

Surname						Other Names					
Centre Number						Candidate Number					
Candidate Signature											

Leave blank

General Certificate of Education
 January 2006
 Advanced Subsidiary Examination



ENVIRONMENTAL SCIENCE
Unit 2 The Lithosphere

ESC2

Tuesday 17 January 2006 9.00 am to 10.00 am

You will need no other materials.
 You may use a calculator.

Time allowed: 1 hour

Instructions

- Use blue or black ink or ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- Answer the questions in the spaces provided.
- Do all rough work in this book. Cross through any work you do not want marked.

Information

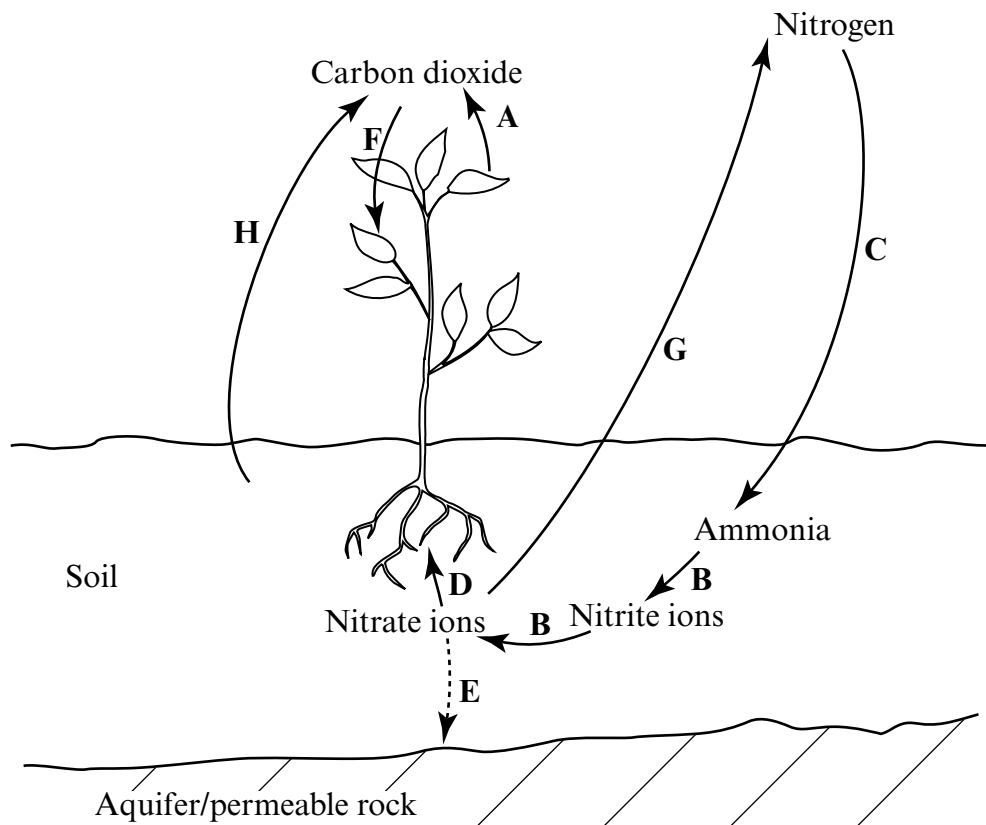
- The maximum mark for this paper is 60.
- The marks for questions are shown in brackets.
- You are reminded of the need for good English, clear presentation and appropriate use of specialist vocabulary. Question 6 should be answered in continuous prose. Quality of Written Communication will be assessed in this answer.

For Examiner's Use			
Number	Mark	Number	Mark
1		5	
2		6	
3			
4			
Total (Column 1) →			
Total (Column 2) →			
TOTAL			
Examiner's Initials			

There are no questions printed on this page

Answer **all** questions in the spaces provided.

