New Specification

Rewarding Learning

71

Candidate Number

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2009

Geography

Assessment Unit AS 1

assessing

Physical Geography

[AG111]

AG111

FRIDAY 5 JUNE, 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 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	
Total Marks	

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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)** With reference to **one** potential hazard associated with your fieldwork, discuss how it was identified and the efforts made to manage this risk.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____ [5]

(b) (i) Describe in detail **two** of the primary data collection methods used in your fieldwork.

[6]

(ii) Discuss possible strengths and limitations for **one** of these methods.

[3]

(c) (i) Select **one** of the following statistical techniques relevant to the aim of your investigation. In the box below apply this technique to your data and, if relevant, comment on the statistical significance of the outcome.

- Spearman's Rank Correlation
- Nearest Neighbour Analysis
- Measures of Central Tendency **and** Dispersion (mean, median, mode **and** range) [7]

Formulae, significance graphs and tables are provided in **Resource 1A** and **1B** on pages 6 and 7.

Chosen Technique: _____ [no mark]

Resource 1A

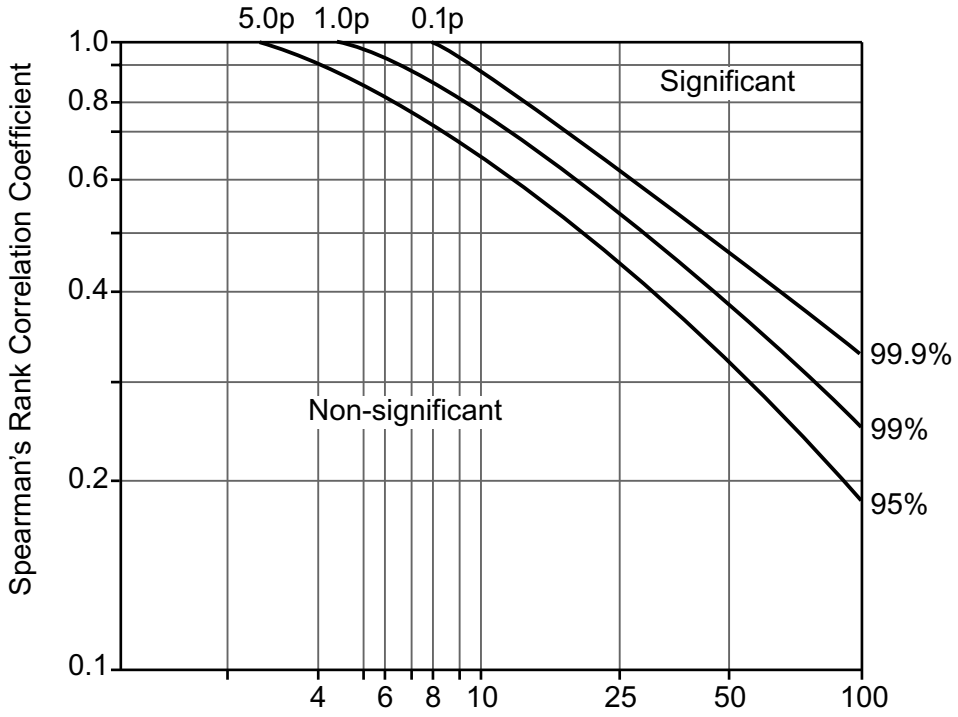
Spearman's Rank Correlation Equation and Significance Charts

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
30	0.39	0.48
40	0.35	0.43
50	0.31	0.38

