



Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
January 2009

Centre Number

71	
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Candidate Number

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Geography

Assessment Unit AS 3

assessing

Module 3: Techniques in Geography

[ASG31]



ASG31

MONDAY 26 JANUARY, AFTERNOON

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	
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- (i) In the box provided below, apply your chosen statistical technique to your 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]

[9]

Examiner Only	
Marks	Remark

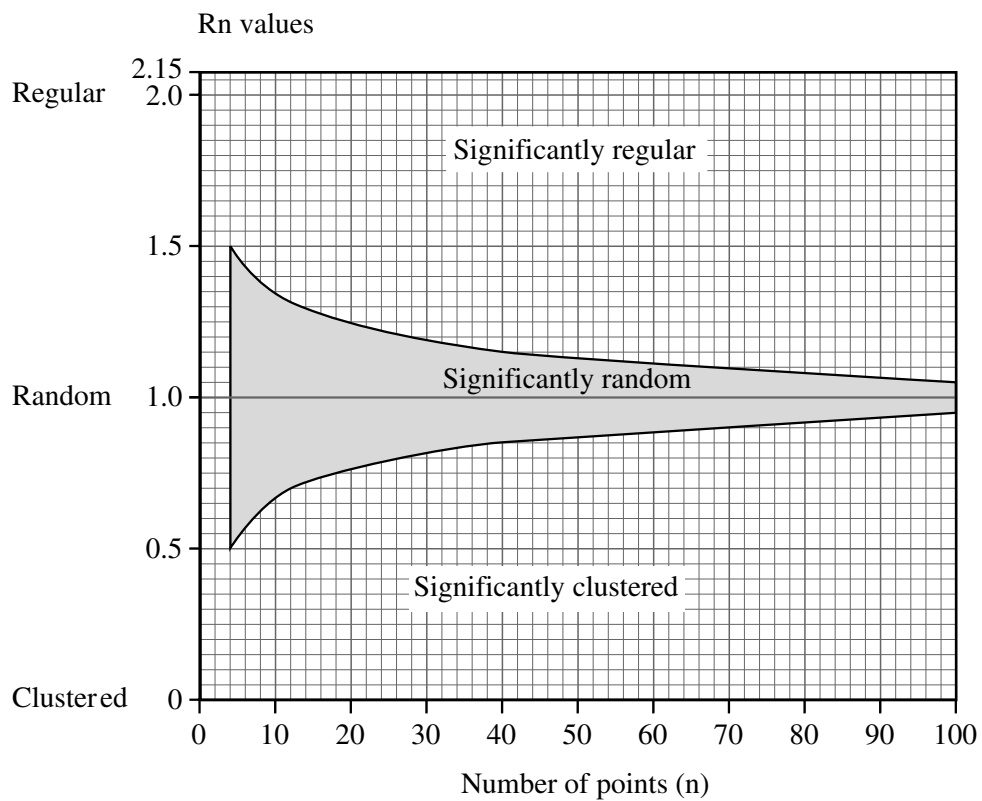
Resource 1B

