

New Specification



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ADVANCED SUBSIDIARY (AS)  
General Certificate of Education  
January 2010

StudentBounty.com

Centre Number  
71

Candidate Number

**Geography**  
Assessment Unit AS 1  
*assessing*  
Physical Geography  
**[AG111]**



AG111

FRIDAY 15 JANUARY, MORNING

**TIME**

1 hour 30 minutes.

**INSTRUCTIONS TO CANDIDATES**

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Section A: candidates must answer this section.

Section B: answer **all three** questions in this section.

You should write your answers for Section A and Section B in the spaces provided in this question paper.

Section C: answer any **two** questions from this section. Write your answers to Section C on the lined paper at the end of this booklet.

**At the end of the examination your summary of fieldwork and table of data should be attached securely to this paper using the treasury tag supplied.**

**INFORMATION FOR CANDIDATES**

The total mark for this paper is 90.

Quality of written communication will be assessed in **all** questions.

Figures in brackets printed down the right-hand side of the pages indicate the marks awarded to each question or part question.

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	

<b>Total Marks</b>	
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Section A

Answer this section

Submitted summary of fieldwork and table of data.  
**At the end of the examination these should be attached securely to this paper using the treasury tag supplied.**

- 1 (a) Explain **two** reasons why your chosen location was selected as suitable to explore the **aim** of your fieldwork.

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[4]

- (b) (i) Explain why statistical analysis is an important stage in the investigation process.

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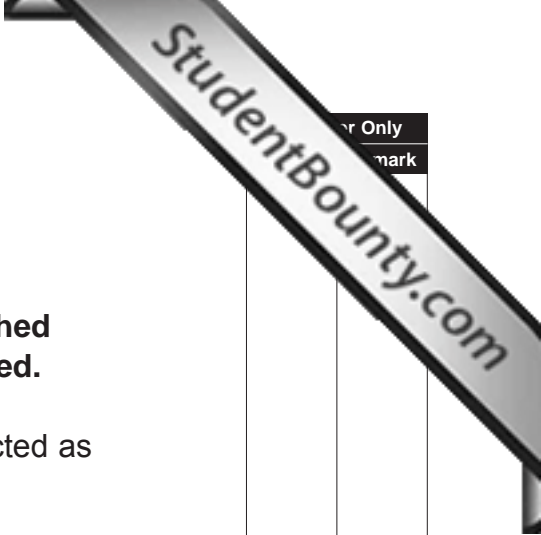
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[3]



For Only
mark

(ii) Select **one** of the following statistical techniques and apply it to your data using the box provided below. The technique selected **must** be appropriate to your aim. Comment on the statistical significance of the outcome, if relevant. (Formulae, Significance graphs and tables are illustrated in **Resources 1A** and **1B** on pages 4 and 5).

- | Spearman's Rank Correlation
- | Nearest Neighbour Analysis
- | Measures of central tendency **and** dispersion  
(Mean, median, mode **and** range)

[7]