Resource 1B

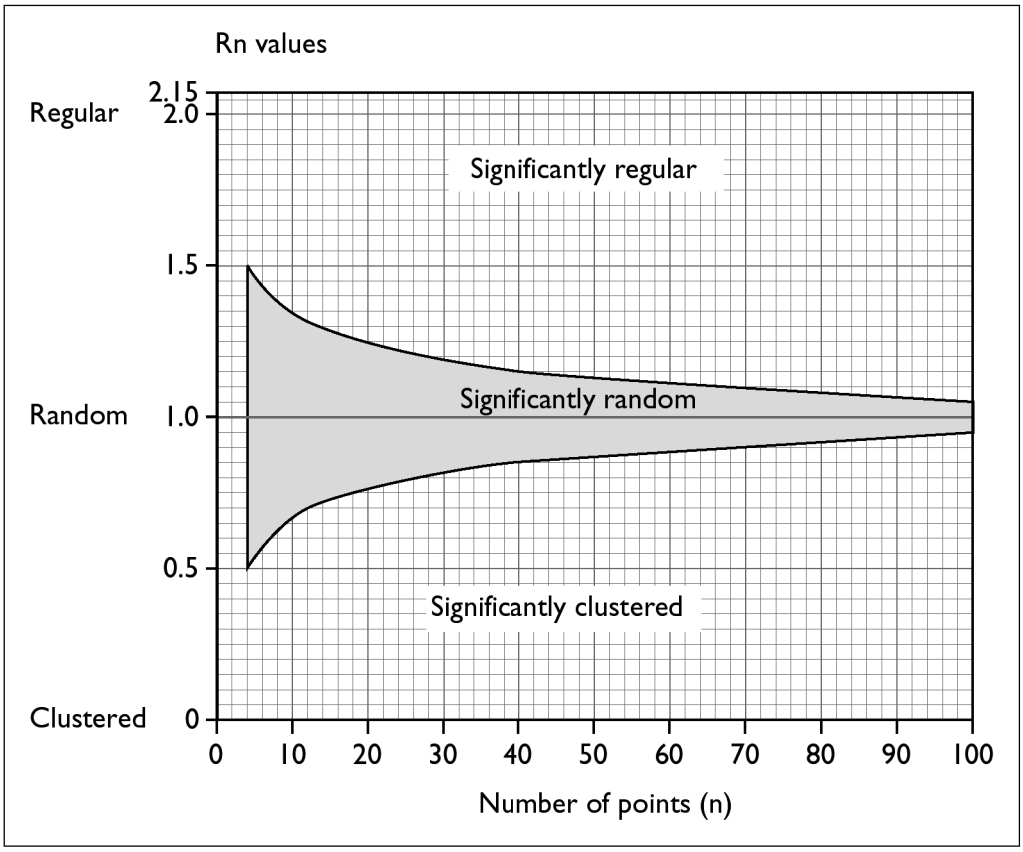
Nearest Neighbour Index Equation and Significance Graph

Formula:

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

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

Significance Graph



(ii) With reference to relevant theory and the aim of your fieldwork, discuss the **geographical** conclusion(s) which can be drawn from this statistical analysis.

[6]

(d) Outline **one** way in which your investigation could be modified, or improved, and explain how this could provide a more reliable conclusion.

[3]

Section B

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

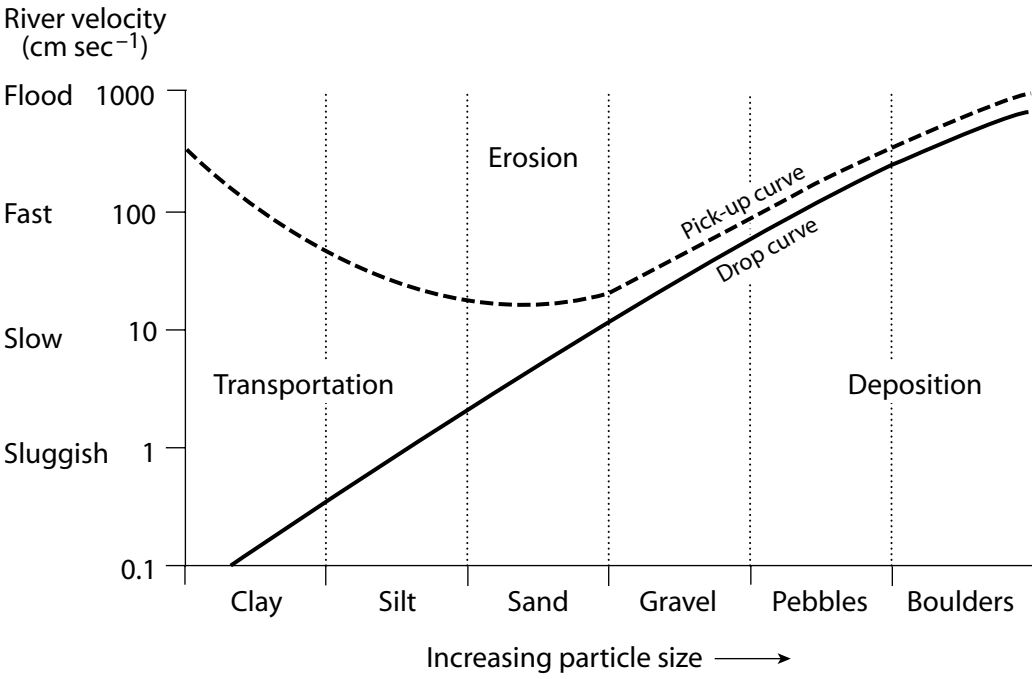
2 **(a)** Choose **any two** of the following factors and explain how they affect river discharge and the storm hydrograph.

soil
geology
land use
precipitation
drainage density

[6]

(b) Study **Resource 2**, which shows the Hjulstrom curves.

Resource 2



Source: adapted from widely available sources

(i) When a river's velocity is 10 cm sec^{-1} what is the largest type of particle that can be transported?

