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ADVANCED SUBSIDIARY (AS)
General Certificate of Education
January 2009
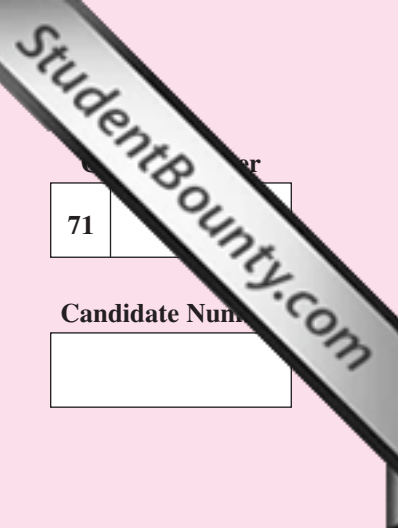
Geography

Assessment Unit AS 3

assessing

Module 3: Techniques in Geography

[ASG31]

MONDAY 26 JANUARY, AFTERNOON

ASG31

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in this question paper.
Answer **both** questions.
At the conclusion of this examination attach your fieldwork report and table of data securely to this paper using the treasury tag supplied.
There are two pages at the back of this question and answer booklet for use as continuation sheets as required.
You are provided with an insert for use with question **2(b)**. **Do not write your answers on this insert.**

INFORMATION FOR CANDIDATES

The total mark for this paper is 60.
Quality of written communication will be assessed in **all** questions.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

For Examiner's use only	
Question Number	Marks
Report	
Table	
1	
2	
Total Marks	

ASG3W9   4285

Submitted fieldwork report and table of data. [10]

At the end of the examination these should be attached securely to this paper using the treasury tag supplied.

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1 (a) Study **Resource 1A**, which shows a Risk Assessment Survey devised by a student planning a fieldwork study. Complete the survey in relation to **your** fieldwork site.

Resource 1A

Risk Assessment Survey	
Specific hazard	_____
Potential danger arising from this hazard	_____ _____ _____ _____
Action 1 to be taken to reduce this risk	_____ _____ _____
Action 2 to be taken to reduce this risk	_____ _____ _____

[3]

(b) Explain **two** factors which need to be considered by a geographer when planning to carry out **sampling** in the field.

Factor 1

_____

_____

_____

_____ [2]

Factor 2

_____

_____

_____

_____ [2]

(c) Select **one** of the following statistical techniques which could be used to analyse some or all of your data. Your chosen technique must be relevant to the aim of your fieldwork.

- Spearman's Rank Correlation
- Nearest Neighbour Analysis
- Measures of Central Tendency **and** Dispersion
  (mean, median, mode **and** range)

(i) In the box provided below, apply your chosen statistical technique to the data and, if relevant, comment on the statistical significance of the outcome. (Significance graphs and formulae are provided – **Resource 1B** and **Resource 1C**)

All calculations must be shown clearly in the box below

Chosen technique: _____ [no mark]