Chosen Technique: \_\_\_\_\_

**All stages of your calculations should be shown clearly**

**Resource 1A**

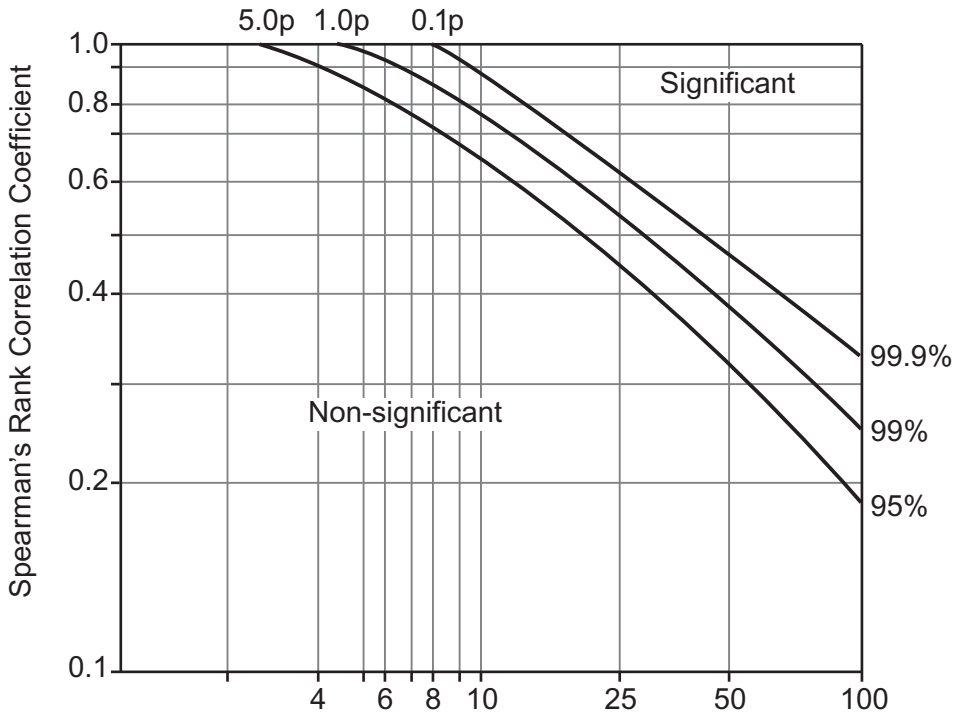
**Spearman's Rank Correlation Equation and Significance Charts**

Formula: 
$$r_s = 1 - \left( \frac{6 \sum d^2}{n^3 - n} \right)$$

where  $d$  = the difference in rank of the values of each matched pair  
 $n$  = the number of ranked pairs  
 $\Sigma$  = the sum of

**Spearman's Rank Correlation Significance Graph and Table**

Critical values for  $r_s$



**Degrees of freedom [Number of ranked pairs ( $n$ ) – 2]**

Critical values of Spearman's Rank Correlation Coefficient,  $r_s$

**Significance level**

degrees of freedom	0.05 (5%)	0.01 (1%)
4	0.88	1.00
5	0.83	0.96
6	0.80	0.91
7	0.77	0.87
8	0.72	0.84
9	0.68	0.80
10	0.64	0.77
11	0.60	0.74
12	0.57	0.71
15	0.50	0.65
20	0.47	0.59
25	0.44	0.54
30	0.39	0.48
40	0.35	0.43
50	0.31	0.38