Nearest Neighbour Index Equation

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

Nearest Neighbour Index Significance Graph



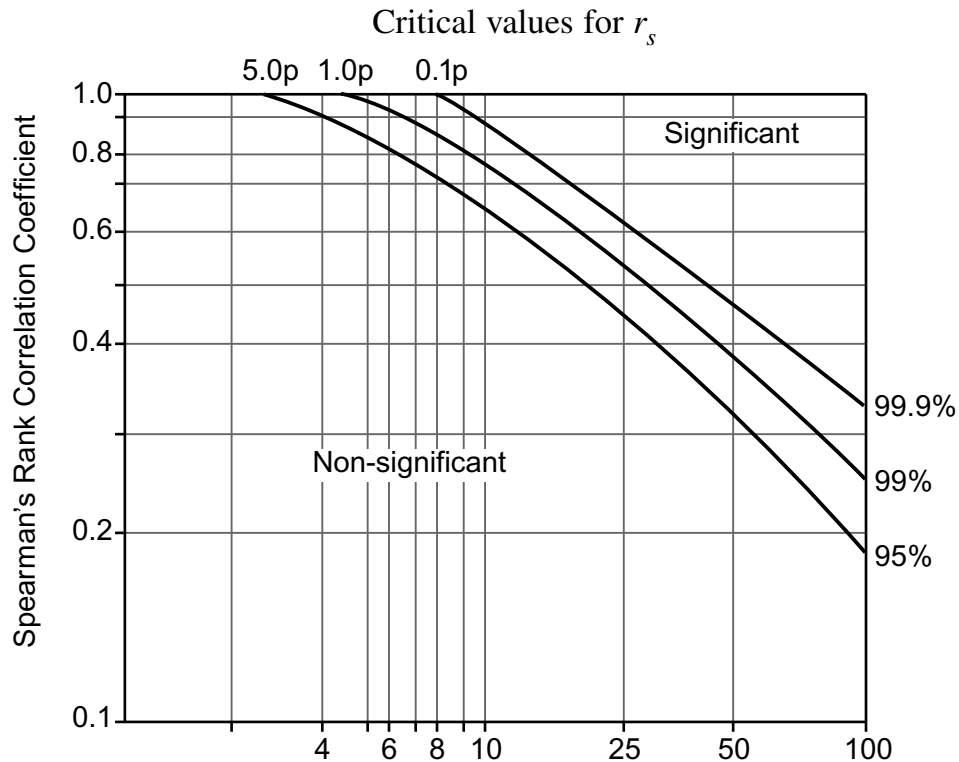
Resource 1C

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
 Σ = the sum of

Spearman's Rank Correlation Significance Graph and Table



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

- 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 km ²)
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	7 832
Sant Andreu	20 610
Sarria Sant Gervasi	6 612

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

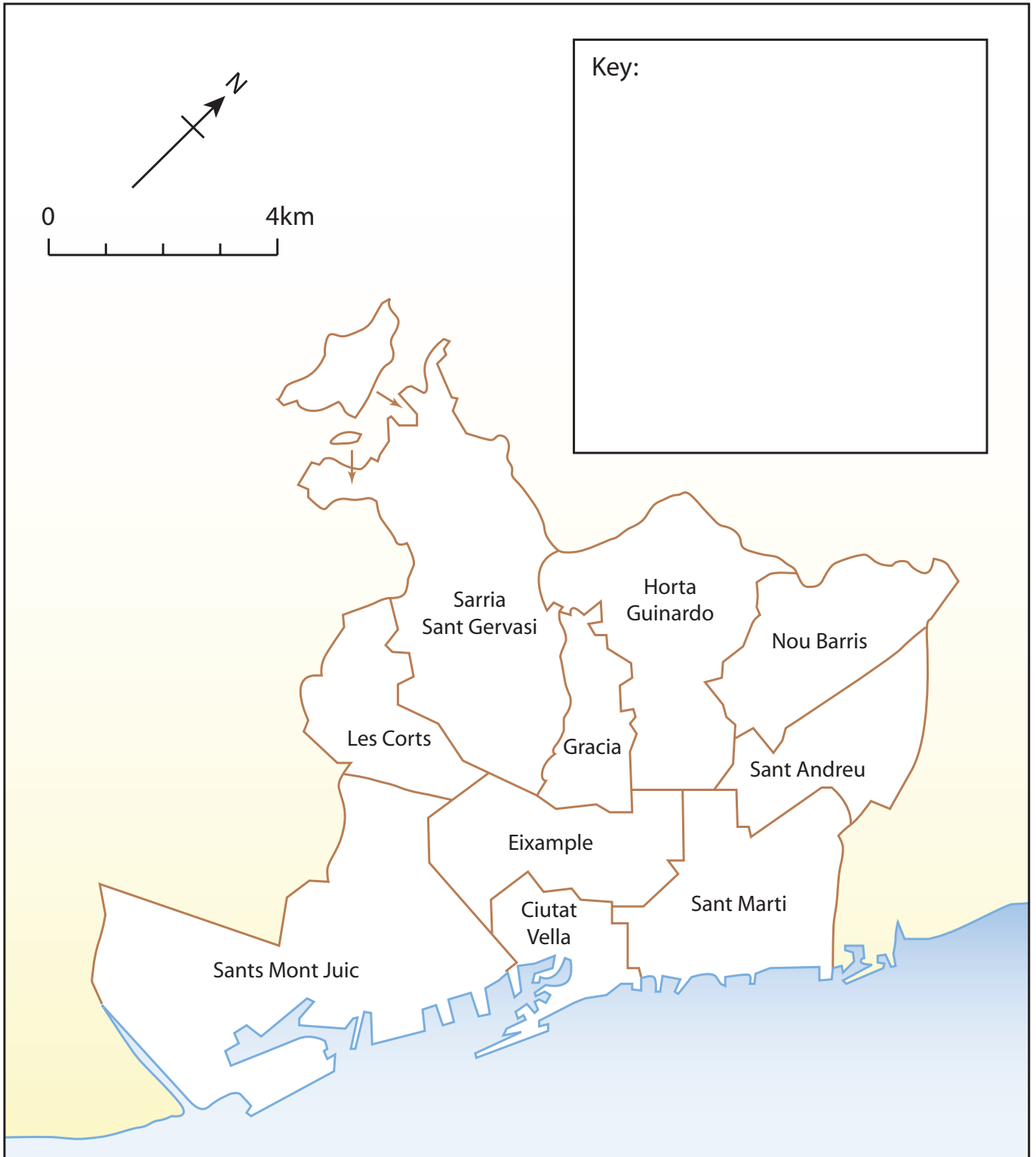
Chosen Technique: _____ [1]

