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# GCSE GEOGRAPHY

## Paper 1 Living with the Physical Environment

Tuesday 21 May 2019

Afternoon

Time allowed: 1 hour 30 minutes

### Materials

For this paper you must have:

- a pencil
- a rubber
- a ruler.

You may use a calculator.

### Instructions

- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.

Answer **all** questions in Section A and Section B.

Answer **two** questions in Section C.

| For Examiner's Use |      |
|--------------------|------|
| Question           | Mark |
| 1                  |      |
| 2                  |      |
| 3                  |      |
| 4                  |      |
| 5                  |      |
| TOTAL              |      |

- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

### Information

- The marks for questions are shown in brackets.
- The total number of marks available for this paper is 88.
- Spelling, punctuation, grammar and specialist terminology will be assessed in Question **01.10**.



For the multiple-choice questions, shade the circle next to the correct answer.

CORRECT METHOD 

WRONG METHODS    

If you want to change your answer you must cross out your original answer as shown. 

If you wish to return to an answer previously crossed out, ring the answer you now wish to select as shown. 

### Section A The challenge of natural hazards

Answer **all** questions in this section.

#### Question 1 The challenge of natural hazards

0 1 . 1

State what is meant by extreme weather.

[1 mark]

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0 1 . 2

Which **one** of the following statements does **not** describe an extreme weather event in the UK?

Shade **one** circle only.

[1 mark]

**A** A snow blizzard in the Midlands.

☐

**B** A heatwave in the Lake District.

☐

**C** A tornado in the Isle of Wight.

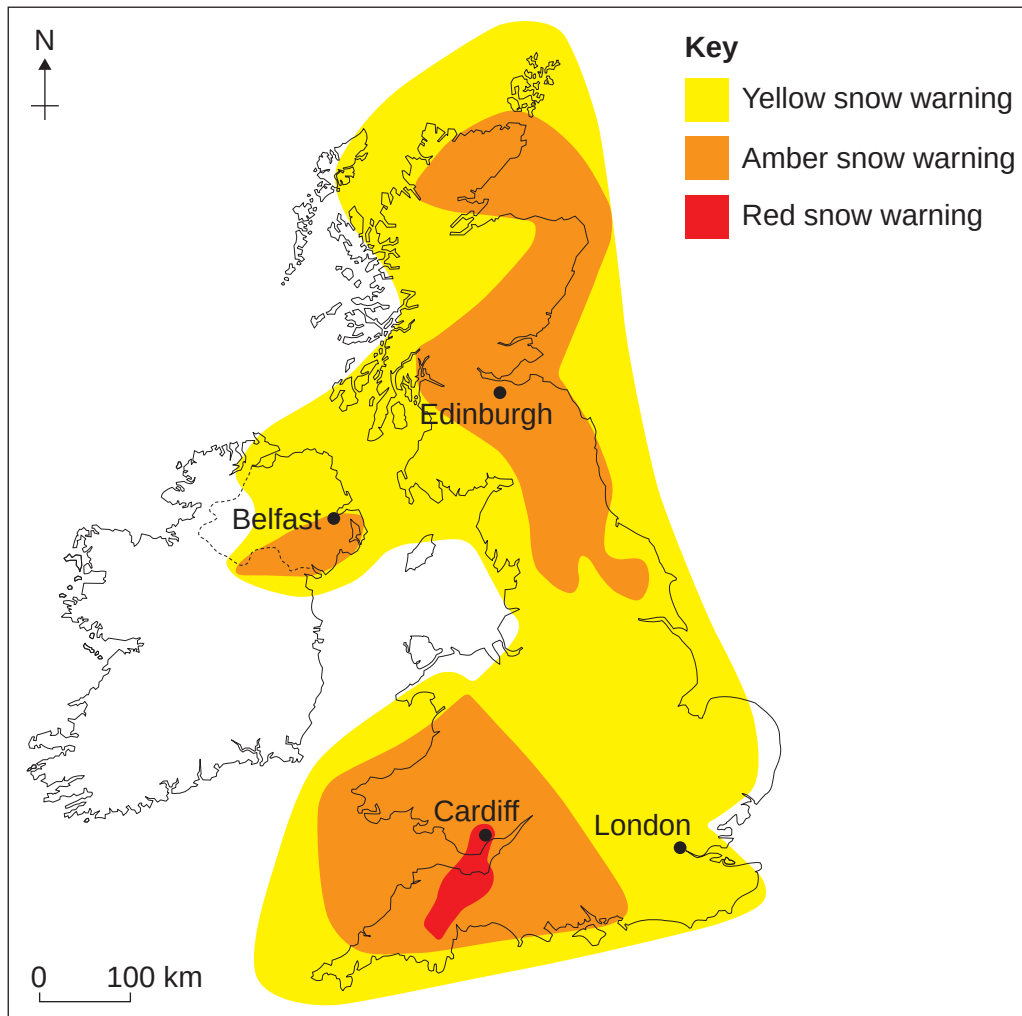
☐

**D** A wet winter in western Scotland.

☐


Study **Figure 1**, a map showing a weather forecast for the UK on 1 March 2018.

