

Answer **only two** questions from Sections A, B and C.
Answer **only one** question from Section D.

SECTION A

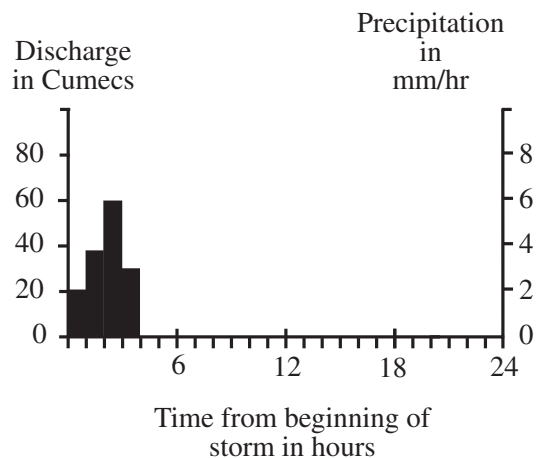
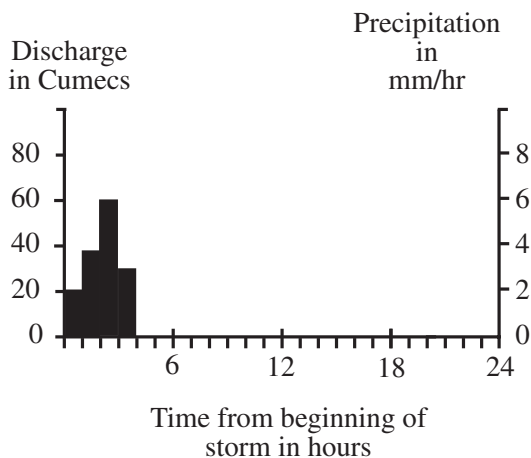
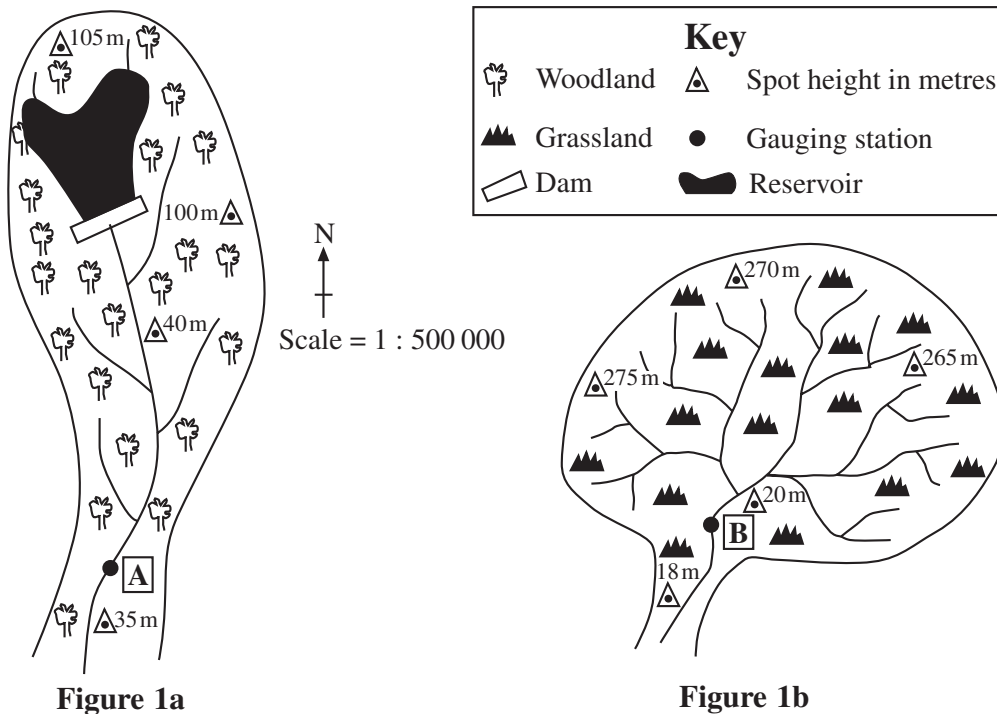
If you choose this Section, answer **either** Question 1 **or** Question 2.
If you choose a question from this section, you must **not** answer Question 7 in Section D.
Each question carries 15 marks.

WATER ON THE LAND

1

Total for this question: 15 marks

- (a) **Figures 1a** and **1b** show two drainage basins. **Figures 2a** and **2b** respectively show incomplete flood hydrographs for gauging stations **A** in **Figure 1a** and **B** in **Figure 1b**. The nature of the storm was identical in each drainage basin.