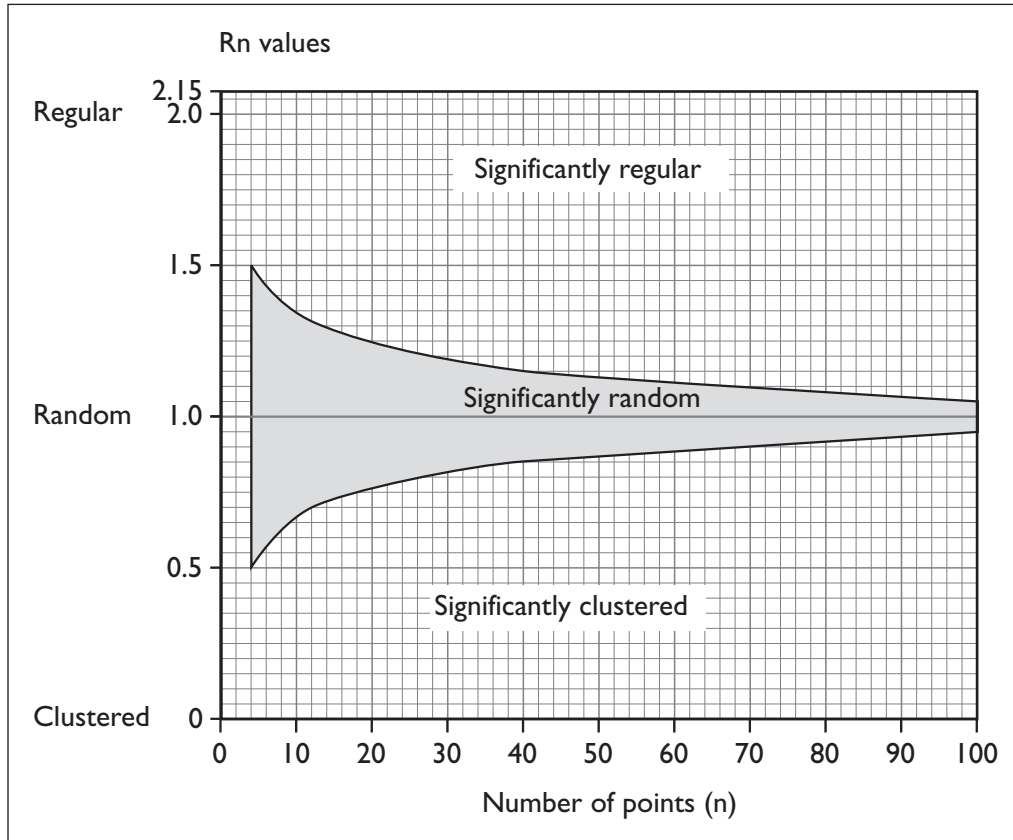
Resource 1B

Nearest Neighbour Index Equation and Significance Graph

Formula:  $R_n = 2\bar{d} \sqrt{\frac{n}{A}}$

where  $\bar{d}$  = the mean distance between nearest neighbours  
 n = number of points  
 A = area in question

Significance Graph



(iii) Having completed your statistical work, suggest possible **geographical** reasons for the outcome obtained. Your explanation should include reference to relevant geographical theory or concepts.

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[8]

For Only	mark

(c) Select **one** of the factors from the list below and explain how it would have influenced the reliability of the data which you collected.