**Figure 1**



0 1 . 3

Using **Figure 1**, which **one** of the following statements is true?

Shade **one** circle only.

[1 mark]

- A The London area has an amber snow warning.
- B The whole of the UK has a snow warning.
- C Cardiff has a red snow warning.
- D Edinburgh is not forecast to have snow.

☐
☐
☐
☐

Question 1 continues on the next page

Turn over ►



## Figure 2

- Dangerous weather
- Risk to life
- Major disruption to travel and power supplies



**'Beast from the East' causes chaos across Britain. The killer freeze costs the UK £1 billion per day as transport routes are disrupted by snow and ice. Businesses and schools are forced to close.**

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Use **Figure 2** and your own understanding.

**[6 marks]**

[illegible]

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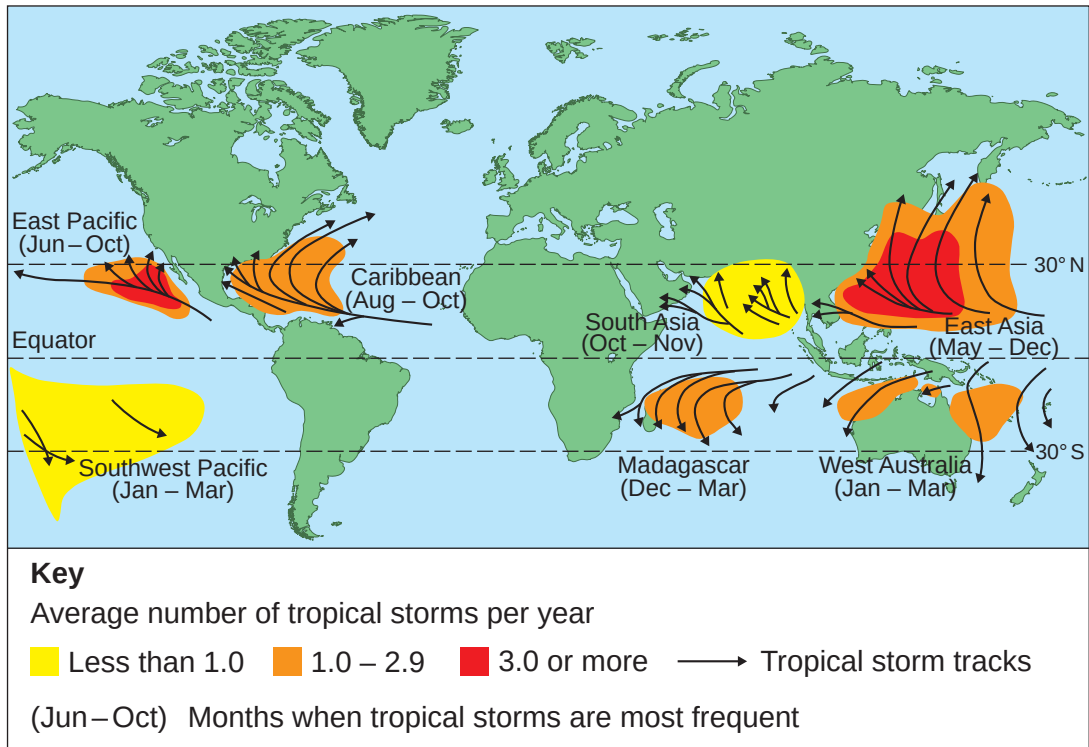
**Question 1 continues on the next page**

**Turn over ►**



Study **Figure 3**, a map showing the distribution and frequency of tropical storms.

**Figure 3**



0 1 . 5

Using **Figure 3**, complete the following paragraph.

**[3 marks]**

Most tropical storms happen between latitudes 5 degrees and 30 degrees north and south of the \_\_\_\_\_ .

On average, three or more tropical storms per year take place in the East Pacific and \_\_\_\_\_. In the Caribbean the main months for tropical storms are between \_\_\_\_\_ .



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Give **two** reasons why tropical storms form in the areas shown in **Figure 3**.

**[2 marks]**

1 \_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

**Question 1 continues on the next page**

**Turn over ►**



Study **Figure 4**, a table listing some of the most severe tropical storms over the past 50 years.