(i) Sketch flood hydrographs onto **Figures 2a** and **2b** to show the discharge at **A** and **B** in response to the precipitation shown. *(3 marks)*

(ii) Outline reasons for the differences in the flood hydrographs you have sketched in (i).

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(5 marks)

(b) Explain why river regimes vary from place to place.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(7 marks)

Turn over ►

2

Total for this question: 15 marks

- (a) **Figure 3** shows the **Hjulstrom Curve**, designed to illustrate the velocity of a river needed to erode, transport and deposit particles of different size.

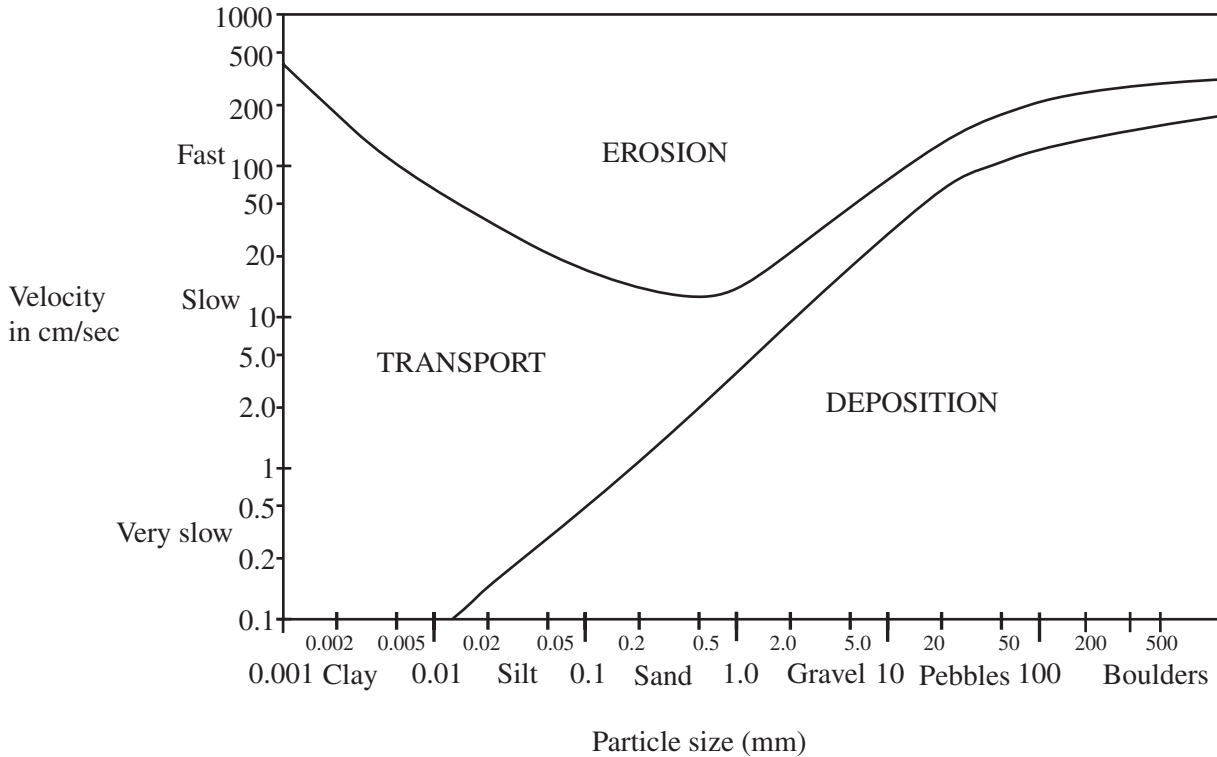


Figure 3

- (i) Using **Figure 3**, state the process operating within a channel, where velocity is constant at 200 cm/sec, affecting particles of:

very fine clay (0.002 mm)

sand (0.2 mm)

small boulders (200 mm)

(3 marks)

- (ii) Identify and suggest reasons for the relationship between velocity, particle size and deposition.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(5 marks)

- (b) Using **one or more** diagrams, explain the sequence of events leading to the migration of meanders.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

