Rewarding Learning

Centre Number

71	

Candidate Number

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
January 2013

Geography

Assessment Unit AS 1

assessing

Physical Geography

[AG111]

AG111

MONDAY 14 JANUARY, AFTERNOON

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.
Section C: answer any **two** questions from this section.
You should write your answers in the spaces provided in this question paper.
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	

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.

Examiner Only	
Marks	Remark

1 (a) Study **Resource 1A** below, which outlines some important considerations planned by a student in preparation for fieldwork.

Resource 1A

Source: Principal Examiner

Select **one** from the list above and discuss its importance **and** role within your fieldwork.

_____

_____

_____

_____

_____

_____ [3]

(b) Describe and evaluate **one** sampling **method** which was used, or considered for use, within your fieldwork.

Examiner Only	
Marks	Remark

[6]

(c) (i) 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
- Mean, Median, Mode **and** Range

In the box opposite, complete your chosen statistical analysis and show all calculations clearly. If relevant, comment on the level of statistical significance of the outcome.
(Significance graphs and formulae are provided – **Resource 1B** and **Resource 1C**). [7]

Examiner Only	
Marks	Remark

Chosen Technique selected: _____

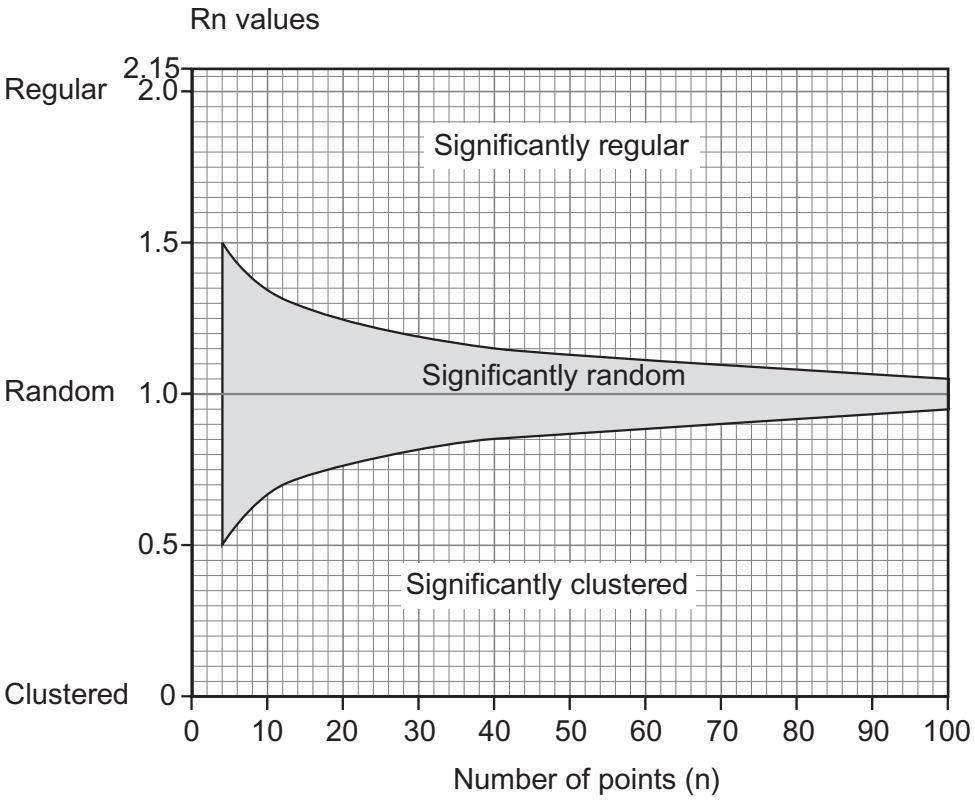
Resource 1B

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



Resource 1C

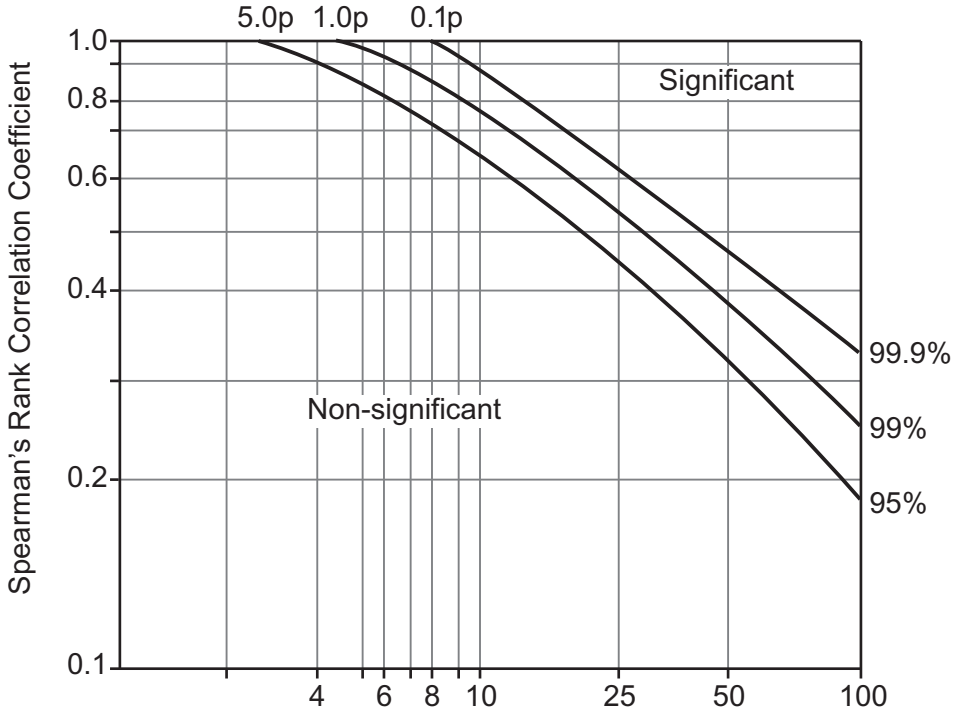
Spearman's Rank Correlation Equation and Significance Charts

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

Examiner Only	
Marks	Remark

(ii) Explain your statistical outcome with reference to relevant **geographical** theory or concepts. (A summary of statistical significance should **not** be included.)

[6]

(d) Study **Resource 1D** which illustrates a list of factors compiled by a student when evaluating fieldwork.

Resource 1D

Source: Principal Examiner

Select **two** of the factors and explain how they influenced your results **and** geographical conclusions.

[8]