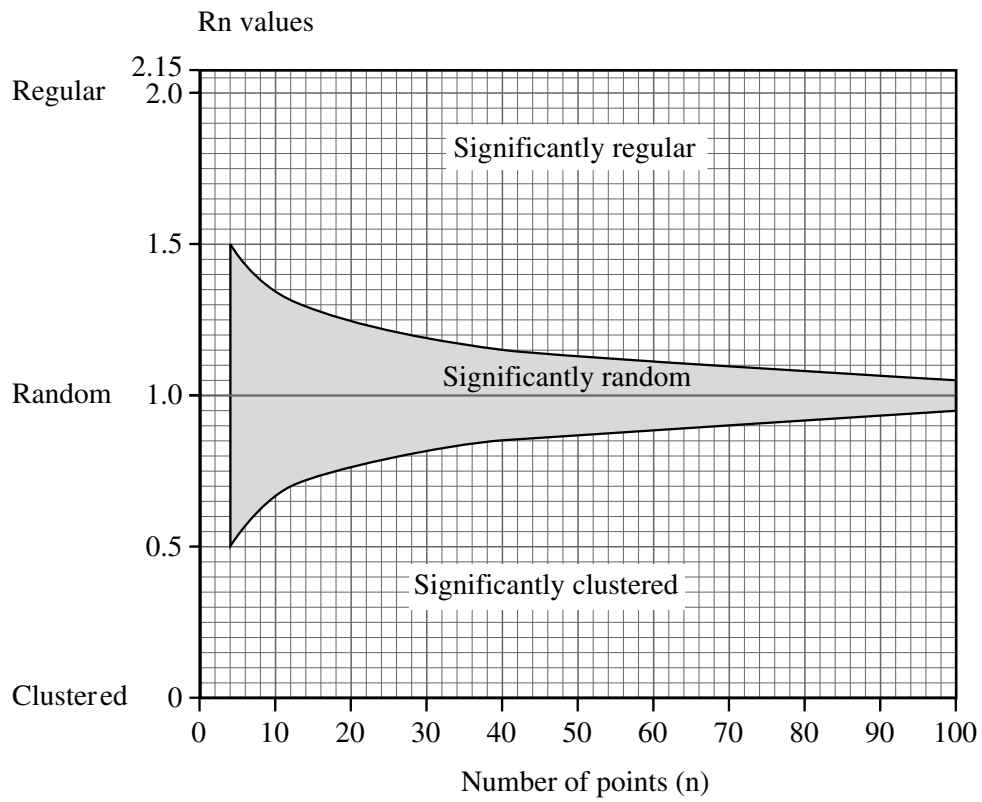| Examiner Only	
Marks	**Remark**

[9]

Resource 1B

Nearest Neighbour Index Equation

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

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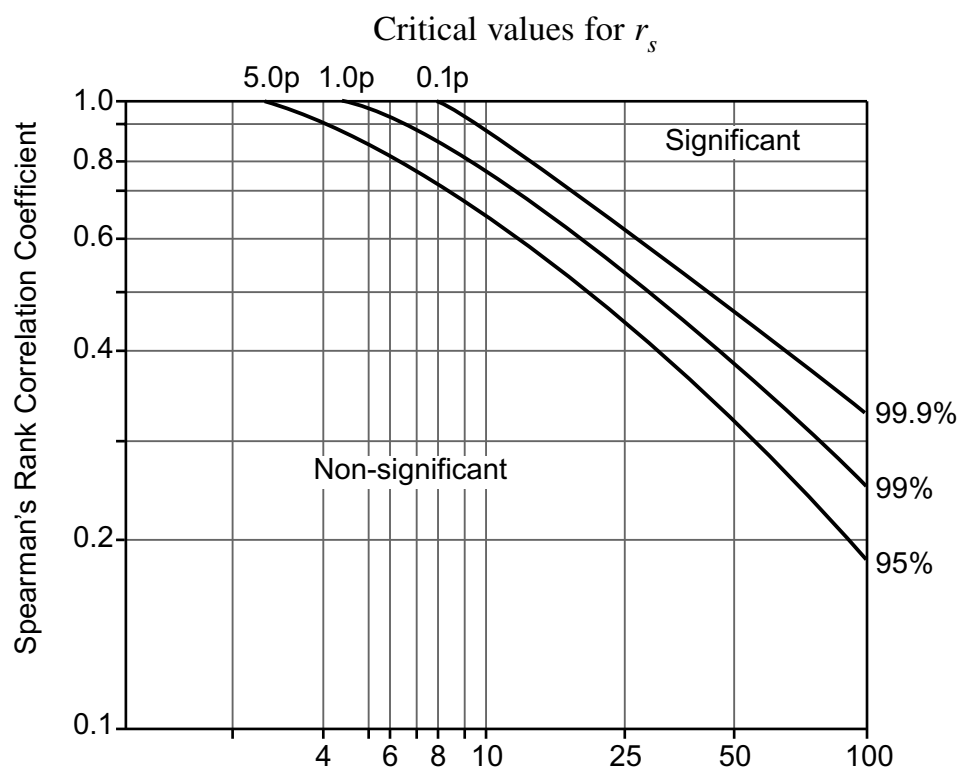
Nearest Neighbour Index Significance Graph

