Please write clearly in block capitals.

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

Surname _____

Forename(s) _____

Candidate signature _____
I declare this is my own work.

A-level
GEOGRAPHY

Paper 1 Physical Geography

Time allowed: 2 hours 30 minutes

For Examiner's Use	
Section	Mark
A	
B	
C	
TOTAL	

Materials
For this paper you must have:
- the colour insert (enclosed)
- 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.
- Answer **either** Question 2 **or** Question 3 **or** Question 4 in Section B.
- Answer **either** Question 5 **or** Question 6 in Section C.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need additional extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- 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 120.

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Section A

Water and carbon cycles

Answer **all** questions in this section.

0 1 . 1 Explain the concept of negative feedback within the carbon cycle.

[4 marks]

Extra space

Do not write outside the box

Figure 1 is in the insert.

Figure 1 shows changes in the terrestrial water system in response to human activity and climate change between 2012 and 2016.

0 1 . 2 Analyse the changes in the terrestrial water system shown in **Figure 1**.

[6 marks]

Extra space

Question 1 continues on the next page

Do not write outside the box

Figure 2 is in the insert.

Figure 2 shows regional changes in forest cover between 1990 and 2010.

0 1 . 3 Using **Figure 2** and your own knowledge, assess the challenges arising out of the changing forest cover.

[6 marks]

Extra space

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0 1 . 4 'Human activity needs to focus more on adapting to the expected negative impacts of climate change than on taking measures to restore atmospheric carbon to pre-industrial levels.'

How far do you agree with this view?

[20 marks]

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Extra space

Do not write outside the box

36

End of Section A

Turn over for Section B

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Section B

Answer **one** question in this section.

Answer **either** Question 2 **or** Question 3 **or** Question 4.

Question 2 **Hot desert systems and landscapes**

0 2 . 1 Outline the sources of water in deserts.

[4 marks]

Extra space

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Figures 3a and **3b** are in the insert.

Figure 3a shows annual mean temperatures in Australia in 2018 compared to historical temperature observations.

Figure 3b shows annual rainfall in Australia in 2018 compared to historical rainfall observations.

0 2 . 2 Analyse the extent of the relationships shown in **Figure 3a** and **Figure 3b**.

[6 marks]

Extra space

Question 2 continues on the next page

Do not write outside the box

Figure 4 shows a landscape feature in the White Desert in western Egypt.

Figure 4

Note: The White Desert extends over 300 km^2 of the Egyptian Sahara Desert. Sedimentary rocks formed from oceanic deposition in an earlier geological era are now subject to hot desert conditions. Features such as those illustrated protrude above the landscape to give the White Desert its distinctive character. Mushroom-shaped formations can be as high as 4.5 metres.

0 2 . 3 Using **Figure 4** and your own knowledge, assess the role of wind in the development of this landscape.

[6 marks]

Do not write outside the box

Extra space

0 2 . 4 How far can an understanding of systems in physical geography help to mitigate against the expansion of deserts into semi-arid areas?

[20 marks]

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Do not write outside the box

Extra space

36

End of Question 2

Do not write outside the box

Question 3 Coastal systems and landscapes

0 3 . 1 Outline factors leading to the formation of fjords.

[4 marks]

Extra space

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Figures 5a and **5b** are in the insert.

Figure 5a shows geographical variation in the 1992–2014 global sea level change using satellite data.

Figure 5b shows geographical variation in the 1992–2019 global sea level change using another source of satellite data.

0 3 . 2 Using only **Figures 5a** and **5b**, evaluate the relative usefulness of these sources in demonstrating eustatic sea level change.

[6 marks]

Extra space

Question 3 continues on the next page

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Figure 6 is a photograph of part of the Mersey Estuary at Runcorn, Cheshire in 2019.

Figure 6

Note: Runcorn lies about 25 kilometres from the sea on the south bank of the tidal estuary of the River Mersey where the tidal range can be as high as 9 metres. This particular photograph was taken at low tide looking towards the north bank of the estuary. The River Mersey ends its approximately 110 km course in this tidal estuary.