**Figure 4**

| Tropical storm                                  | Number of deaths | Max wind speed (km per hour) |
|-------------------------------------------------|------------------|------------------------------|
| 1970 Bhola cyclone, Bangladesh                  | 350 000          | 205                          |
| 1975 Typhoon Nina, China                        | 230 000          | 250                          |
| 2008 Cyclone Nargis, Myanmar                    | 138 000          | 215                          |
| 1998 Hurricane Mitch, Caribbean                 | 19 300           | 295                          |
| 2013 Typhoon Haiyan, Philippines                | 7 300            | 310                          |
| 1980 Hurricane Allen, Caribbean, Mexico and USA | 260              | 305                          |
| 2017 Hurricane Irma, Caribbean and USA          | 134              | 298                          |

0 1 . 7

'As maximum wind speeds increase, so does the number of deaths linked to tropical storms.'

Do you agree?

Use evidence from **Figure 4** to support your answer.

**[2 marks]**

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0 1 . 8

Suggest **one** way the distribution of tropical storms could change if global ocean temperatures continue to rise.

**[1 mark]**

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Explain how alternative energy production **and** planting trees may help to reduce the rate of climate change.

[4 marks]

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Question 1 continues on the next page

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Study **Figure 5**, photographs showing different types of response to a tectonic hazard.

**Figure 5**



Immediate response to a tectonic hazard in Haiti



Long-term response to a tectonic hazard in Haiti

0 1 . 1 0

'Long-term responses to a tectonic hazard are more important than immediate responses.'

Do you agree?

Using **Figure 5** and **one or more** examples, explain your answer.

[9 marks]

[+3 SPaG marks]

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**Turn over for Section B**

**Turn over ►**



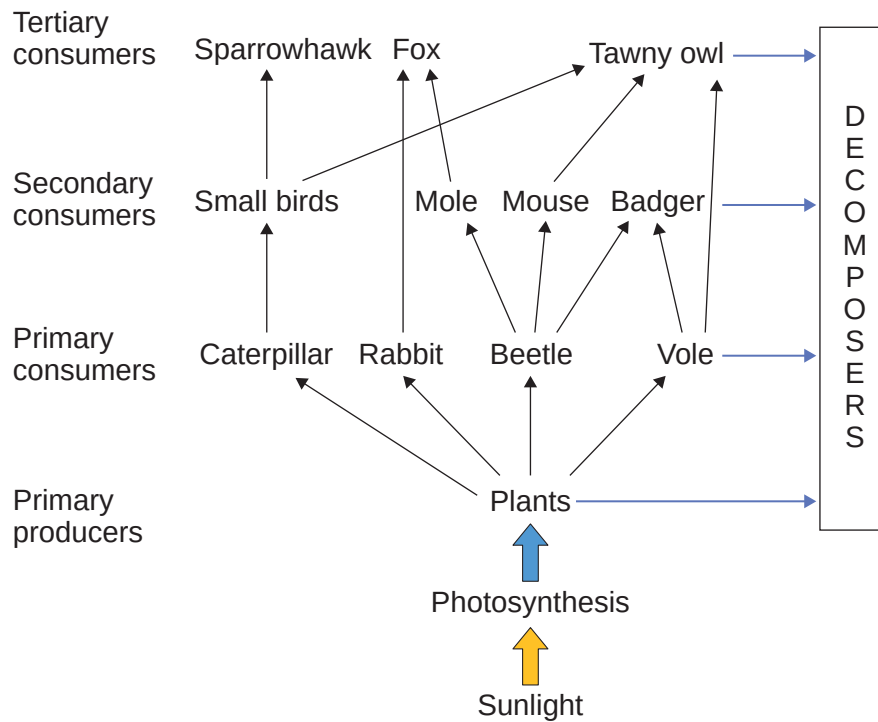
## Section B The living world

Answer **all** questions in this section.

### Question 2 The living world

Study **Figure 6**, which shows a food web for a small scale ecosystem in the UK.

**Figure 6**



0 2 . 1

Using **Figure 6**, which **one** of the following statements is true?

Shade **one** circle only.

**[1 mark]**

**A** Sparrowhawks eat plants.

☐

**B** Voles eat moles.

☐

**C** Moles eat beetles.

☐

**D** Badgers eat small birds.

☐


0 2 . 2

Suggest what would happen in the food web shown in **Figure 6** if foxes became extinct.

[2 marks]

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0 2 . 3

State **one** role of decomposers in an ecosystem.