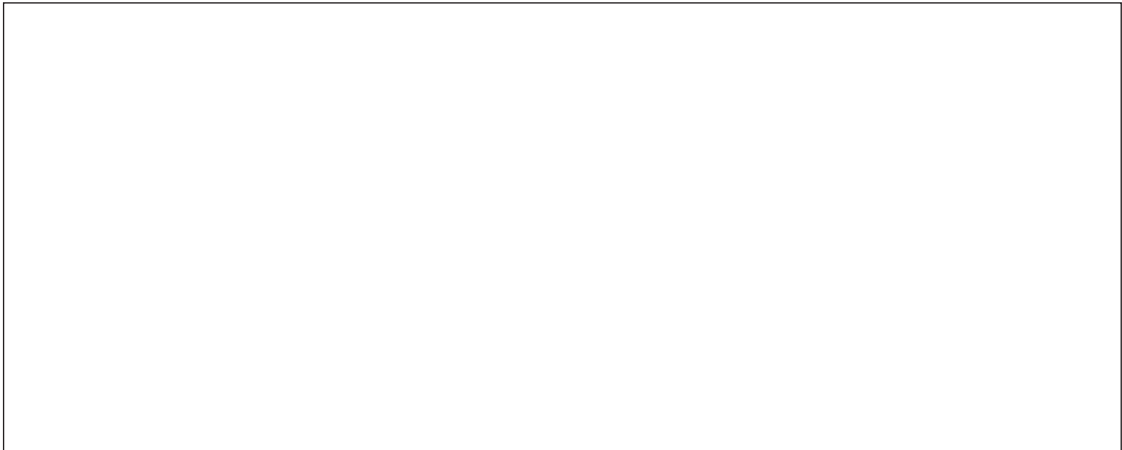
.....

.....

.....

.....

(7 marks)



15

Turn over ►

SECTION B

If you choose this Section, answer **either** Question 3 **or** Question 4.
If you choose a question from this section, you must **not** answer Question 8 in Section D.
Each question carries 15 marks.

CLIMATIC HAZARDS AND CHANGE

3

Total for this question: 15 marks

- (a) **Figures 4a** and **4b** show the effects of the twelve most severe La Niña and El Niño years on the Winter/Spring mean pattern of rainfall in Australia between 1900 and 2000. **Figure 4c** identifies the frequency of each event.

