

Surname					Other Names				
Centre Number					Candidate Number				
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General Certificate of Education  
 June 2005  
 Advanced Subsidiary Examination



**GEOGRAPHY (SPECIFICATION B)**  
**Unit 2 The Physical Options**

**GGB2**

Friday 27 May 2005 Afternoon Session

**In addition to this paper you will require:**  
 the colour insert (enclosed).  
 You may use a calculator.

Time allowed: 1 hour

**Instructions**

- Use blue or black ink or ball-point pen. You may use pencil for maps, diagrams and graphs.
- Fill in the boxes at the top of this page.
- Answer **one** question in the spaces provided.  
 Choose option **P** or **Q** or **R**.  
 Option **P**: Glacial Environments – Page 2.  
 Option **Q**: Coastal Environments – Page 10.  
 Option **R**: Urban Physical Environments (Temperate Urban Areas) – Page 18.
- Do all rough work in this book. Cross through any work you do not want marked.
- Give sketch maps, diagrams and specific examples, where appropriate.
- If there is not enough space for your answer(s), use the extra page(s) at the end of the book. If you do this, make sure that you show the number of the question you are answering.

**Information**

- The maximum mark for this paper is 50.
- Mark allocations are shown in brackets.
- You are expected to use a calculator where appropriate.
- You will be assessed on your ability to use an appropriate form and style of writing, to organise relevant information clearly and coherently, and to use specialist vocabulary, where appropriate.
- The degree of legibility of your handwriting and the level of accuracy of your spelling, punctuation and grammar will also be taken into account.

For Examiner's Use			
Number	Mark	Number	Mark
P	X		
1			
Q	X		
2			
R	X		
3			
Total (Column 1)	→		
Total (Column 2)	→		
TOTAL			
Examiner's Initials			

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Answer the question on Option **P** or **Q** or **R**.

All questions carry equal marks.

**OPTION P: GLACIAL ENVIRONMENTS**

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1 (a) Define the terms:

accumulation .....

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ablation .....

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*(5 marks)*

**NO QUESTIONS APPEAR ON THIS PAGE**

**QUESTION 1 CONTINUES ON THE NEXT PAGE**

**Turn over ►**

(b) Look at **Figure 1**.

Map of British Isles showing the maximum extent of the Pleistocene ice sheet in Britain - not reproduced here, due to third-party copyright constraints.

(i) Name **two** areas within the British Isles that were source areas for ice.

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*(2 marks)*

(ii) Describe the movements of ice as shown in **Figure 1**.

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*(5 marks)*

(c) (i) Describe the ways in which glaciers and ice sheets transport moraine.

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*(6 marks)*

**QUESTION 1 CONTINUES ON THE NEXT PAGE**

**Turn over ►**

(ii) Describe **one** landform that has been formed by glacial deposition.

Chosen landform .....

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(6 marks)

(d) Look at **Figures 2a** and **2b**, on the insert, which are photographs of two **fluvioglacial** landforms. Choose **one** of the landforms.

(i) Describe your chosen landform.

Chosen landform .....

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(6 marks)

**QUESTION 1 CONTINUES ON THE NEXT PAGE**

**Turn over ▶**

(ii) Explain the role of glacial meltwater in the formation of your chosen landform.

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*(7 marks)*

(e) (i) Define the term permafrost. Describe its various forms.