[1 mark]

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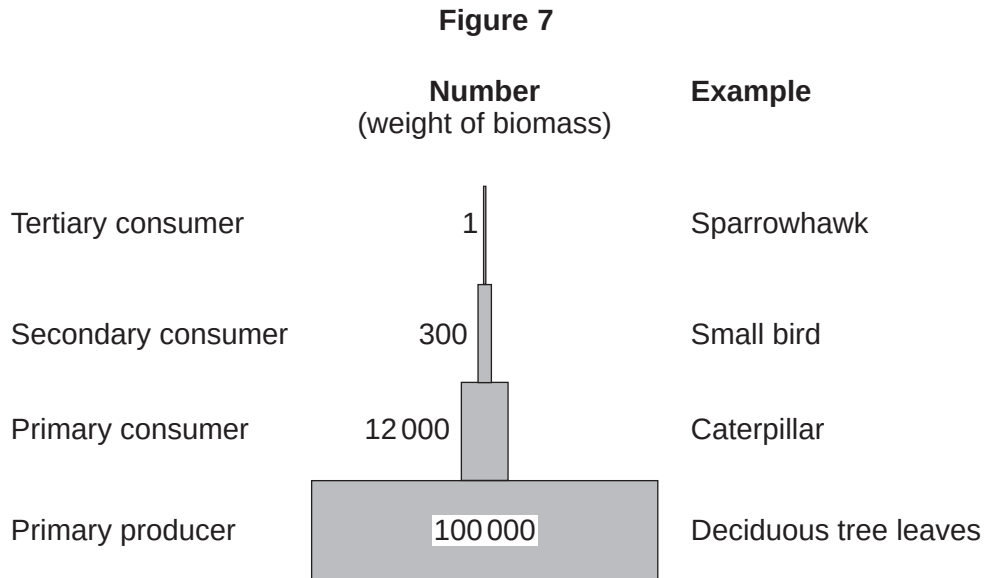
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Question 2 continues on the next page

Turn over ►



Study **Figure 7**, a graph showing the biomass at different levels of a food chain.



Biomass is the total quantity or weight of organisms in a given area.

**0 2 . 4**

Calculate the percentage loss in biomass between the primary consumer and secondary consumer levels.

Shade **one** circle only.

**[1 mark]**

**A** 2.5%

☐

**B** 97.5%

☐

**C** 25.2%

☐

**D** 95.5%

☐

**0 2 . 5**

Give **two** reasons why the biomass changes between each level in the food chain.

**[2 marks]**

1 \_\_\_\_\_

\_\_\_\_\_

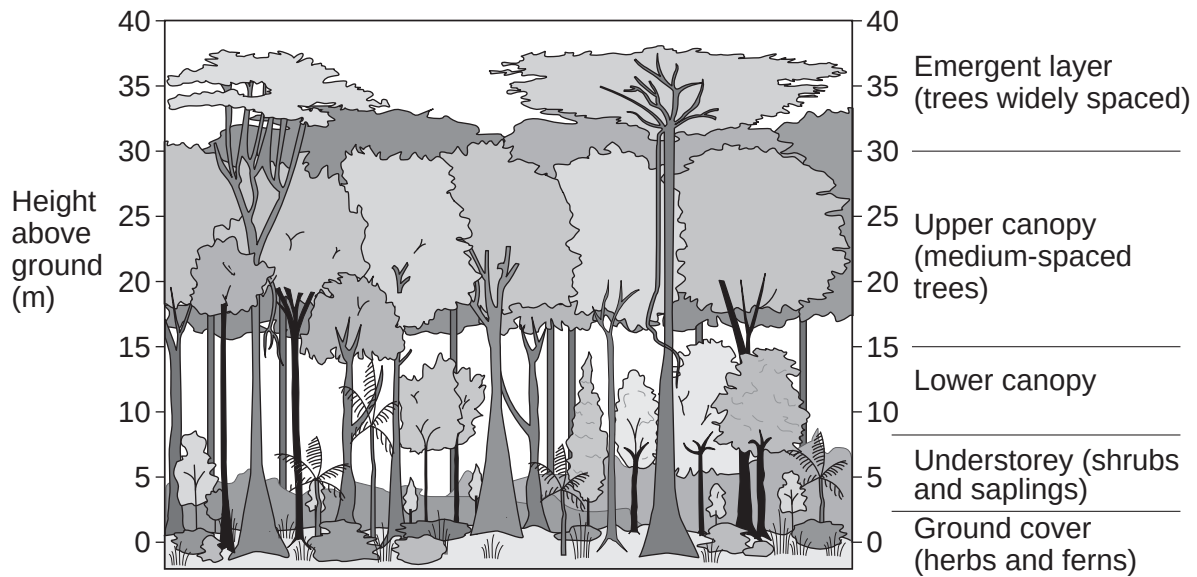
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Study **Figure 8**, a diagram showing the structure of the tropical rainforest.

**Figure 8**



0 2 . 6

Using **Figure 8**, which part of the rainforest matches the following description?

'An almost continuous layer of branches and leaves between 15 and 30 metres high.'

Shade **one** circle only.

[1 mark]

A Emergent layer

☐

B Upper canopy

☐

C Lower canopy

☐

D Understorey

☐

0 2 . 7

Using **Figure 8**, describe **one** characteristic of the base of the taller trees.