1 The diagram shows part of the carbon and nitrogen cycles.

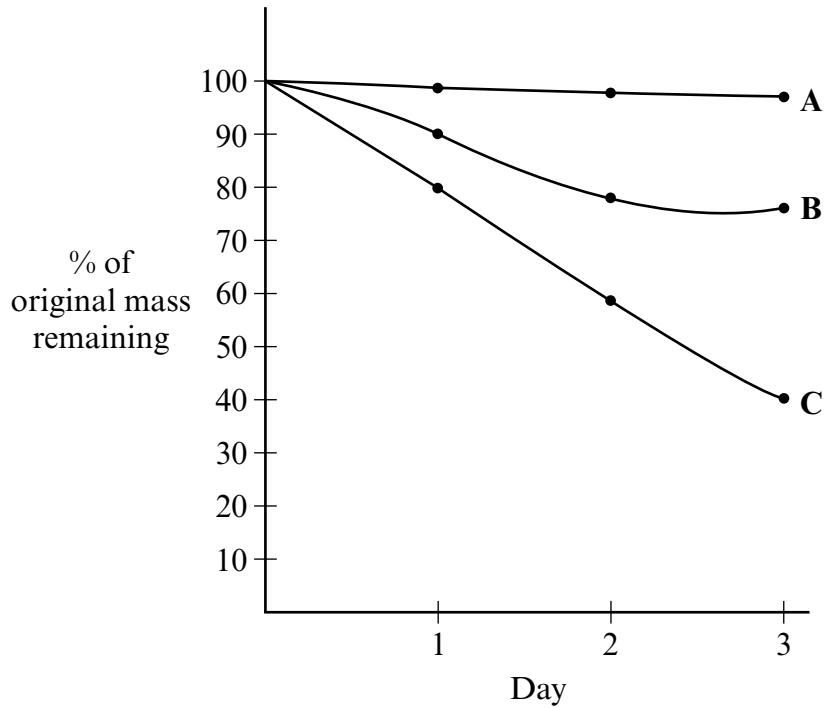


Complete the table by selecting the appropriate letter from the diagram. The first line has been completed as an example.

Description	Letter
Plant respiration	A
Nitrogen fixation	
Leaching	
Nitrification	
Photosynthesis	
Denitrification	

(5 marks)

2 A student investigated the weathering of rocks. Three different rock samples were heated and frozen in turn over a three day period. The student weighed each of the rocks every day. The graph shows the results of the investigation.



(a) Suggest:

(i) why the student chose to record the percentage of the original mass rather than the change in absolute mass;

.....
.....
(1 mark)

(ii) **three** precautions that the student should have taken in order to conduct a fair test;

1.
.....
2.
.....
3.
.....
(3 marks)

(iii) **two** reasons why rocks **B** and **C** might have lost mass when they were heated and frozen in turn.

- 1.
.....
- 2.
.....

(2 marks)

(b) Name and describe **two** chemical weathering processes.

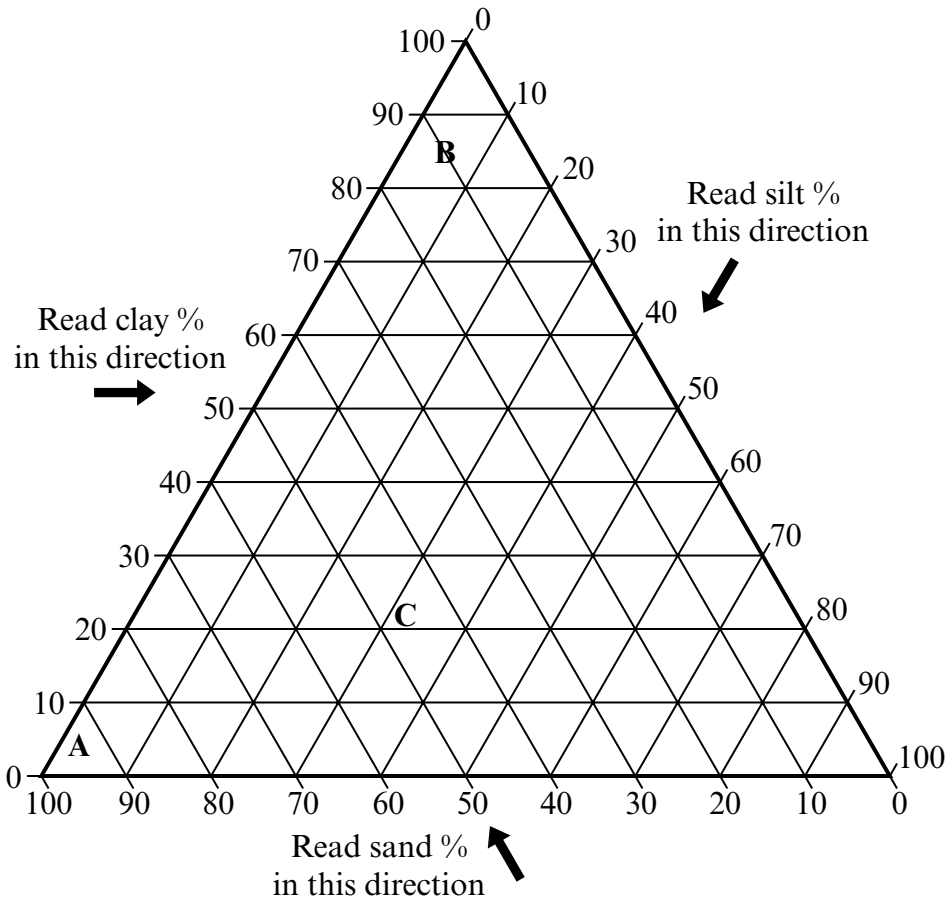
- 1. Process
Description
.....
- 2. Process
Description
.....

(4 marks)

10

Turn over for the next question

3 The triangular graph shows the composition of three soils, A, B and C.



(a) From the graph, state the appropriate letter for the soil likely to be:

(i) the least permeable;

.....

(ii) the most fertile;

.....

(iii) the lowest in organic matter.

.....

(3 marks)

(b) Outline **one** procedure used to determine:

(i) the texture of a soil;

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

(2 marks)

(ii) the moisture content of a soil.