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

Examiner Only	
Marks	Remark

Resource 2B

Title _____



[7]

Examiner Only	
Marks	Remark

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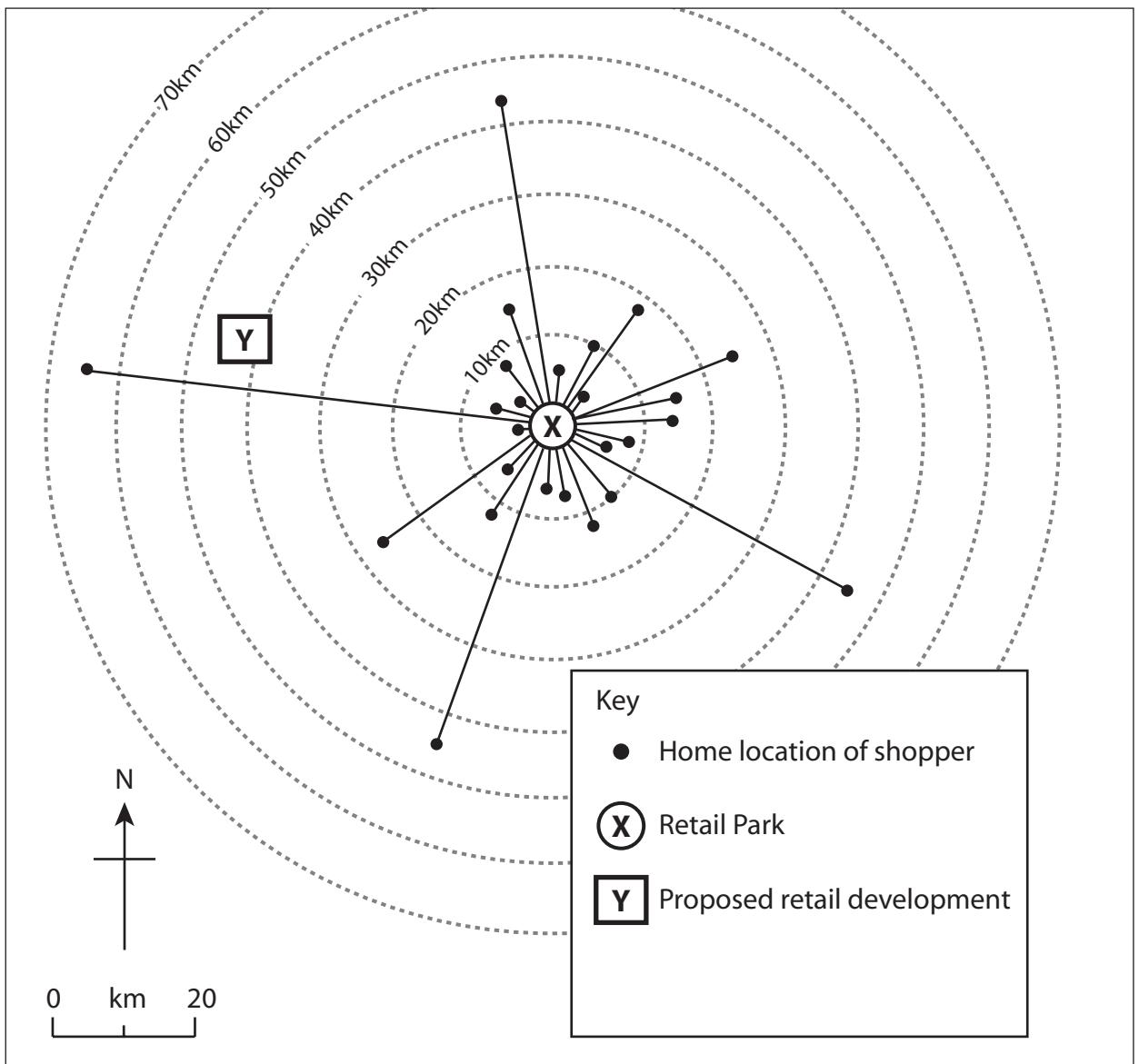
(Questions continue overleaf)