[1 mark]

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0 2 . 8

Give **one** effect of deforestation on the soils of the rainforest.

[1 mark]

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Turn over ►



Study either **Figure 9** or **Figure 10**.

**Figure 9** (plants and animals in a hot desert)



**Figure 10** (plants and animals in a cold environment)





**Turn over ►**



## Either

**or**

**Tick (✓) the box to show which environment you have chosen.**

10

**[9 marks]**

[illegible]

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End of Section B

Turn over for Section C

Turn over ►



### Section C Physical landscapes in the UK

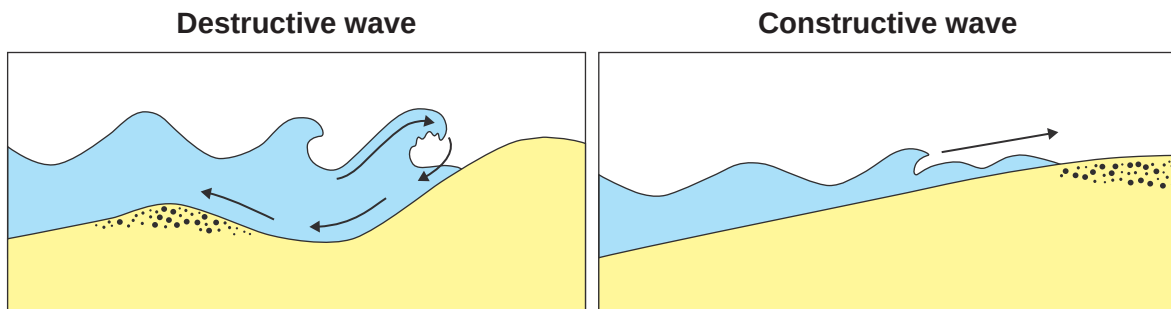
Answer **two** questions from the following:

Question 3 (Coasts), Question 4 (Rivers), Question 5 (Glacial).

#### Question 3 Coastal landscapes in the UK

Study **Figure 11**, diagrams of destructive and constructive waves.

**Figure 11**



0 3 . 1

Using **Figure 11**, compare **two** features of destructive and constructive waves.

**[2 marks]**

1 \_\_\_\_\_

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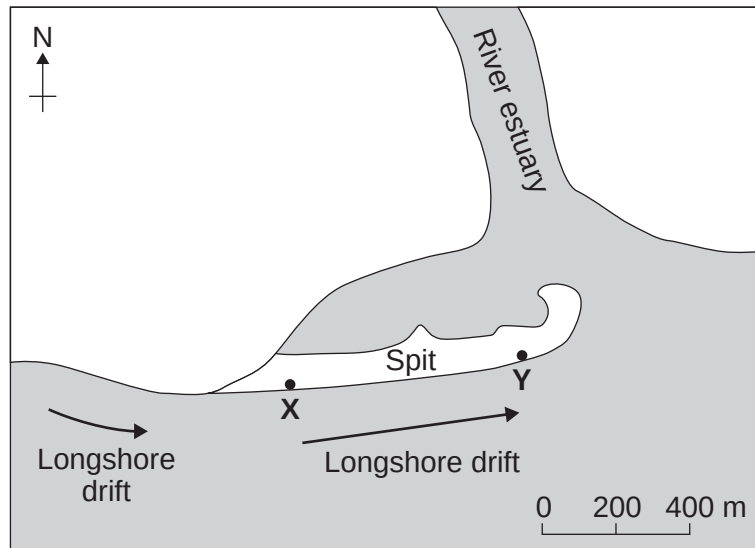
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Study **Figure 12**, showing sediment size at two locations along a coastal spit.

**Figure 12**



| Location X<br>Sediment size (cm) | Location Y<br>Sediment size (cm) |
|----------------------------------|----------------------------------|
| 12                               | 9                                |
| 10                               | 4                                |
| 9                                | 2                                |
| 15                               | 3                                |
| 8                                | 2                                |
| 13                               | 6                                |
| Mean: 11.2                       | Mean:                            |

0 3 . 2

Complete the table in **Figure 12** by calculating the mean sediment size, in cm, for location Y.

[1 mark]

0 3 . 3

Suggest **one** reason for the difference in sediment size between location X and location Y.

[1 mark]

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Question 3 continues on the next page

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**0 3 . 4**

Which of these is a process of mass movement in coastal environments?

Shade **one** circle only.**[1 mark]****A** Frost shattering☐**B** Slumping☐**C** Attrition☐**D** Longshore drift☐

Study **Figure 13**, a photograph showing sea defences in Hornsea, Yorkshire.

**Figure 13**



0 3 . 5

Explain how the sea defences shown in **Figure 13** help to protect the coastline from erosion.

[4 marks]

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Question 3 continues on the next page

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Study **Figure 14**, a photograph showing a coastal landscape in Pembrokeshire, South Wales.