Rn values

Resource 1C

Spearman's Rank Correlation Equation and Significance Charts

Formula:

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

where d = the difference in rank of the values of each matched pair
       n = the number of ranked pairs
       Σ = 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

(ii) With reference to the aim of your fieldwork, explain this statistical outcome. Your explanation should include relevant geographical theory.

_____

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_____ [6]

(d) Explain **one** way in which you could modify your investigation to produce a more reliable geographical conclusion.

_____

_____

_____

_____

_____

_____ [3]

2 **(a)** Study **Resource 2A**, which shows population density for the ten large districts of Barcelona in Spain.

Resource 2A

District	Population Density (people per km²)
Ciutat Vella	19 757
Eixample	33 275
Gracia	27 237
Les Corts	13 675
Nou Barris	20 422
Sant Marti	19 118
Horta Guinardo	13 879
Sants Mont Juic	7832
Sant Andreu	20 610
Sarria Sant Gervasi	6612

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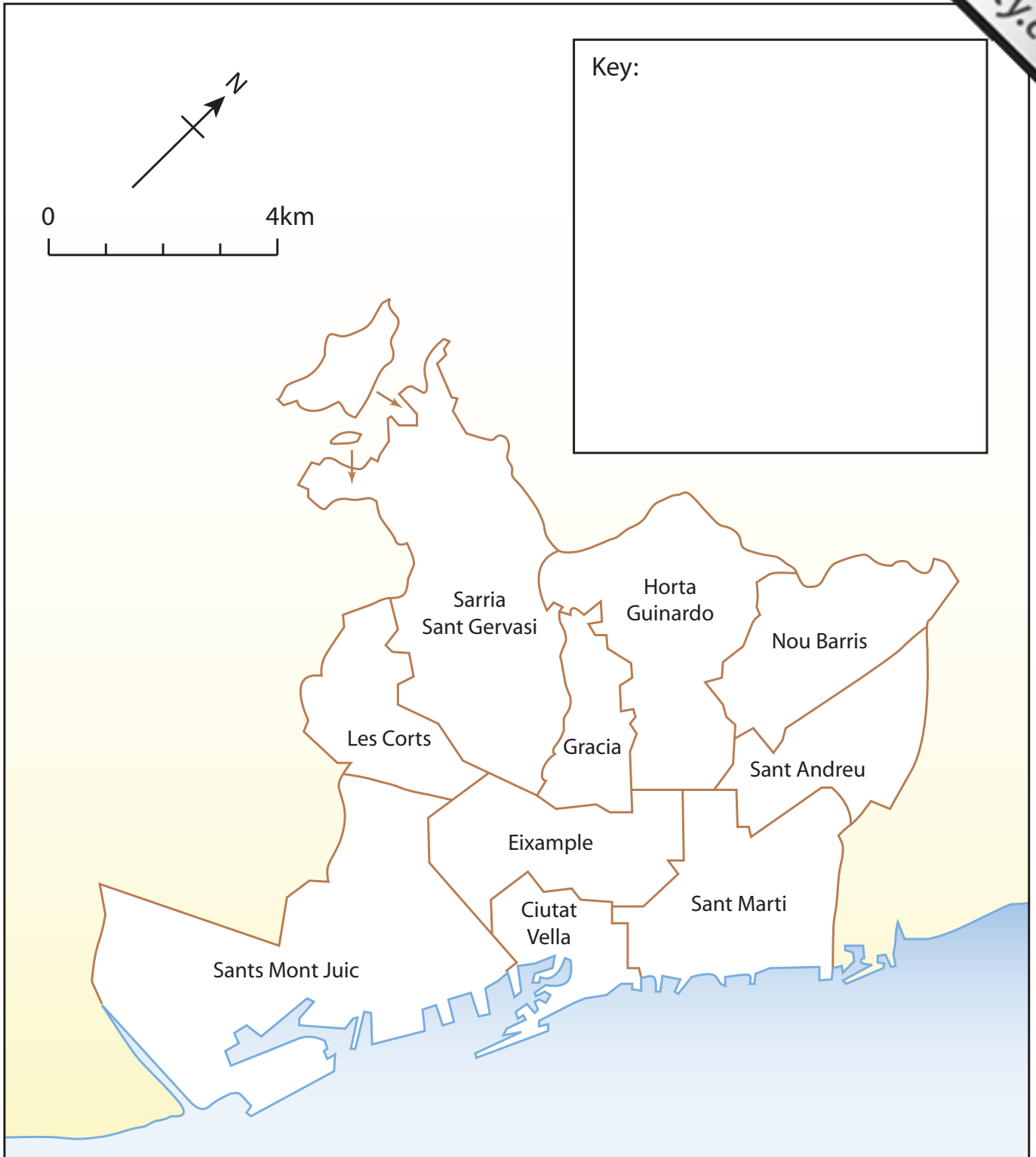
(i) Select an appropriate mapping technique to show how population density varies throughout the districts of Barcelona.