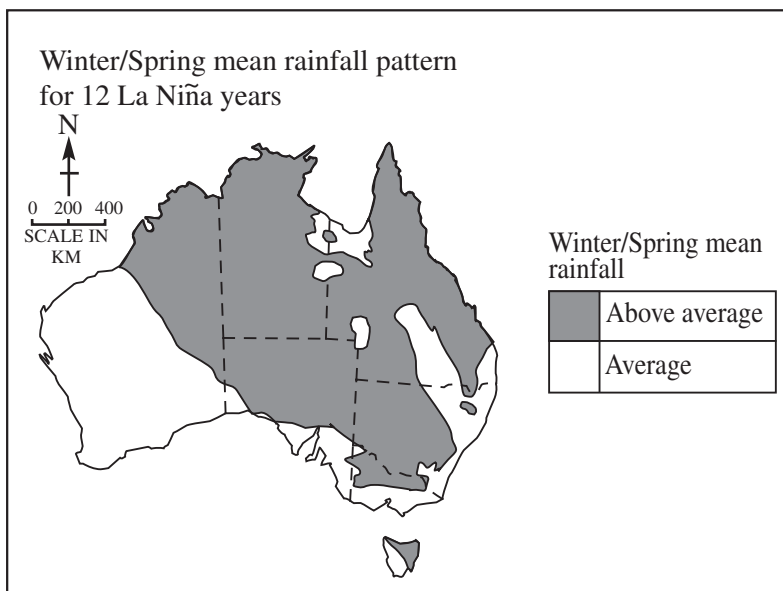


Figure 4a

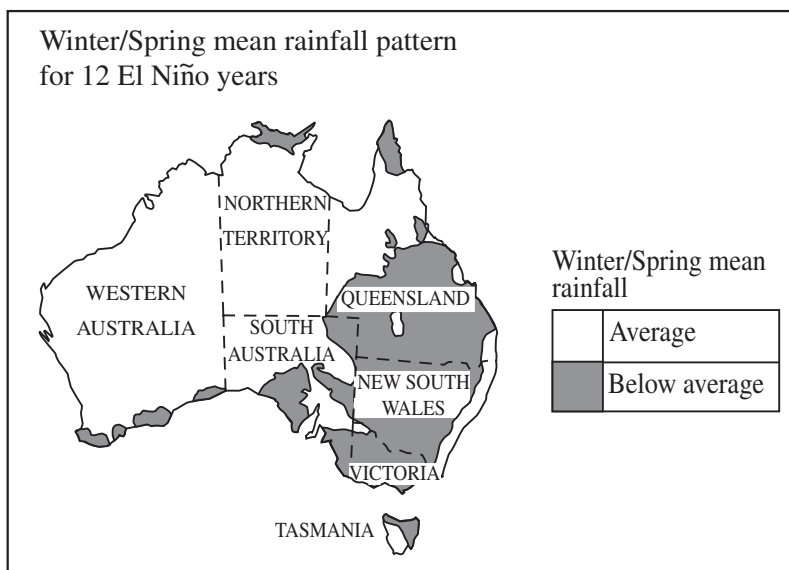


Figure 4b

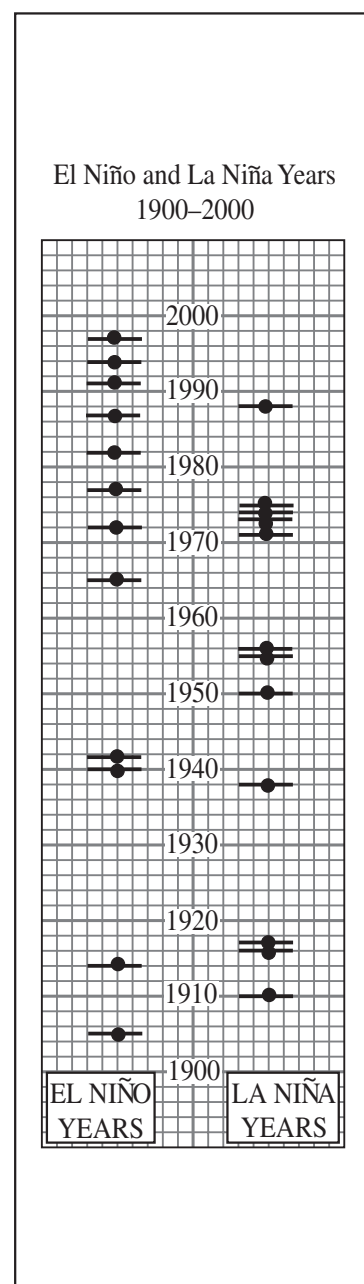


Figure 4c

(i) Describe the pattern of events shown in **Figure 4c**.

.....
.....
.....
.....
.....
.....

(3 marks)

(ii) State the spatial effects of La Niña and El Niño shown in **Figures 4a** and **4b**.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

(5 marks)

QUESTION 3 CONTINUES ON THE NEXT PAGE

Turn over ►

4

Total for this question: 15 marks

- (a) **Figure 5** is an extract adapted from a speech at the British Association’s Science Festival in September 2002.

The Government must consider the impact of urban sprawl on the microclimate. Plans to increase housing density in the urban areas of southeast England from 24 dwellings per hectare to up to 50 will affect local weather. These changes may have a magnitude comparable, or certainly approaching, the changes due to climatic change. High-rise buildings and closely packed houses are of particular concern.

Figure 5

- (i) State **three** ways in which the local weather might be affected by an increase in housing density in urban areas.

1.
.....

2.
.....

3.
.....

(3 marks)

- (ii) Explain how an increase in housing density might affect the local weather that you have identified in (i).

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

(5 marks)

Turn over ►

SECTION C

If you choose this Section, answer **either** Question 5 **or** Question 6.
If you choose a question from this section, you must **not** answer Question 9 in Section D.
Each question carries 15 marks.

ENERGY AND LIFE

5

Total for this question: 15 marks

(a) **Figures 6a and 6b** show the hydrological processes operating in two soils.