**Figure 14**



0 3 . 6

Explain how different coastal landforms are created by erosion.

Use **Figure 14** and your own understanding.

**[6 marks]**

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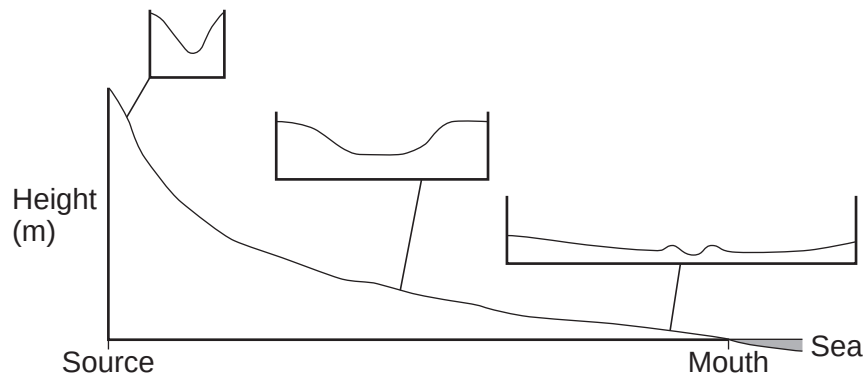
End of Question 3

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**Question 4****River landscapes in the UK**

Study **Figure 15**, a diagram showing the long and cross profiles of a typical river and its valley.

**Figure 15**

0 4 . 1

Describe how the cross profile of the river valley changes downstream.

**[2 marks]**


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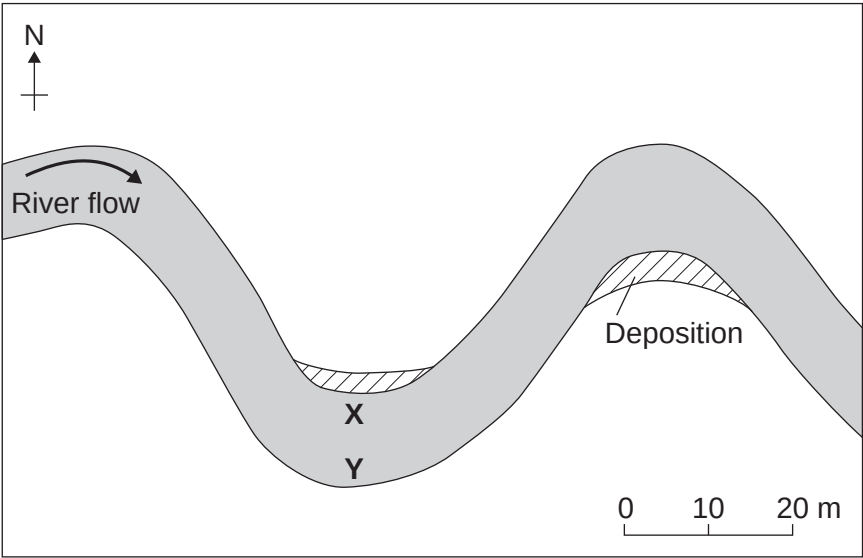


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Study **Figure 16**, showing velocity data for a meandering river.

**Figure 16**



| Velocity of river at X<br>(in metres per second) | Velocity of river at Y<br>(in metres per second) |
|--------------------------------------------------|--------------------------------------------------|
| 0.4                                              | 1.2                                              |
| 0.7                                              | 1.4                                              |
| 0.3                                              | 1.1                                              |
| 0.4                                              | 1.7                                              |
| 0.9                                              | 0.9                                              |
| 0.6                                              | 1.5                                              |
| Median: 0.5                                      | Median:                                          |

0 4 . 2

Complete the table in **Figure 16** by calculating the median velocity, in metres per second, at point **Y**.

[1 mark]

0 4 . 3

Suggest **one** reason for the difference in river velocity between point **X** and point **Y**.

[1 mark]

\_\_\_\_\_

\_\_\_\_\_

Question 4 continues on the next page

Turn over ►



|   |   |   |   |
|---|---|---|---|
| 0 | 4 | . | 4 |
|---|---|---|---|

Which of these is a process by which a river transports sediment?

Shade **one** circle only.