Chosen Technique: _____ [1]

(ii) Complete the map and key on **Resource 2B** using your chosen technique.

Resource 2B

Title _____

0   4km

Key:

Sarria
Sant Gervasi

Horta
Guinardo

Nou Barris

Les Corts

Gracia

Sant Andreu

Eixample

Sant Marti

Ciutat
Vella

Sants Mont Juic

Examiner Only	
Marks	**Remark**

[7]

(iii) Describe **one** limitation of your chosen technique for the mapping of this data.

_____

_____

_____

_____ [2]

(b) Study **Resource 2C (see insert sheet)** which is a satellite image showing a weather system affecting most of the British Isles in September 2007.

(i) State the type of weather system affecting the British Isles.

_____ [1]

(ii) What features are represented by **A** and **B** on **Resource 2C**?

A: _____

B: _____ [2]

(iii) Geographers can use satellite images to forecast weather. Outline **two** other practical uses of satellite (remotely sensed) imagery.
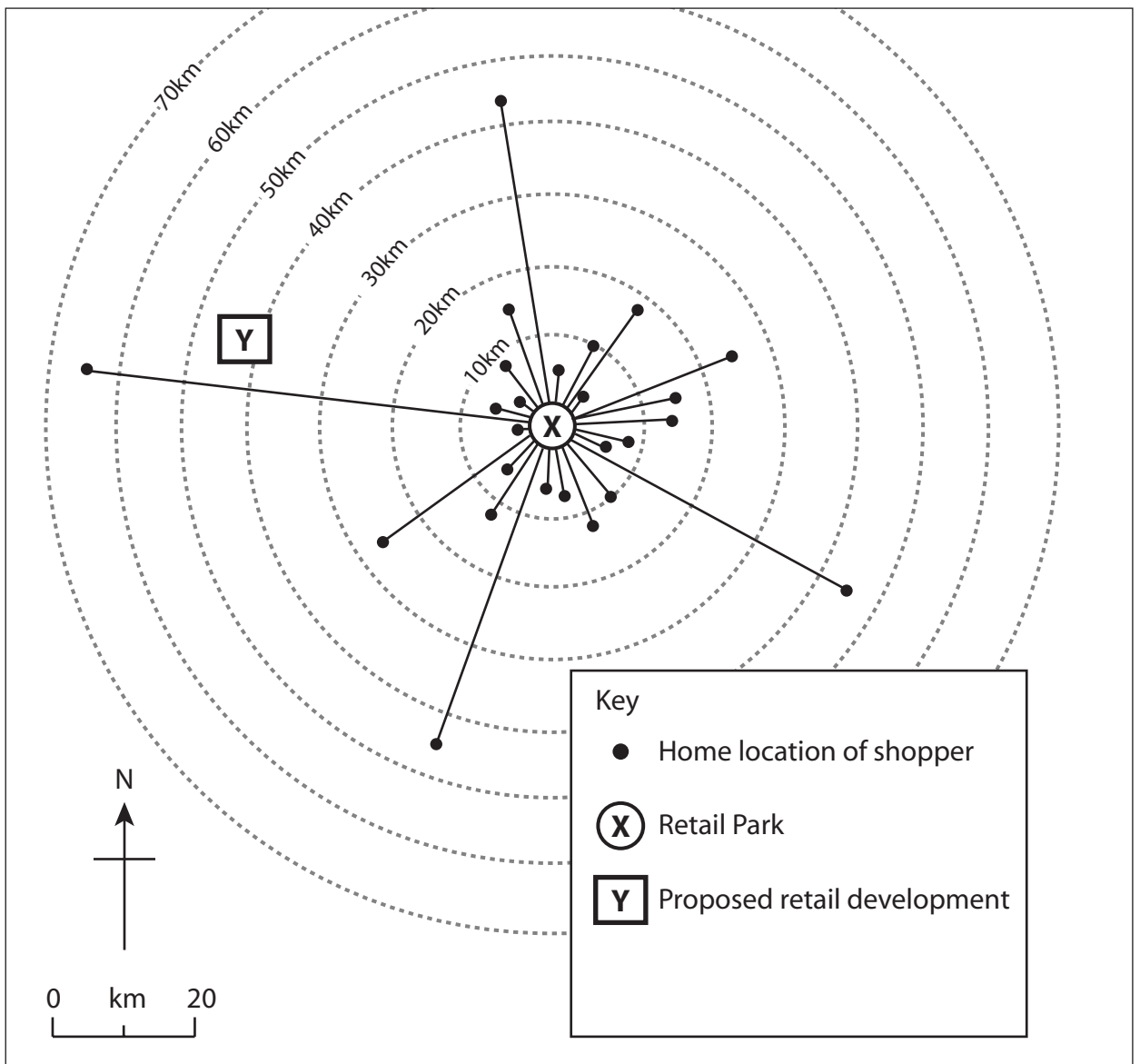
1. _____

_____ [1]

2. _____

_____ [1]

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(Questions continue overleaf)

(c) Study **Resource 2D** and **Resource 2E** which show the results of a survey ___ d to investigate the sphere of influence of a retail park. A random sample of 25 ___ re interviewed to determine where they had travelled from to shop at the retail p___.