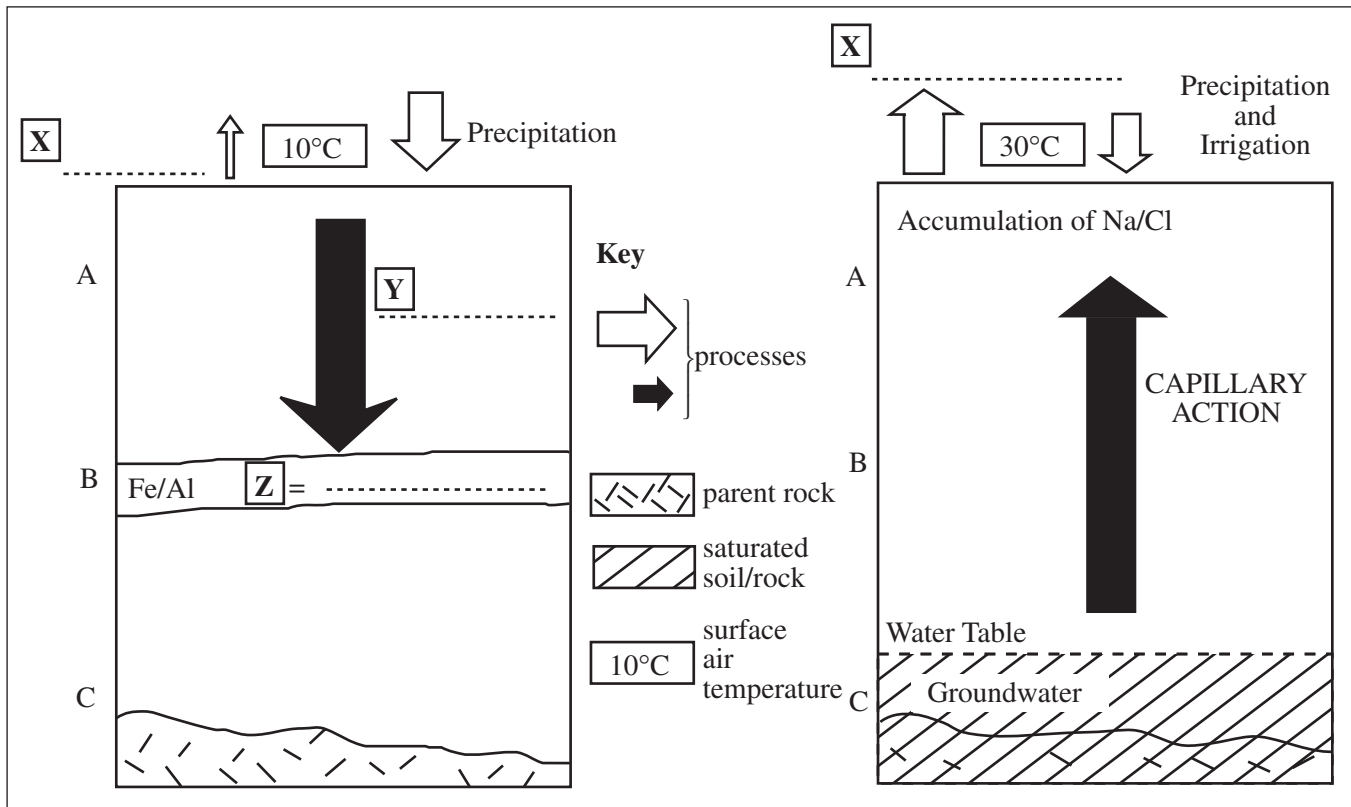


Figure 6a: Podsol

Figure 6b: Saline Soil

(i) Label the processes **X** and **Y** and feature **Z** in the spaces provided on **Figures 6a** and **6b**.

(3 marks)

(ii) Suggest reasons why the hydrological processes operating in **Figure 6b** are likely to result in salinisation.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(5 marks)

(b) Referring to examples, outline the differences between azonal and intrazonal soils.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(7 marks)



Turn over ►

6

Total for this question: 15 marks

(a) **Figure 7** (insert) illustrates the average acidity of rainfall experienced over the UK.

(i) Describe the pattern shown in **Figure 7**.

.....
.....
.....
.....
.....
.....

(3 marks)

(ii) Identify and briefly explain the environmental consequences, which might result from high levels of acid in rainfall.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

(5 marks)

SECTION D

Answer **one** question from this section, **either** Question 7, Question 8 **or** Question 9, on the lined pages that follow.

7 WATER ON THE LAND

You must **not** answer Question 7 if you have answered a question from Section A.

Identify and explain how human intervention in the drainage basin can increase the risk of flooding. *(20 marks)*

8 CLIMATIC HAZARDS AND CHANGE

You must **not** answer Question 8 if you have answered a question from Section B.

Identify and explain the atmospheric processes responsible for the formation of tropical revolving storms. *(20 marks)*

9 ENERGY AND LIFE

You must **not** answer Question 9 if you have answered a question from Section C.

Identify and explain the sequence of events that lead to the plant succession and climatic climax in **one** environment you have studied. *(20 marks)*

END OF QUESTIONS

ACKNOWLEDGEMENTS OF COPYRIGHT-HOLDERS AND PUBLISHERS

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright owners have been unsuccessful and the AQA will be happy to rectify any omissions of acknowledgement in future if notified.