- | **Sampling method**
- | **Time of year**
- | **Prevailing weather conditions**
- | **Group organisation**
- | **Time of day**
- | **Type of equipment**

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[4]

(d) Explain **one** way in which your data collection could be extended to explore further the **aim** of your fieldwork.

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[4]

## Section B

Answer **all three** questions in this section.

- 2 (a) Describe how a river transports material by the process of **saltation**.

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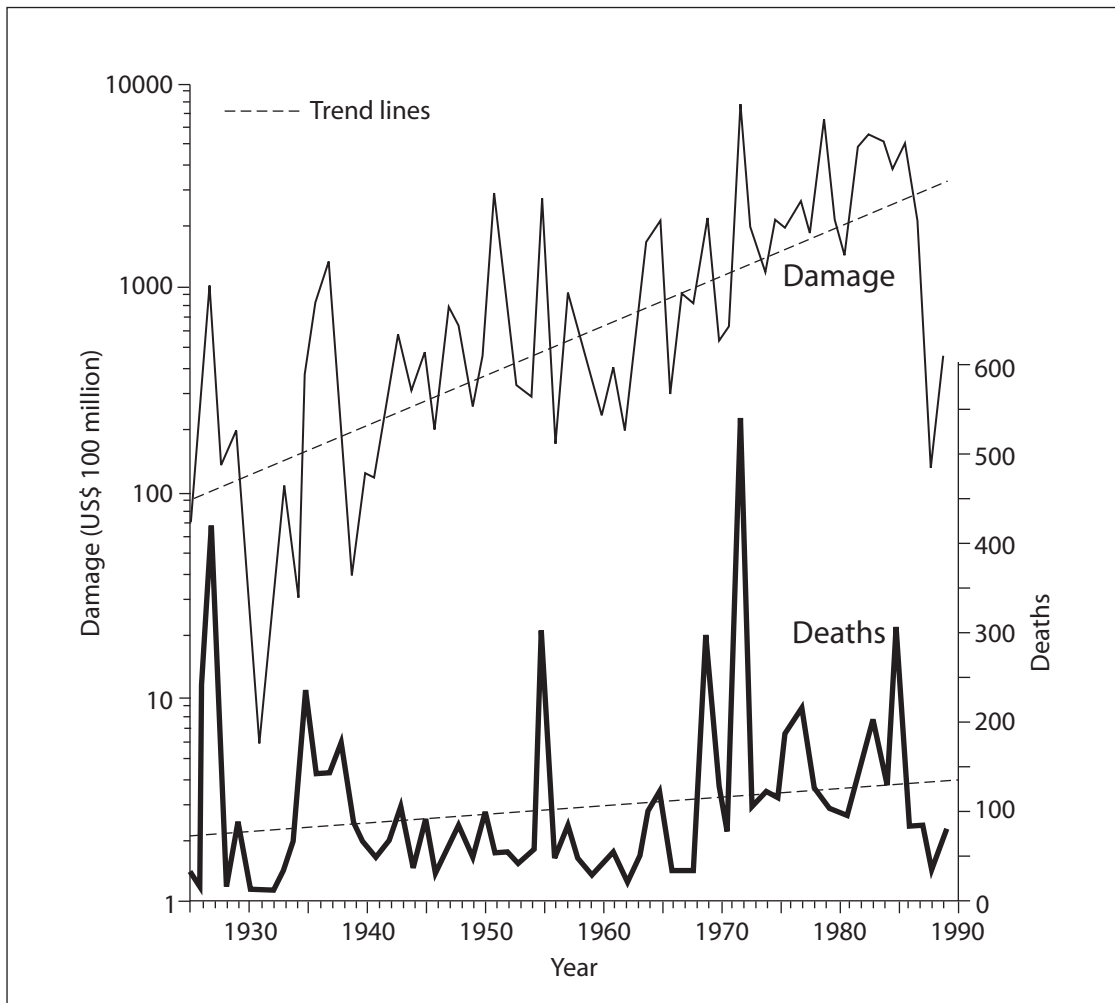
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[2]