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*(5 marks)*

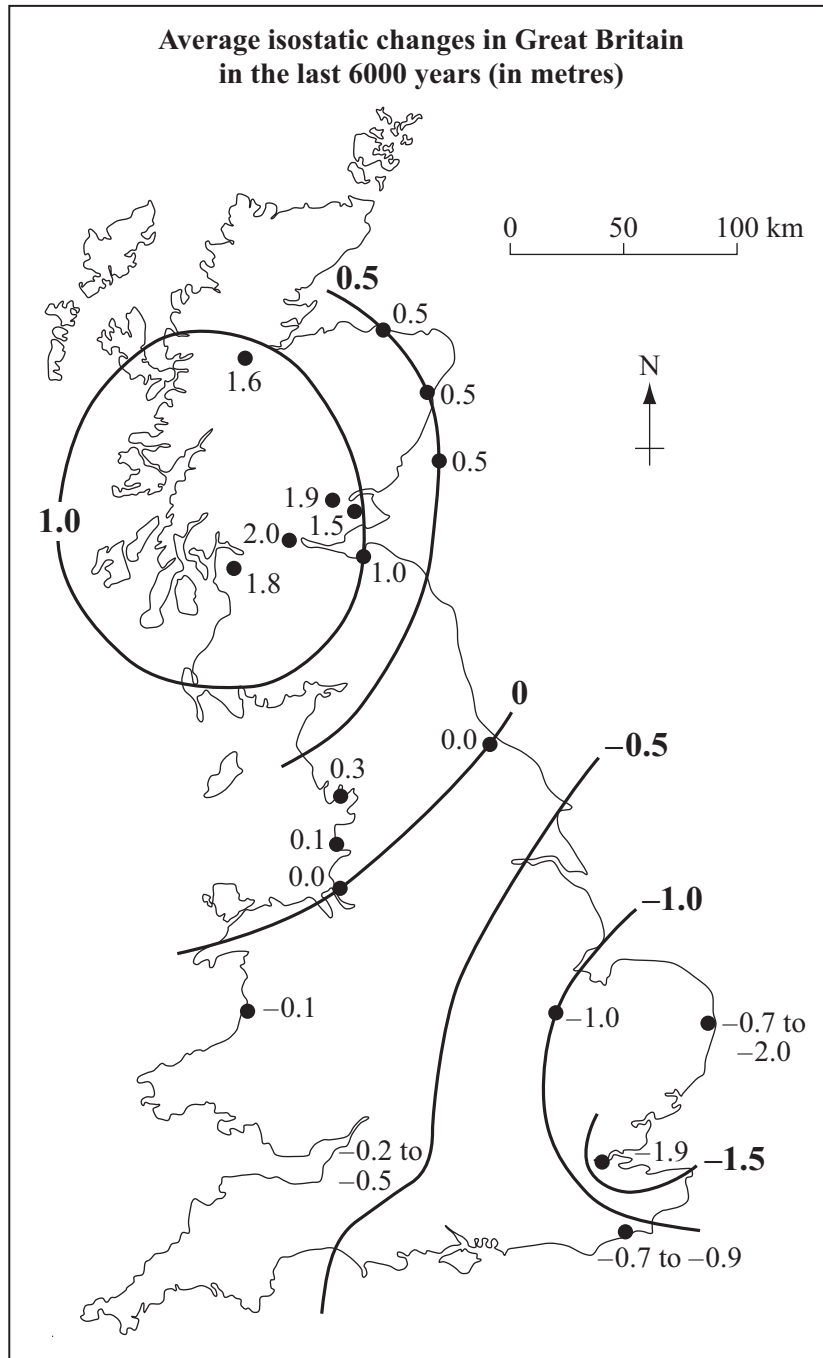




Answer the question on Option **P** or **Q** or **R**.

**OPTION Q: COASTAL ENVIRONMENTS**

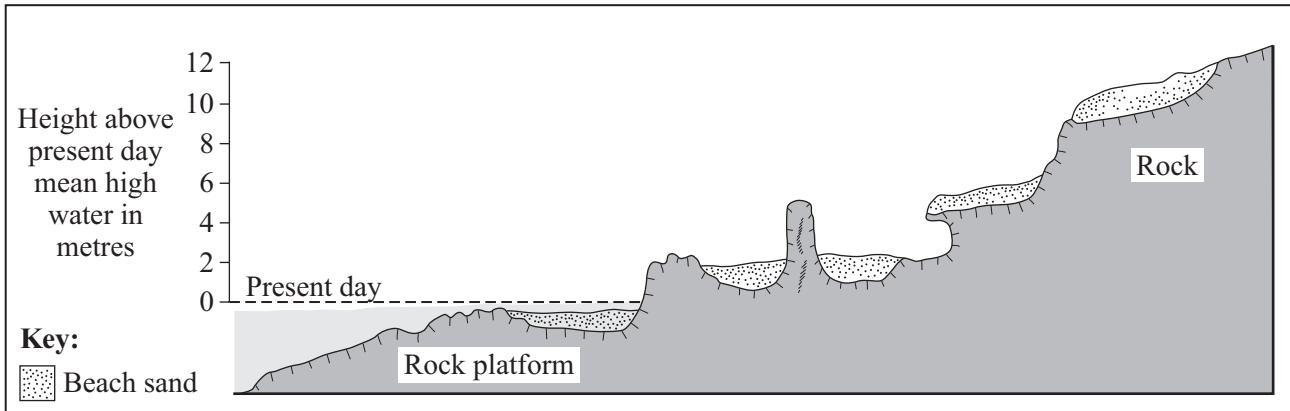
2 (a) Look at **Figure 3**.