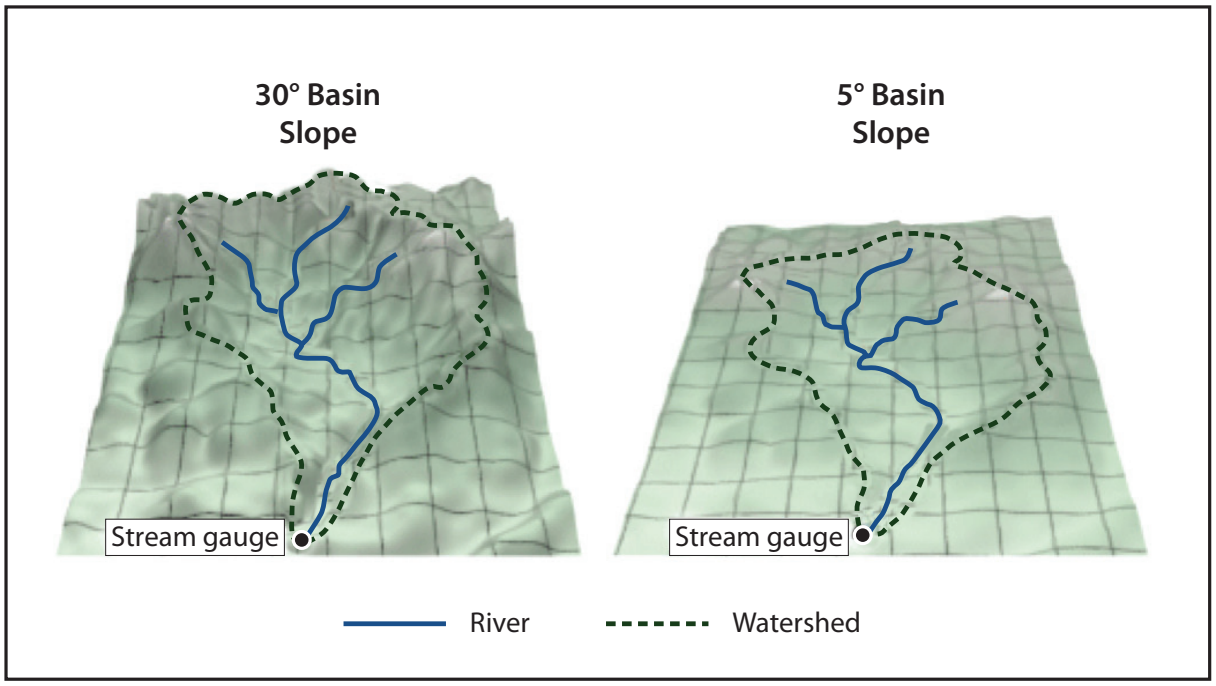
Examiner Only	
Marks	Remark

Section B

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

2 (a) Study **Resource 2A** which shows two similarly sized drainage basins with contrasting relief.

Resource 2A



With reference to **Resource 2A**, describe and explain how relief could affect runoff and the shape of the storm hydrograph.

[4]

(b) Describe **one** factor which may influence the rate at which a river erodes.

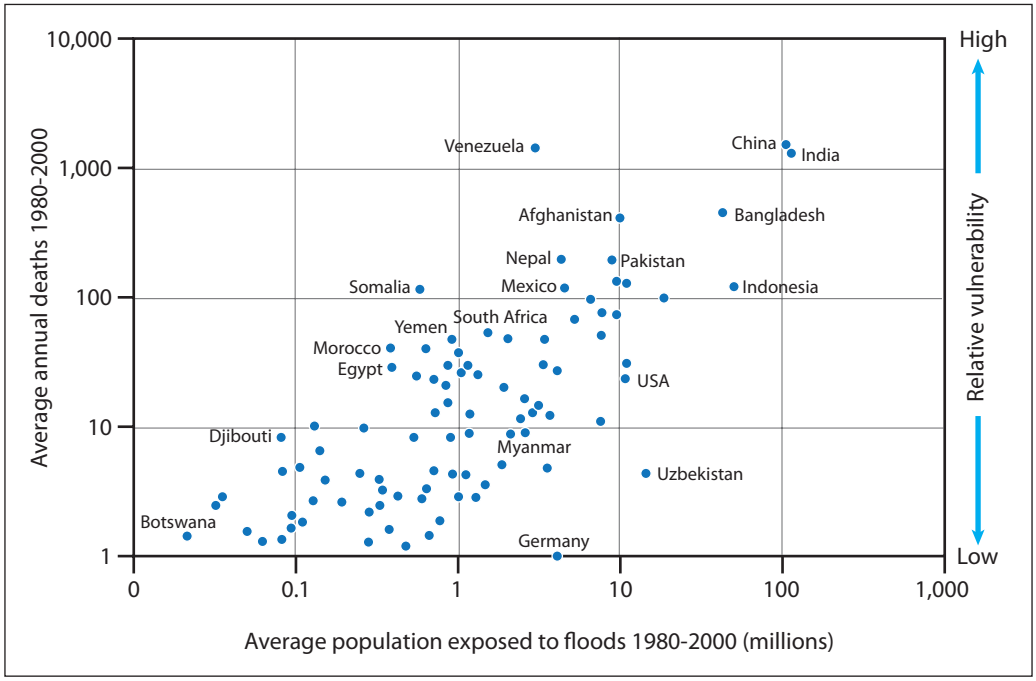
[2]

Examiner Only

Marks	Remark

(c) Study **Resource 2B** which shows the average population exposed to floods and the average annual deaths from flooding for a selection of countries between 1980 and 2000.

Resource 2B



(i) Describe the relationship shown in **Resource 2B**.