- (b) Study **Resource 2** which shows the annual deaths and the cost of damage caused by **flooding** in the USA (1925–1990).

### Resource 2



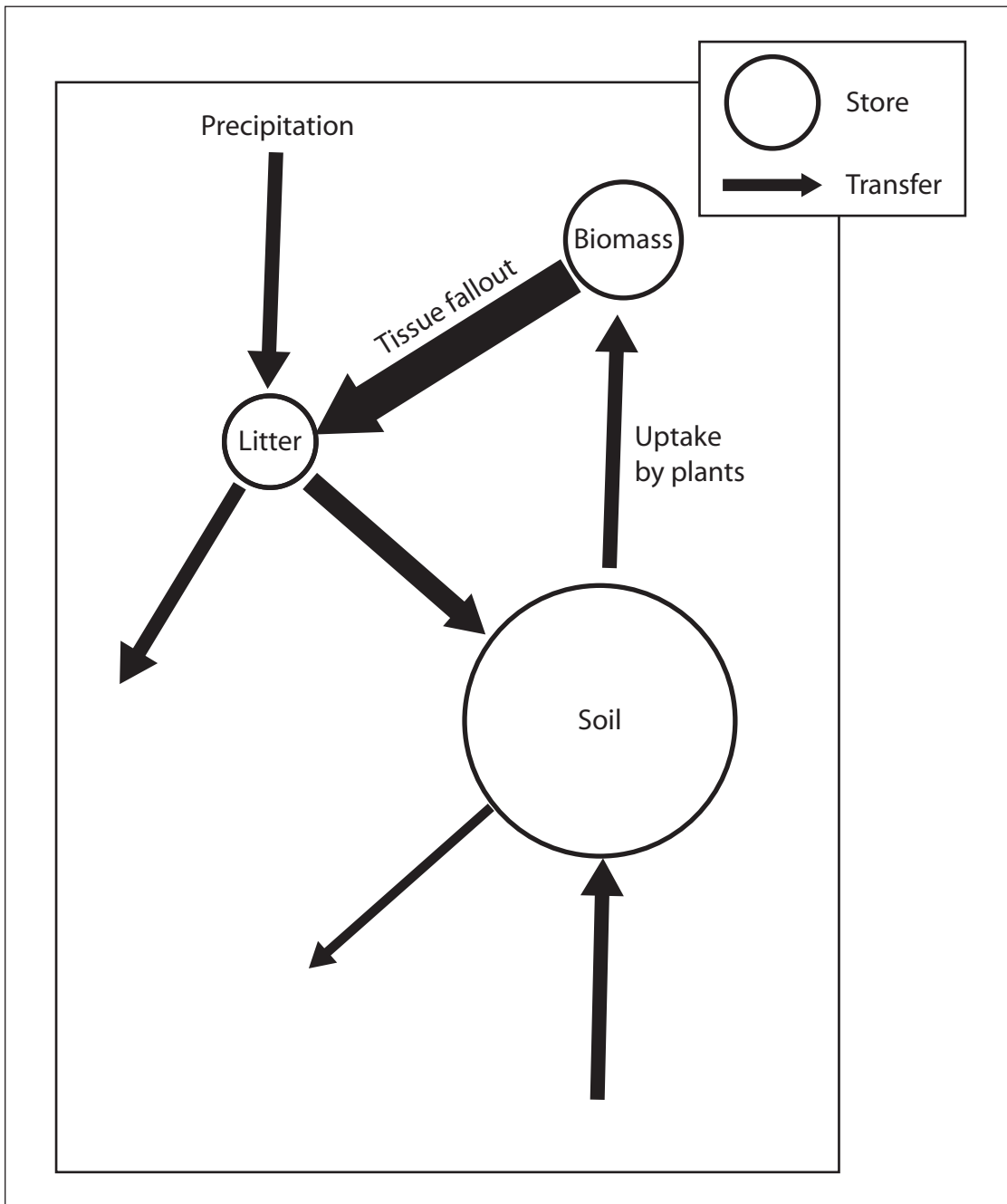
© Figure from Smith, K. (1993) 'Riverine flood hazard', *Geography*, 78, 2, pp. 182-185