[1 mark]

**A** Abrasion

☐

**B** Traction

☐

**C** Deposition

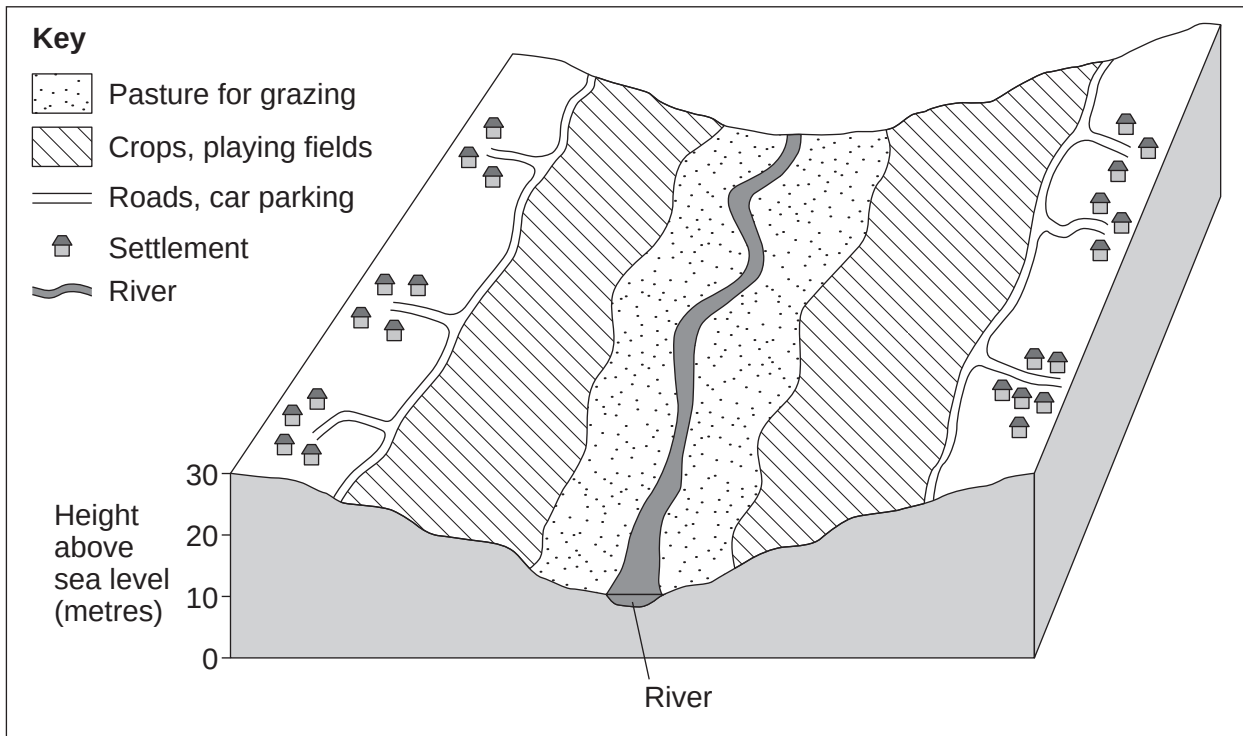
☐

**D** Hydraulic power

☐

Study **Figure 17**, a diagram showing floodplain zoning.

**Figure 17**



0 4 . 5

Explain how soft engineering strategies can help to reduce the impact of river flooding.

Use **Figure 17** and your own understanding.

[4 marks]

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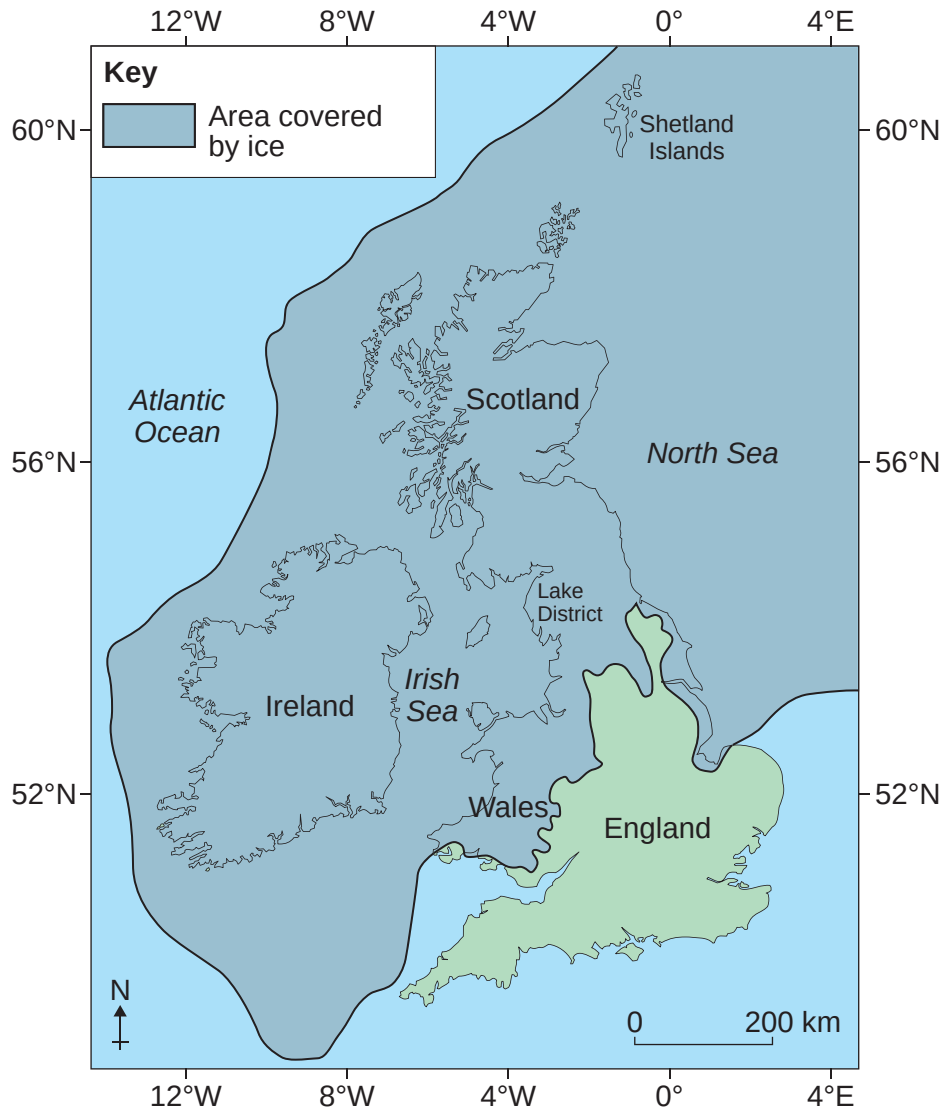
**End of Question 4**