[4]

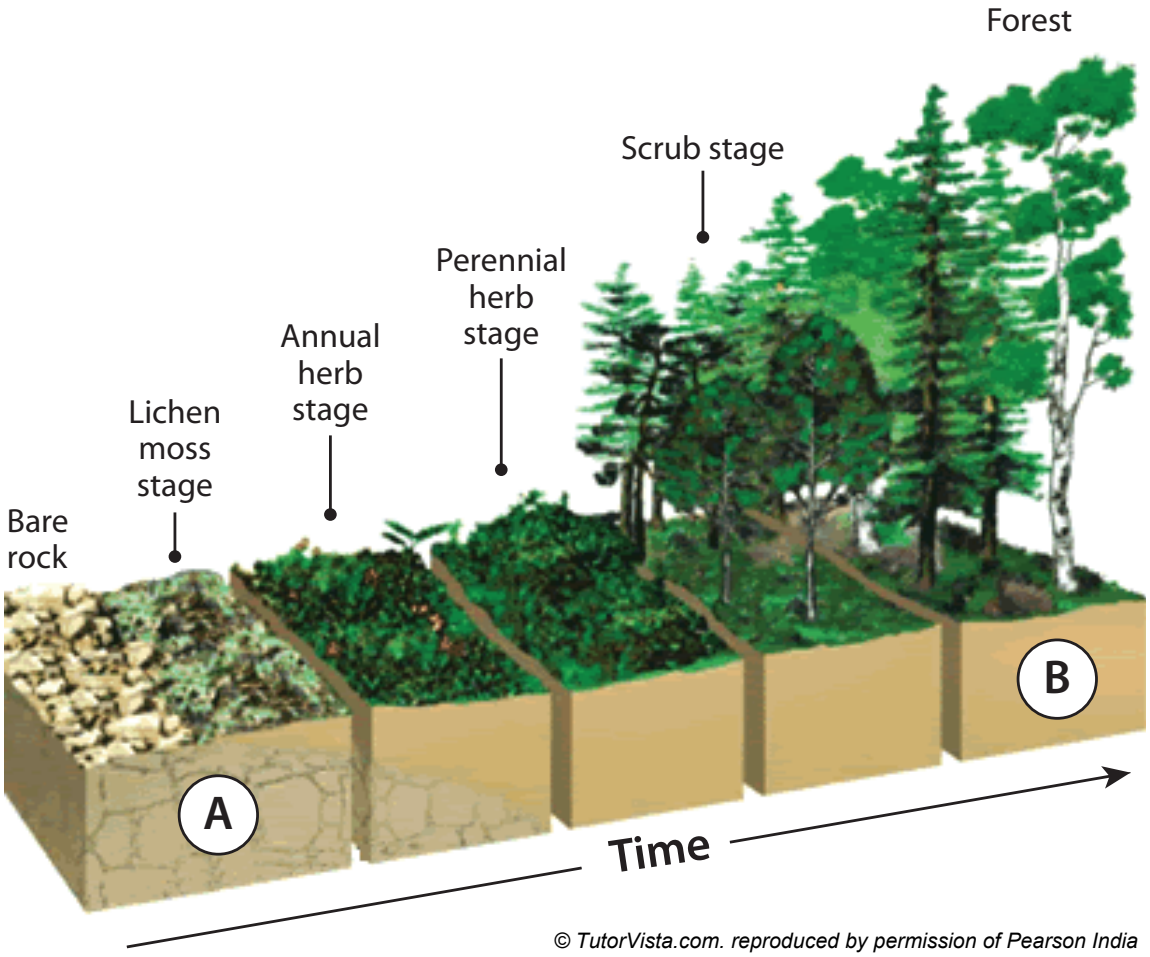
(ii) With reference to your case study of a large scale drainage basin, or its delta, describe **one** beneficial effect of flooding on **people**.

[2]

Examiner Only	
Marks	Remark

3 **(a)** Study **Resource 3** which shows the change in vegetation communities in a primary vegetation succession on bare rock.

Resource 3



(i) With reference to plant succession, select the most appropriate labels from the following list for Stages A and B on **Resource 3**.