- 3 Study **Resource 3** which shows an incomplete diagram of the nutrient cycle in an area of mid-latitude grasslands.

**Resource 3**



Source: adapted from a variety of sources

- (a) (i) Complete the diagram by labelling the remaining four transfers of the nutrient cycle. [4]

(ii) Explain why soil is the largest of the three stores in this ecosystem.

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[3]

(b) Describe and explain the changes in **soil** characteristics which occur during plant succession to produce climatic climax vegetation.

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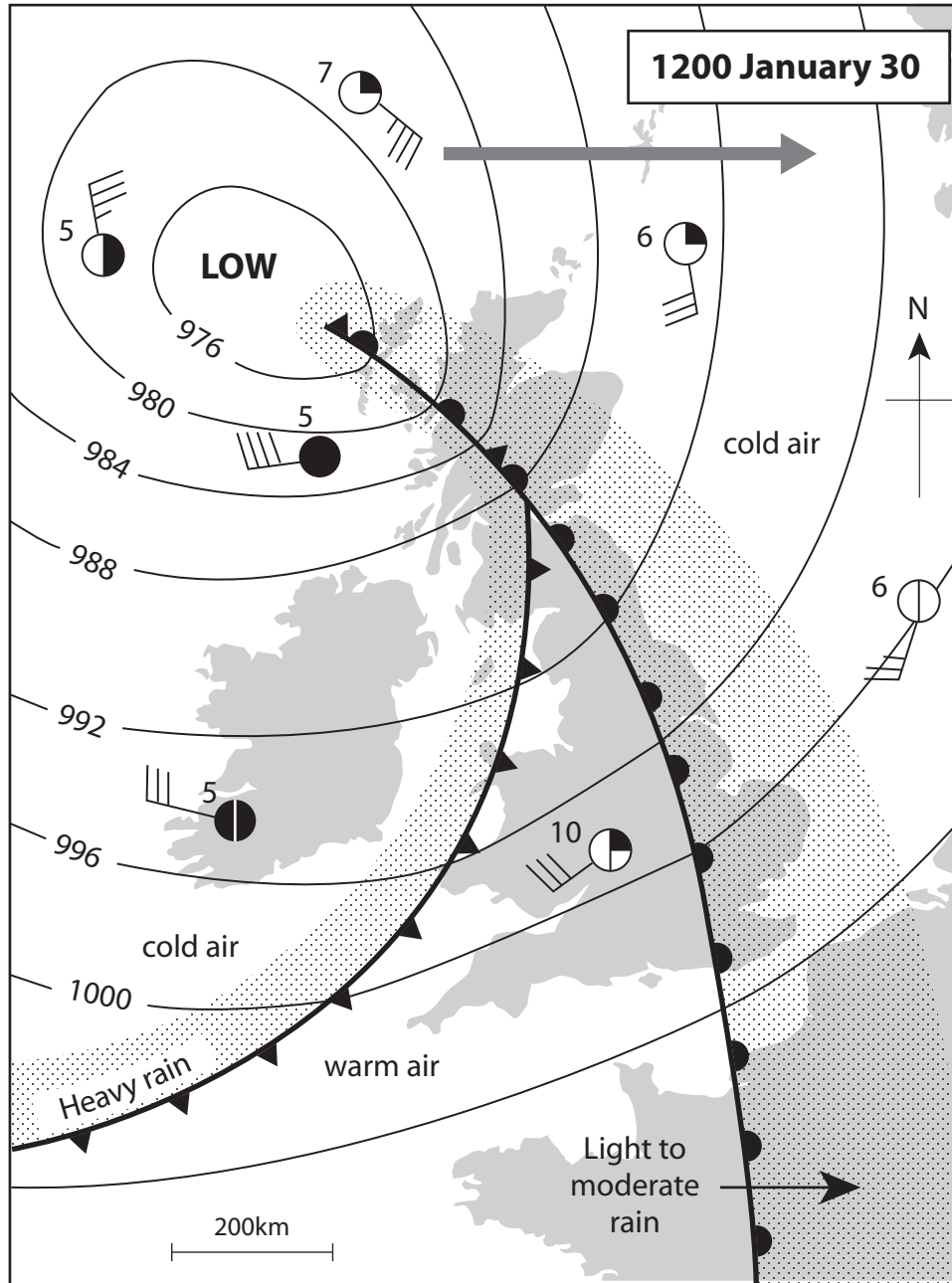
[5]

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(b) Study **Resource 4B**, showing the weather associated with a frontal depression, which has formed over the North Atlantic and moved from west to east.

**Resource 4B**



© Adapted with the permission of Nelson Thornes Ltd from Essential Geography AS ISBN 978 0 7487 5175 4 (Ross, Morgan & Heelas) first published in 2000

Pressure in millibars

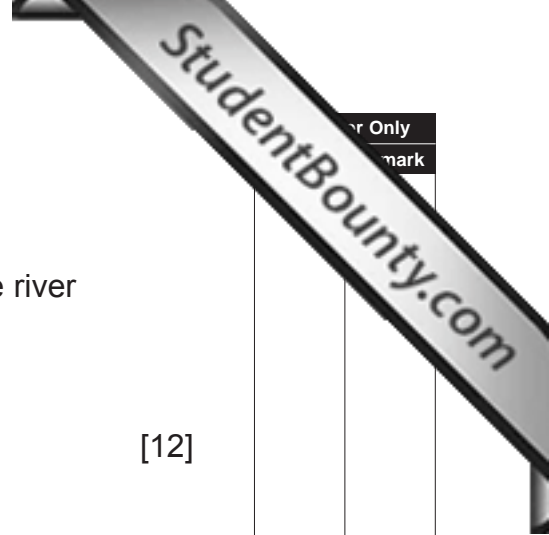
- Direction of movement of pressure system (approx 30-40 km/h)
- Warm front
- Cold front
- Occluded front
- Wind direction and speed, cloud cover
- Rain area



### Section C

Answer **any two** questions in this section.

- 5 With the aid of annotated diagrams, describe and explain the river processes involved in the formation of:
- i a waterfall;
  - i one type of delta. [12]
- 6 With reference to a national/regional case study, explain the impact of monoculture and attempts to manage an area of mid-latitude grasslands. [12]
- 7 For a named hurricane event, describe the effects of the hurricane on people and property and evaluate the effectiveness of the protective measures used to reduce loss of life and damage to property. [12]



Question	Mark
5	
6	
7	



























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