0 3 . 3 Using **Figure 6** and your own knowledge, assess the view that deposition is the most important factor in the development of this landscape.

[6 marks]

Do not write outside the box

Extra space

0 3 . 4 With reference to a coastal landscape from beyond the UK, assess the role of human intervention in shaping the physical environment.

[20 marks]

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Do not write outside the box

Extra space

End of Question 3

36

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Question 4 Glacial systems and landscapes

0 4 . 1 Outline processes leading to the formation of kames.

[4 marks]

Extra space

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Figures 7a and **7b** are in the insert.

Figure 7a shows the distribution, size and type of selected Himalayan glaciers.

Figure 7b shows the change in mass balance of the selected glaciers between 2000 and 2016.

0 4 . 2 Analyse the data shown in **Figures 7a** and **7b**.

[6 marks]

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Question 4 continues on the next page

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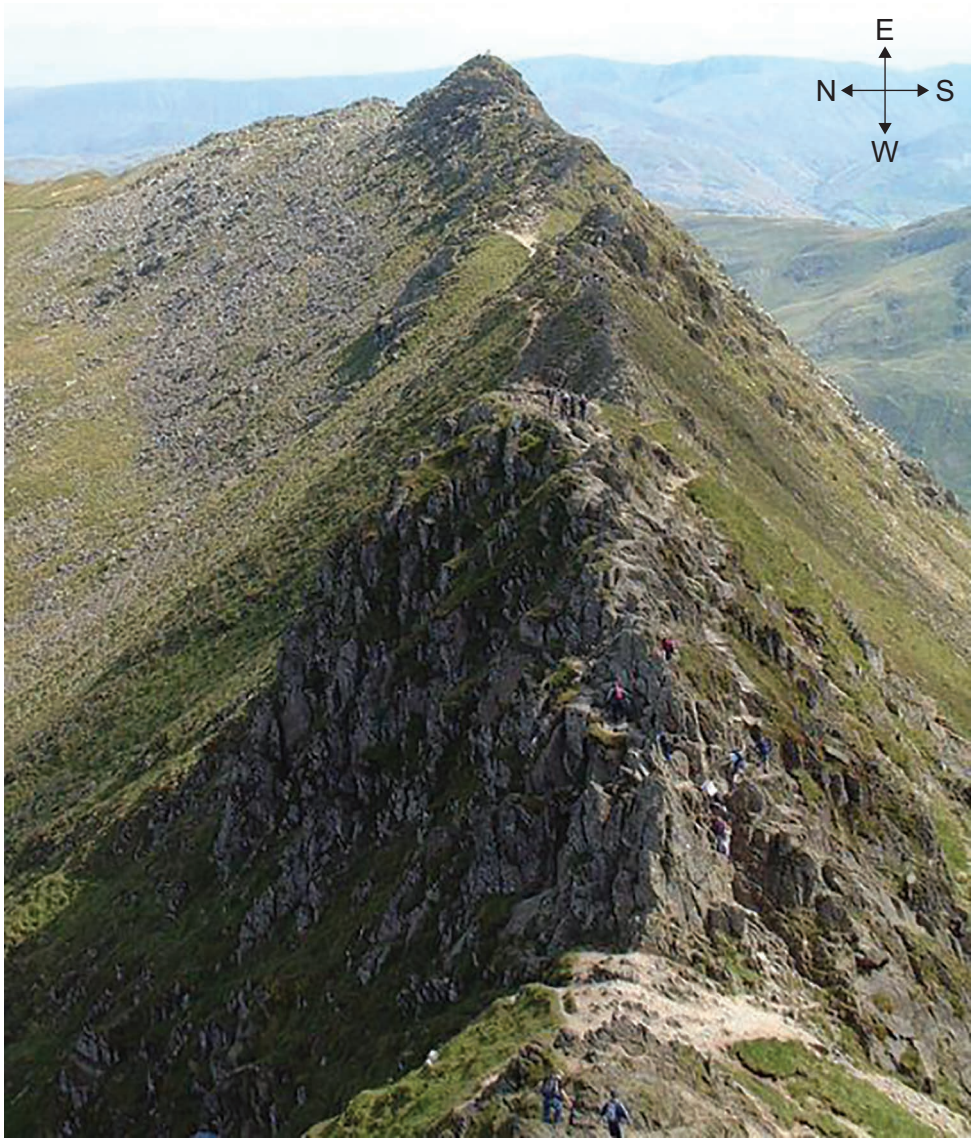
Figure 8 shows a glacial landscape feature, Striding Edge, in the Lake District National Park, England.