Resource 2D

Visitor	Distance travelled (km)	Visitor	Distance travelled (km)	Visitor	Distance travelled (km)
1	8	11	5	21	45
2	1	12	45	22	15
3	1.5	13	10	23	4
4	12	14	8.5	24	5
5	65	15	8	25	2
6	26	16	45		
7	6	17	10		
8	14	18	6	Mean	
9	12.5	19	18	Median	10
10	25	20	15	Mode	

Resource 2E

Key

● Home location of shopper

Ⓧ Retail Park

Y Proposed retail development

(i) Explain how the median, as represented in **Resource 2D**, is calculated.

_____

_____ [1]

(ii) Calculate the mean and state the mode for the data shown in **Resource 2D**. Insert your answers in the boxes provided in **Resource 2D**.   [2]

(iii) Why is the median a more appropriate measure than the mean or mode to summarise the data shown in **Resource 2D**?

_____

_____

_____

_____

_____

_____ [3]

(iv) Complete the map and key on **Resource 2E** to illustrate the approximate sphere of influence for the Retail Park at **X**.   [2]

(v) A new retail development is proposed at Site **Y** on **Resource 2E**. Explain how and why this is likely to alter the **shape** of the sphere of influence of the Retail Park.

_____

_____

_____

_____ [2]

THIS IS THE END OF THE QUESTION PAPER

Reminder: when you have finished the examination attach your fieldwork report and table of data to this paper using the treasury tag supplied.