_____ [1]

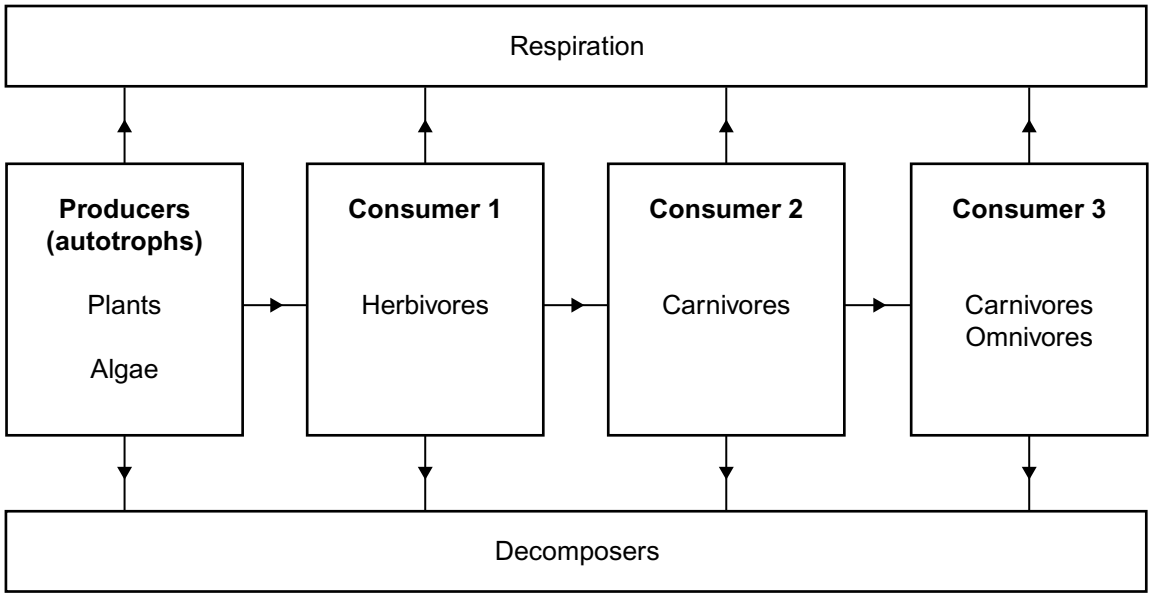
(ii) Following a storm, the river's velocity falls from over 100 to 1 cm sec^{-1}.

Using information from **Resource 2**, describe and explain what happens to the river's load during this period.

[5]

3 Study **Resource 3** showing the energy flow in an ecosystem.

Resource 3



Source: adapted from widely available sources

(a) Using **Resource 3**, describe and explain the movement of energy through the named small scale ecosystem you have studied.

[6]

(b) Describe and explain any **two** characteristics of mid-latitude grassland ecosystems.

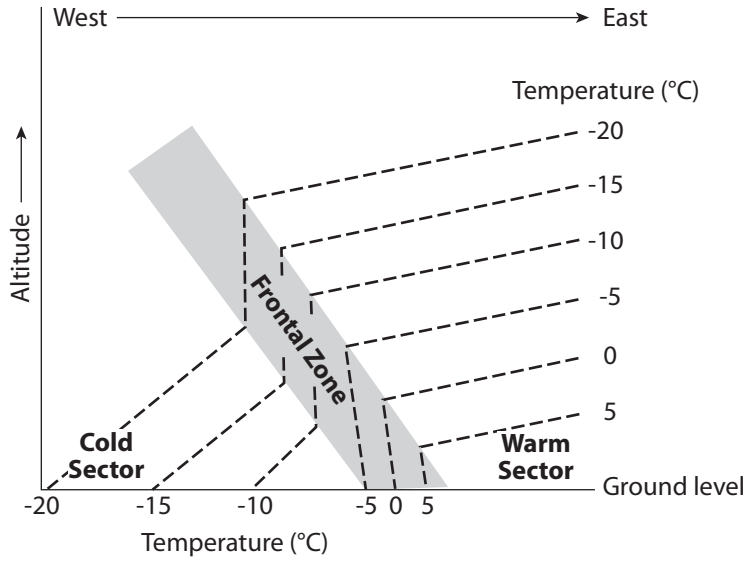
[6]

4 **(a)** Draw an annotated diagram of a hurricane in the box below. With reference to your diagram, describe the structure of a hurricane.

[8]

(b) Study **Resource 4** which shows the cross-section of one of the fronts of a mid latitude depression in the northern hemisphere.

Resource 4



(i) What type of front is shown in **Resource 4**?

_____ [1]

(ii) Using information from **Resource 4**, describe how temperature changes horizontally (at ground level), and vertically.

_____

_____

_____

_____

_____

_____ [3]

Section C

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

5 With reference to a case study of flooding in a large scale drainage basin or its delta, describe and explain the physical and human causes of the flooding. [12]

6 Describe and explain the characteristics of one vegetation succession you have studied. [12]

7 Describe the formation of an anticyclone. Explain the weather associated with a winter anticyclone and discuss its impacts on people. [12]

Question Number

Number your answers clearly

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THIS IS THE END OF THE QUESTION PAPER