Figure 8



Note: Striding Edge runs for several kilometres from Helvellyn Peak (950 metres) in the west towards Ullswater in the east. To the north is Red Tarn, a large corrie lake. The predominant rock type is igneous and dates back to a period of vulcanicity around 450 million years ago.

0 4 . 3 Using **Figure 8** and your own knowledge, assess the role of erosion in the development of this landscape feature.

[6 marks]

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Question 4 continues on the next page

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0 4 . 4 'Human activity is having a devastating impact upon cold environments with little evidence of a sustainable future emerging.'

To what extent do you agree with this view?

[20 marks]

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Extra space

Do not write outside the box

36

End of Question 4

End of Section B

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Section C

Answer **one** question in this section.

Answer **either** Question 5 **or** Question 6.

Question 5 **Hazards**

0 5 . 1 Outline factors which lead to the formation of mudflows, a volcanic hazard.

[4 marks]

Extra space

Question 5 continues on the next page

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Figure 9 is in the insert.

Figure 9 shows responses by some companies and individuals to the Haiti earthquake, 2010.

0 5 . 2 Analyse the data shown in **Figure 9**.

[6 marks]

Extra space

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Figures 10a, **10b** and **10c** are in the insert.

Figures 10a, **10b** and **10c** show data related to coastal flooding risk in Louisiana, USA, based upon a 2017 master plan. The information is based upon a 1 in 100 year extreme flood event.

0 5 . 3 Using **Figures 10a**, **10b**, **10c** and your own knowledge, assess the challenges in managing flood risk associated with tropical storms in Louisiana.

[9 marks]

Extra space

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0 5 . 4 Assess the usefulness of prediction in the management of wildfire.

[9 marks]

Do not write outside the box

Extra space

0 5 . 5 'Seismic hazards will always be harder to manage than volcanic hazards due to their unpredictability and scale.'

To what extent do you agree with this view?

[20 marks]

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Do not write outside the box

Extra space

End of Question 5

48

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Question 6 Ecosystems under stress

0 6 . 1 Outline the concept of climatic climax in vegetation succession.

[4 marks]

Extra space

Do not write outside the box

Figure 11a and **Figure 11b** are in the insert.

Figure 11a shows the cause of deforestation in equatorial west Africa, 2000–2014.

Figure 11b shows national estimates of forest loss by area and cause in equatorial west Africa, 2000–2014.

0 6 . 2 Analyse the data shown in **Figure 11a** and **Figure 11b**.

[6 marks]

Extra space

Question 6 continues on the next page

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Figure 12 is in the insert.

Figure 12 shows a range of issues facing game parks and reserves in Kenya, east Africa.

0 6 . 3 Using **Figure 12** and your own knowledge, assess the implications of this data for sustainability in areas of savanna grassland in east Africa.

[9 marks]

Extra space

Do not write outside the box

0 6 . 4 Analyse the interconnections between climate, vegetation and soils in the development of temperate deciduous woodland.

[9 marks]

Do not write outside the box

Extra space

0 6 . 5 With reference to an ecosystem at a local scale, evaluate the extent to which management has created a viable future for the area.

[20 marks]

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48

END OF QUESTIONS

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