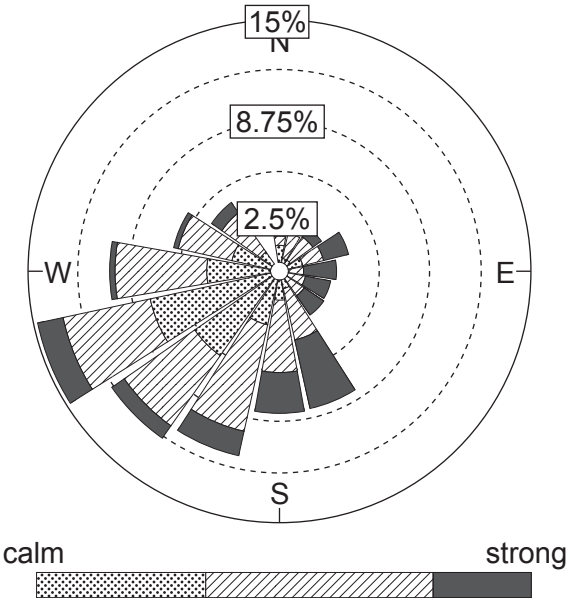
5* Students were investigating the effect of wind direction on longshore drift on part of the Holderness coast. Longshore drift is the movement of material along a coastline due to the angled approach of waves.

They were testing the hypothesis that 'Sediment size will decrease in the direction of the strongest winds.'

The students calculated the mean sediment size on the beach in four locations on the Holderness coast. The map below shows the primary data collected by the students at the four locations.



The students used secondary data to discover wind directions on the Holderness coast over the last five years.



Use the primary and secondary data collected by the students to write a conclusion to their investigation that 'Sediment size will decrease in the direction of the strongest winds.'

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Spelling, punctuation and grammar and the use of specialist terminology **[3]**

END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).