**Figure 3**



(iv) Look at **Figure 4**, which shows a cross-section of a coastline.



**Figure 4**

Describe the features shown on the cross-section of the coastline. Suggest the role of sea level change in the development of this coastline.

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(7 marks)

(b) (i) In the context of marine erosion, define the following terms:

abrasion .....

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hydraulic action .....

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(6 marks)

**QUESTION 2 CONTINUES ON THE NEXT PAGE**

**Turn over ►**

- (ii) Choose **one** landform that has been created by coastal erosion.  
Describe your chosen landform.

Chosen landform .....

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*(7 marks)*

(c) For a section of coastline that you have studied, describe the geology (rock type and structure) and explain how this has affected the coastal landforms found there.

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(8 marks)

**QUESTION 2 CONTINUES ON THE NEXT PAGE**

**Turn over ►**

(d) Look at **Figure 5** on the insert, which shows a spit.

(i) Describe this landform.

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*(6 marks)*



(ii) Explain how marine processes form landforms such as the one shown in **Figure 5**.

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(6 marks)

50

**TURN OVER FOR THE NEXT QUESTION**

**Turn over ►**

Answer the question on Option **P** or **Q** or **R**.

**OPTION R: URBAN PHYSICAL ENVIRONMENTS (TEMPERATE URBAN AREAS)**

3 (a) Look at **Figure 6**.

Climatic elements: differences caused by large urban areas		
Element	Parameter	Urban compared with rural (– less; + more)
Temperature	Annual mean	+0.7 °C
	Winter maximum	+1.5 °C
	Length of frost-free season	+2 to 3 weeks
Wind speed	Annual mean	–20 to –30%
	Extreme gusts	–10 to –20%
	Frequency of calms	+5 to +20%
Relative humidity	Annual mean	–6%
	Seasonal mean	–2% (winter); –8% (summer)
Cloudiness	Cloud frequency + amount	+5 to +10%
	Fogs	+100% (winter); +30% (summer)
Precipitation	Amounts	+5 to +10%
	Days	+10%
	Snow-days	–14%

**Figure 6**

(i) Identify **two** effects of large urban areas on wind speeds.

Effect 1 .....

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Effect 2 .....

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(2 marks)

(ii) Identify **two** differences between the cloudiness of large urban areas and the cloudiness of the surrounding rural areas.

Difference 1 .....

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Difference 2 .....

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(2 marks)

(iii) Explain the differences in precipitation between large urban areas and the surrounding rural areas, as given in **Figure 6**.

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(6 marks)

**QUESTION 3 CONTINUES ON THE NEXT PAGE**

**Turn over** ►

(b) Look at **Figure 7**.

Graph showing variations in central London's Heat Island in summer during the course of one 24 hour period - not reproduced here due to third-party copyright constraints.

(i) Describe the changes in heat island intensity over the period shown.