- Sere
- Pioneer Community
- Climatic Climax Vegetation
- Plagioclimax Vegetation
- Secondary Succession

A _____

B _____ [2]

Examiner Only	
Marks	Remark

(ii) State **three** changes in the characteristics of the vegetation over time.

[3]

(iii) Explain **two abiotic** changes which occur during any vegetation succession.

[4]

(b) Explain the role of the **decomposers** within your named small scale ecosystem case study.

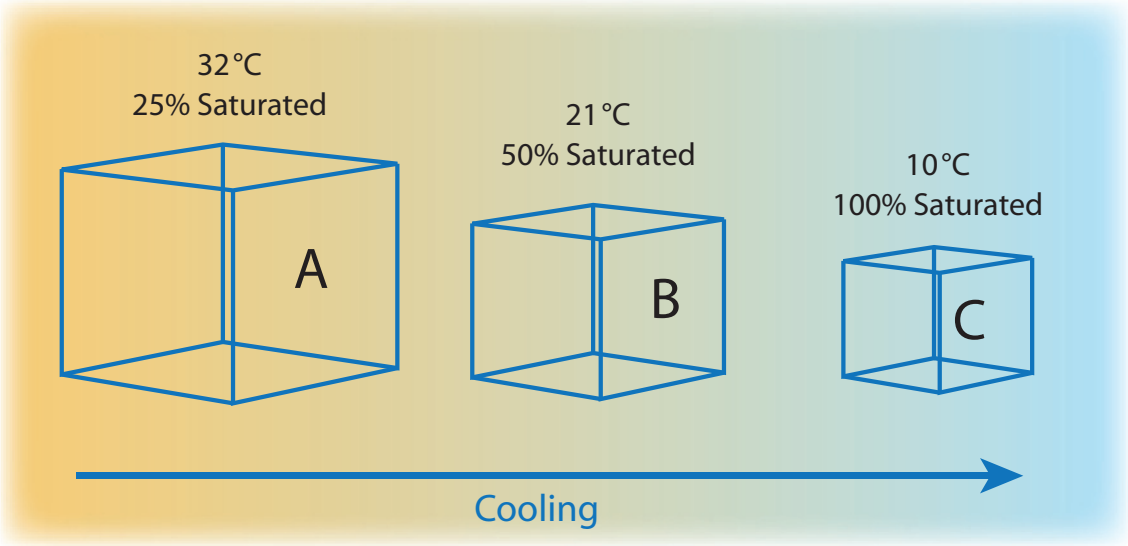
[3]

Examiner Only

Marks	Remark

4 **(a)** Study **Resource 4A** which illustrates the same parcel of air at three different temperatures (shown as Boxes **A**, **B** and **C**).

Resource 4A



(i) Describe and explain the relationship between air temperature and its saturation level.

_____

_____

_____

_____

_____

_____ [3]

(ii) Explain why clouds and precipitation are most likely to occur in Box C.

_____

_____

_____

_____ [2]

Examiner Only	
Marks	Remark

(b) Discuss the importance of wind in relation to global energy transfer and explain **one** factor which influences global wind direction.

[4]

(c) Study **Resource 4B**, a table illustrating some of the differences between a mid-latitude depression and an anticyclone. Complete the table by adding **three** additional differences between the two weather systems.

Resource 4B

	Depression	Anticyclone
1	Winds blow anticlockwise.	Winds blow clockwise.
2	Low pressure at ground surface.	High pressure at ground surface.
3	Isobars close together on synoptic chart.	Isobars widely spaced on synoptic chart.
4		
5		
6		

[3]

Examiner Only	
Marks	Remark

Section C

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

Examiner Only	
Marks	Remark

5 Explain, using annotated diagrams, the river processes involved in the formation of natural river levees **and** deltas. [12]

6 With reference to your case study of an area of mid-latitude grassland, describe and evaluate the soil conservation methods used to manage this ecosystem. [12]

7 With the aid of an annotated diagram, describe the general structure of hurricanes and explain the conditions required for their formation. [12]

Question Number

Number your answers clearly

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THIS IS THE END OF THE QUESTION PAPER