Question 2: Figure 3: Cambridge University

Question 3: Figure 4: a, b and c: www.bom.gov.au/climate/ahead/soicomp.shtml

Question 4: Figure 5: British Association Festival Papers 2002

Question 6: Figure 7: Reproduced from Philip's Modern School Atlas © Philip's

Copyright © 2004 AQA and its licensors. All rights reserved.

General Certificate of Education
January 2004
Advanced Subsidiary Examination

GEOGRAPHY (SPECIFICATION A)
Unit 1

Insert

Figure 7 (for use with Question 6)



GGA1

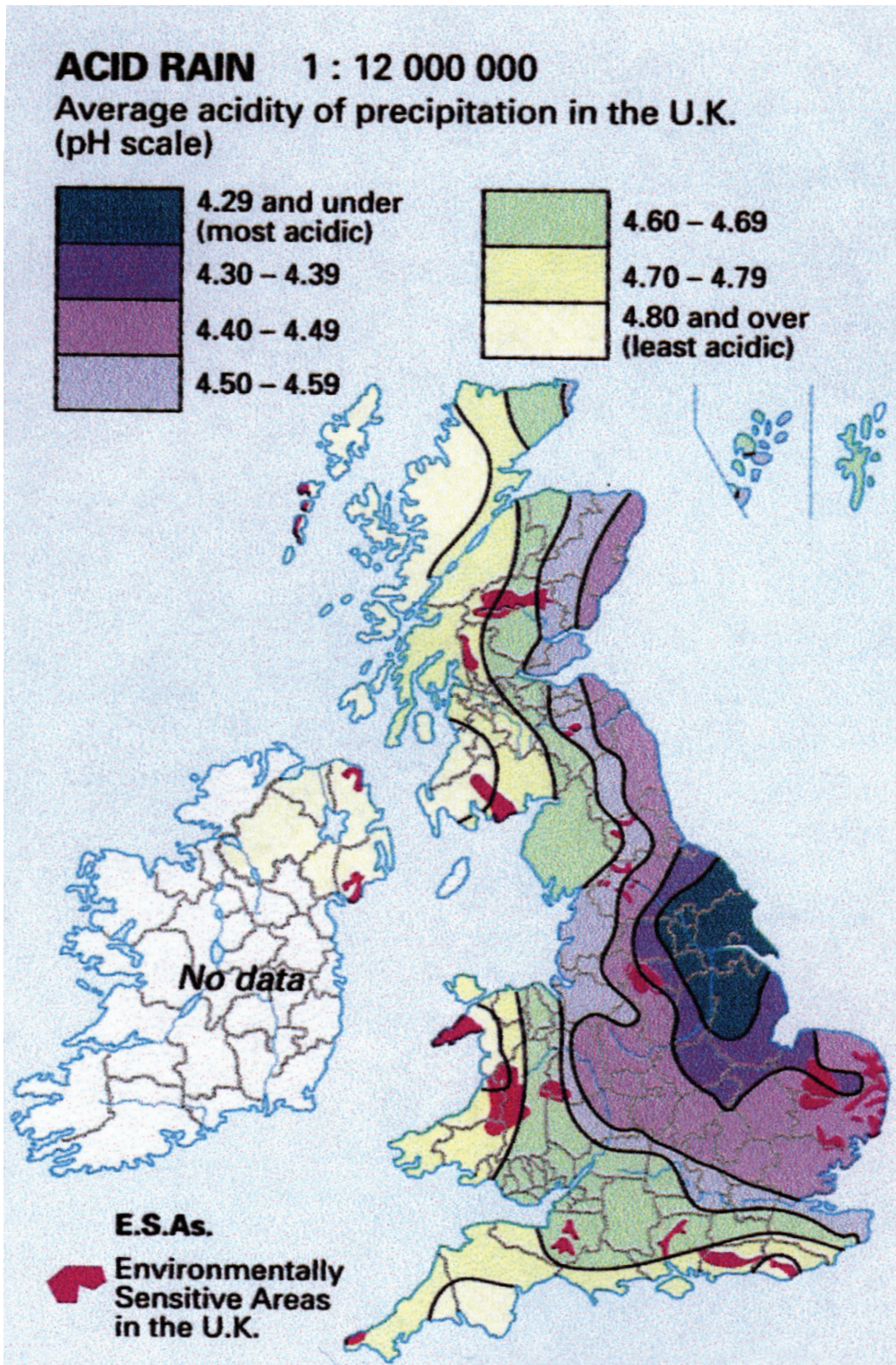


Figure 7

(for use with Question 6)