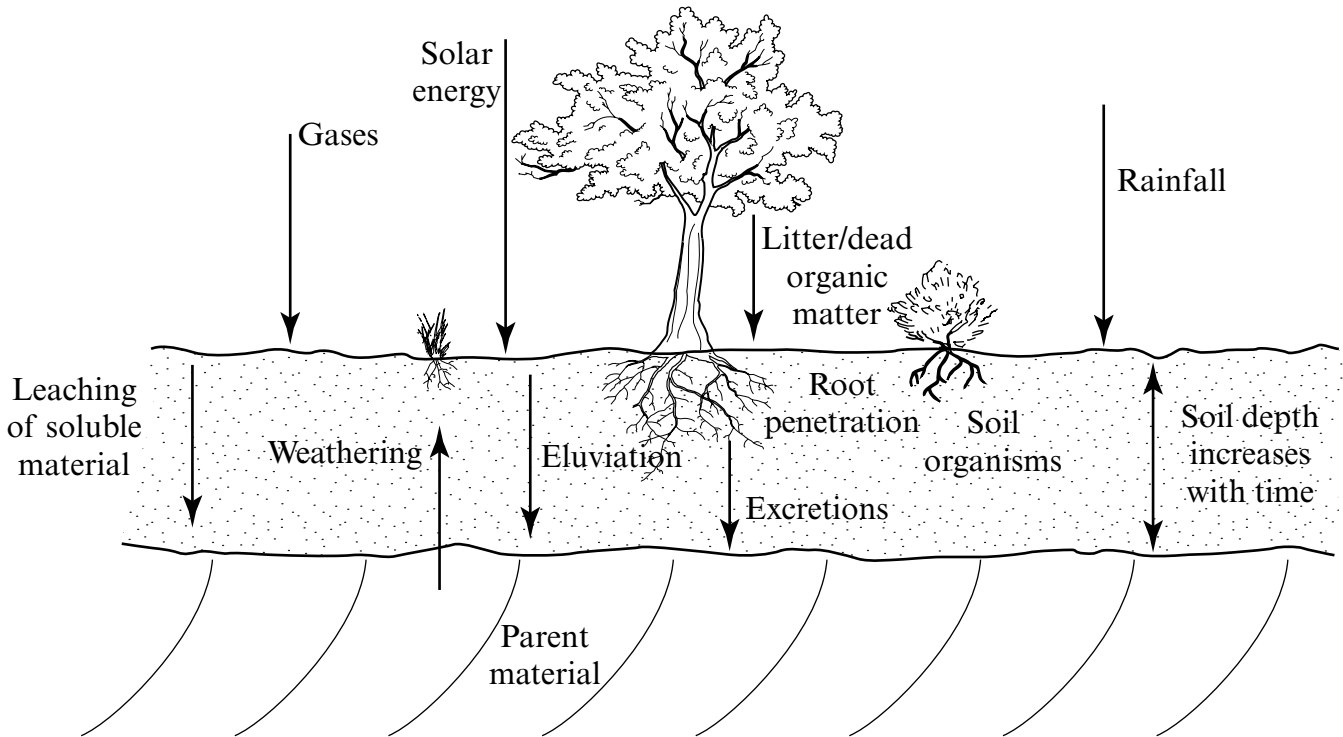
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

(5 marks)

10

Turn over for the next question

4 The diagram shows some of the inputs to and processes within the soil system.



(a) What is the significance of the long timescale of soil formation?

.....

(1 mark)

(b) Outline the soil forming process and effects of:

(i) humification;

Process

.....

Effects

.....

(3 marks)

(ii) eluviation.

Process

.....

Effects

.....

.....

(3 marks)

(c) (i) What is meant by soil thermal capacity?

.....

.....

(1 mark)

(ii) State **two** factors that influence *soil thermal capacity*.

1.

2.

(2 marks)

10

Turn over for the next question

5 The table shows the predicted number of new houses that will be needed each year in England by 2010.

Region	Number of new houses needed each year/thousands
South East	30
London	25
South West	19
Eastern	18
North West	14
East Midlands	12
Yorkshire and Humberside	11
West Midlands	10
North East	3

(a) (i) Given the low population growth rate and relatively low area of urban land use in England, suggest why many people believe that these predictions represent a threat to the rural environment.

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

(2 marks)

(ii) In what ways can a green belt designation influence where new houses are built?

.....

.....

.....

.....

.....

.....

.....

.....

(4 marks)

(b) Outline why:

(i) most coniferous forests are found in uplands;

.....

.....

.....

.....

(2 marks)

(ii) there may be local public opposition to a decision to designate an area as a new National Park.

.....

.....

.....

.....

(2 marks)

6 (a) The extraction of rocks used for roadstone causes environmental damage.

(i) Name **two** rocks used for roadstone.

1.

2.

(2 marks)

(ii) State **two** properties of rocks that make them suitable for roadstone.

1.

2.

(2 marks)

(b) Discuss why mineral extraction in National Parks causes many environmental problems.

Quality of Written Communication will be assessed in this answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

There are no questions printed on this page

There are no questions printed on this page

There are no questions printed on this page