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

Resource 2D

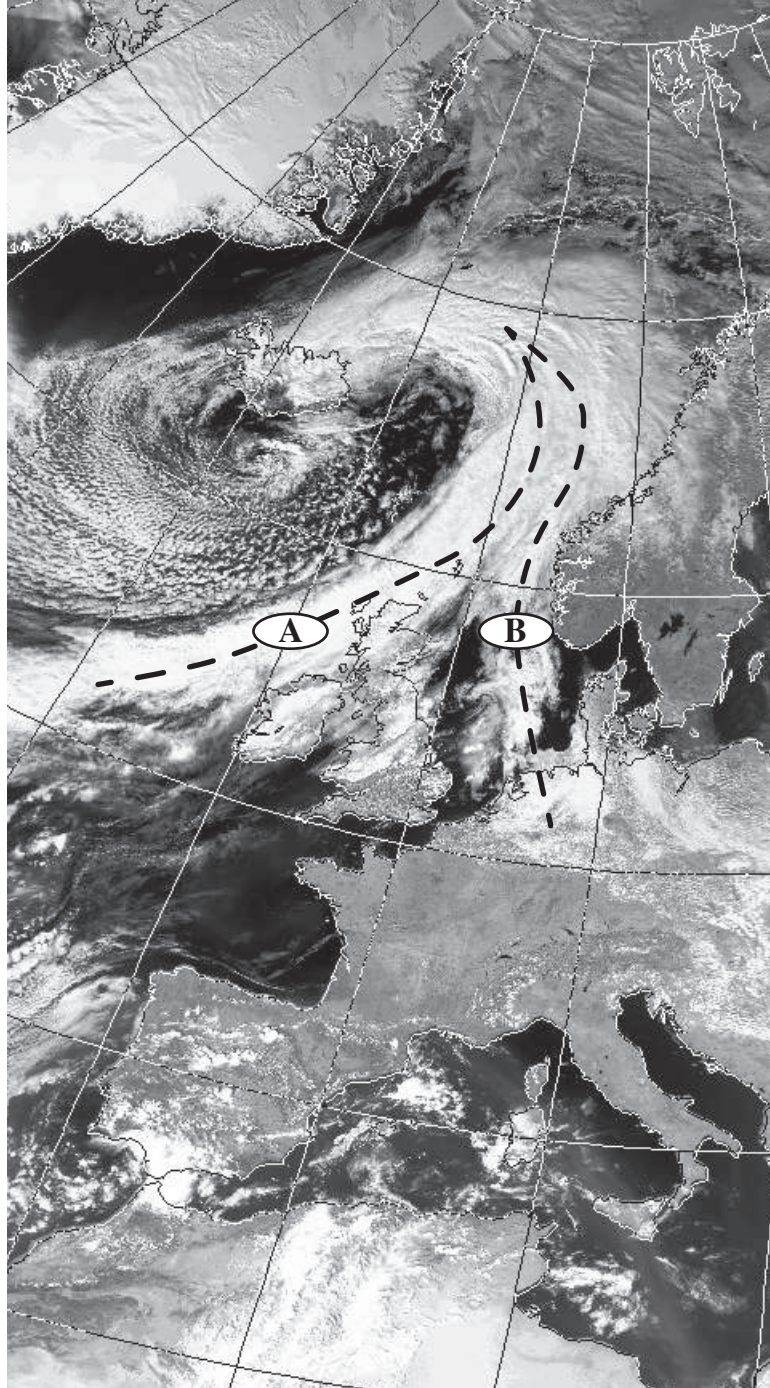
Visitor	Distance travelled (km)	Visitor	Distance travelled (km)	Visitor	Distance travelled (km)
1	8	11	5	21	45
2	1	12	45	22	15
3	1.5	13	10	23	4
4	12	14	8.5	24	5
5	65	15	8	25	2
6	26	16	45		
7	6	17	10		
8	14	18	6		
9	12.5	19	18		
10	25	20	15		
				Mean	
				Median	10
				Mode	

Resource 2E



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will be happy to rectify any omissions of acknowledgement in future if notified.

RESOURCE 2C
For use with question 2(b)



Source: Satellite Receiving Station, University of Dundee

Do not write your answers on this insert.