Question Number		

CONTINUATION SHEET
(Number your answers clearly if you use this sheet)

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Question Number	

CONTINUATION SHEET
(Number your answers clearly if you use this sheet)

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RESOURCE 2C
For use with question 2(b)
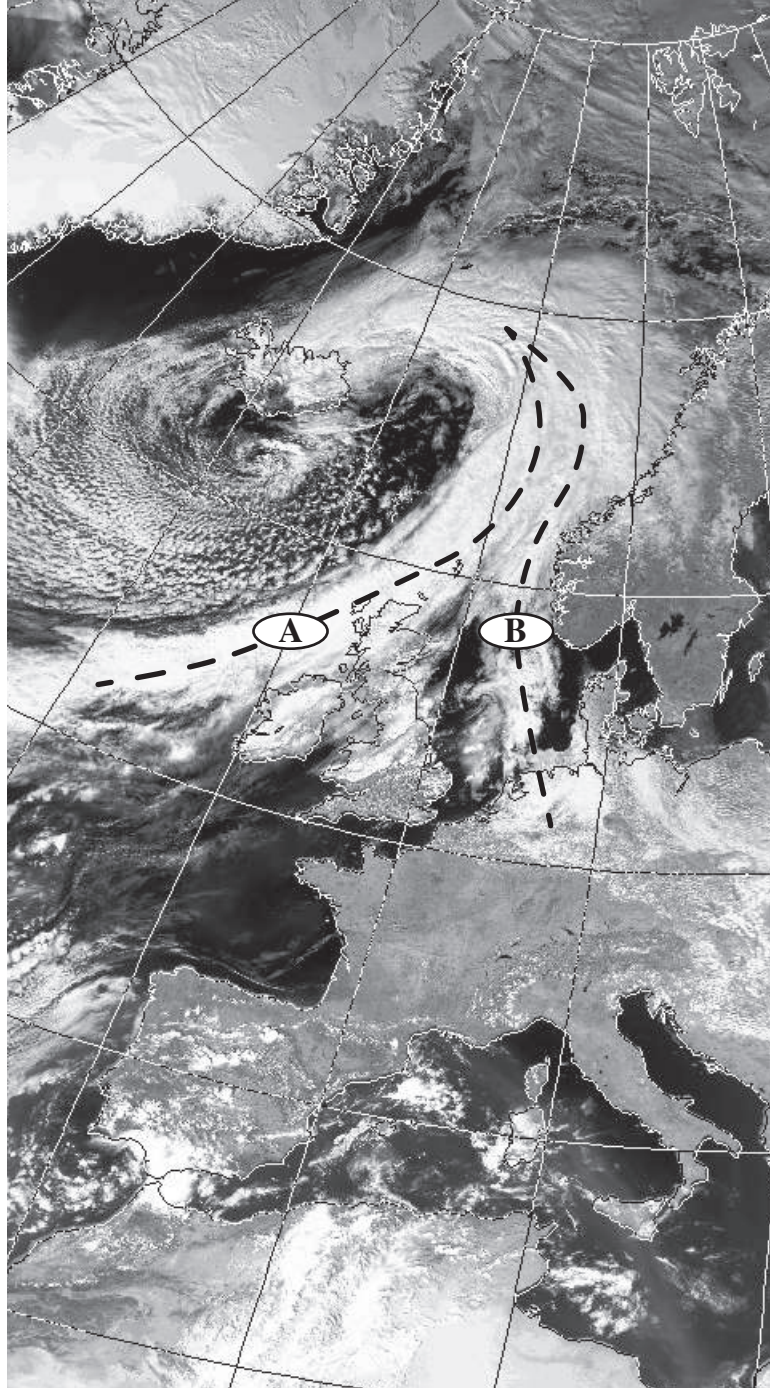
Source: Satellite Receiving Station, University of Dundee

Do not write your answers on this insert.