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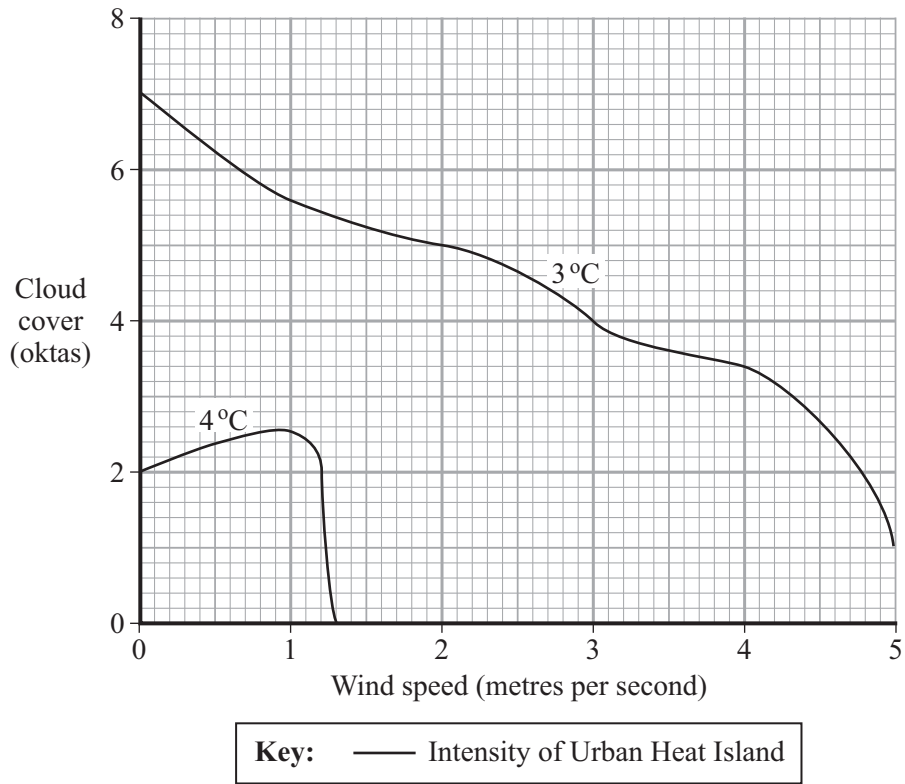
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*(6 marks)*

**QUESTION 3 CONTINUES ON THE NEXT PAGE**

**Turn over ►**

- (ii) Look at **Figure 8** which shows the relationship between wind speed, cloud cover and urban heat island intensity.



**Figure 8**

Describe how cloud cover and wind speed affect the urban heat island intensity.

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(4 marks)

- (iii) Explain how changing amounts of cloud cover and changing wind speeds affect the intensity of the urban heat island.

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(4 marks)

- (iv) Outline **two** ways in which vertical temperature profiles within urban areas differ from the surrounding rural areas.

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(5 marks)

**QUESTION 3 CONTINUES ON THE NEXT PAGE**

**Turn over ►**

- (c) (i) Urban development has created niches which can attract and/or repel flora and fauna. Describe one niche that attracts flora and/or fauna and one that repels flora and/or fauna.

Niche that attracts flora and/or fauna .....

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Niche that repels flora and/or fauna .....

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*(7 marks)*



(ii) Using examples, show how the plant succession in a neglected area differs from that in an established ecological conservation area.

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*(7 marks)*

**QUESTION 3 CONTINUES ON THE NEXT PAGE**

Turn over ►

(iii) Describe the varying attitudes to conservation within urban areas.

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(7 marks)



**END OF QUESTIONS**

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Question 1: Figure 1: *Beginning Geology*, H H READ (Macmillan) 1966  
 Question 1: Figures 2a & 2b: Landform Slides  
 Question 2: Figure 4: CRAIG ELLERY  
 Question 2: Figure 5: Simmons AeroFilms Ltd  
 Question 3: Figure 6: *The Nature of the Environment*, ANDREW GOUDIE (Blackwell Publishing Ltd) 1993  
 Question 3: Figure 7: *Weather*, Vol. 58, No. 7, R. L. WILBEY (Royal Meteorological Society) July 2003

QUESTION  
NUMBER

Write the question number in the left hand margin.

A series of horizontal dotted lines for writing answers, spanning the width of the page.

Turn over ►

QUESTION  
NUMBER

Write the question number in the left hand margin.

A series of horizontal dotted lines for writing, spanning the width of the page below the instruction.

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**GEOGRAPHY (SPECIFICATION B)**  
**Unit 2 The Physical Options**

**Colour insert**

**GGB2**



Photograph of Fluvioglacial landform - not reproduced here due to third-party copyright constraints.

**Figure 2a**  
**(For use with Question 1)**

Photograph of Fluvioglacial landform - not reproduced here due to third-party copyright constraints.

**Figure 2b**  
**(For use with Question 1)**

**Turn over ►**

Colour aerial photograph of a spit - not reproduced here due to third-party copyright constraints.

**Figure 5**  
**(For use with Question 2)**