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**Question 5      Glacial landscapes in the UK**

Study **Figure 19**, a map showing the extent of ice cover across the British Isles during the last ice age.

**Figure 19**

0 5 . 1

Using **Figure 19**, describe the extent of ice cover across the British Isles during the last ice age.

**[2 marks]**


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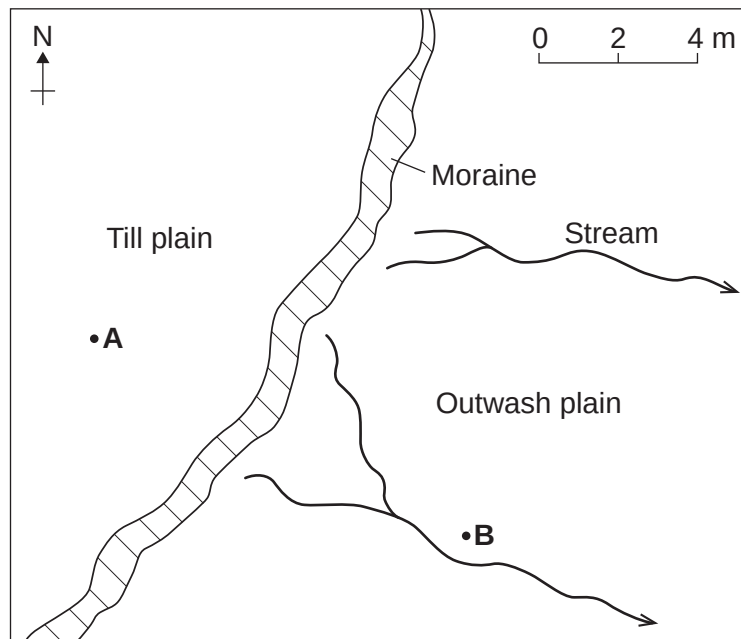
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Study **Figure 20**, showing the size of glacial sediment at two locations.

**Figure 20**



| Location A<br>Size of sediment (cm) | Location B<br>Size of sediment (cm) |
|-------------------------------------|-------------------------------------|
| 2.3                                 | 5.9                                 |
| 18.6                                | 6.9                                 |
| 26.7                                | 3.8                                 |
| 4.1                                 | 9.1                                 |
| 14.0                                | 10.4                                |
| 1.4                                 | 7.2                                 |
| Range: 25.3                         | Range:                              |

0 5 . 2

Complete the table in **Figure 20** by calculating the range of sediment size, in cm, at location **B**.

[1 mark]

0 5 . 3

Suggest **one** reason for the difference in the range of sediment size between location **A** and location **B**.

[1 mark]

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Question 5 continues on the next page

Turn over ►



**0 5 . 4**

Which of these is a process of glacial erosion?

Shade **one** circle only.**[1 mark]****A** Freeze-thaw☐**B** Plucking☐**C** Rotational slip☐**D** Transportation☐

Study **Figure 21**, showing some land uses in a glaciated area.

**Figure 21**

Tourism

Quarrying

Farming

Forestry



0 5 . 5

Explain why there may be land use conflicts in glaciated upland areas.

Use **Figure 21** and your own understanding.

**[4 marks]**

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END OF QUESTIONS



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