

Surname						Other Names					
Centre Number						Candidate Number					
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For Examiner's Use

General Certificate of Education
 June 2007
 Advanced Subsidiary Examination



ENVIRONMENTAL SCIENCE
Unit 2 The Lithosphere

ESC2

Thursday 7 June 2007 1.30 pm to 2.30 pm

<p>You will need no other materials. You may use a calculator.</p>
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For Examiner's Use			
Question	Mark	Question	Mark
1		5	
2		6	
3			
4			
Total (Column 1) →			
Total (Column 2) →			
TOTAL			
Examiner's Initials			

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 to be 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.

There are no questions printed on this page

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

- 1 Complete the table by putting ticks to indicate whether the statements are true or false.

Statement	True	False
Gneiss is a sedimentary rock		
Some metamorphic rocks are formed from igneous rocks		
Most igneous rocks are crystalline		
Most sedimentary rocks may be identified because they are deposited in layers or strata		
Most igneous rocks are more resistant to weathering than sedimentary rocks		

(5 marks)

5

Turn over for the next question

2 (a) Jurassic limestone has been used to construct many of Britain's cathedrals.



Suggest **one** advantage and **one** disadvantage of using limestone for buildings such as cathedrals.

Advantage

.....

Disadvantage

.....

(2 marks)

(b) Bricks are now widely used instead of building stone.

(i) What is the main material that bricks are made of?

.....

(1 mark)

(ii) Suggest **two** reasons why bricks have replaced building stone.

1

.....

2

.....

(2 marks)

- (c) Describe **one** named property of china clay that makes it suitable for **one** named end use.

Property

.....

End use

.....

(2 marks)

- (d) Outline the processes involved in the production of aluminium or iron.

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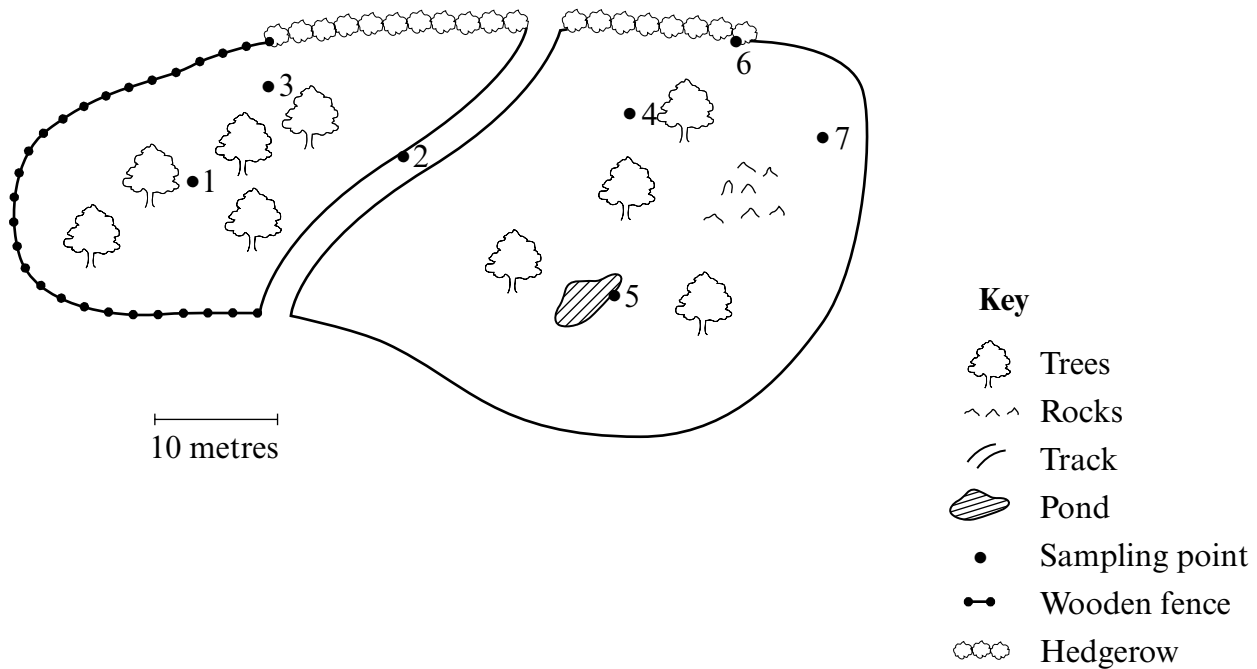
(3 marks)

10

Turn over for the next question

- 3 A student investigated whether there was a link between the soil moisture content and the abundance of invertebrates in a woodland soil.

The map shows the student's sampling points.



The table shows the student's results.

Sample number	Abundance of invertebrates	Soil moisture content / %	Notes
1	16	20	
2	1	5	Very hard soil, could only get a small sample
3	12	18	
4	6	20	
5	18	40	Actual sampling coordinate was in pond so I sampled next to it
6	12	30	Took sample from under hedge
7	34	30	

(a) Suggest **three** criticisms of the student's technique.

1

.....

2

.....

3

.....

(3 marks)

(b) Outline fully **one** method which could be used to measure the soil moisture content.

.....

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(5 marks)

(c) The student's conclusion was: 'As the number of invertebrates increases, so does the moisture content. The invertebrates are increasing the moisture content.'

Suggest **two** criticisms of this conclusion.

1

.....

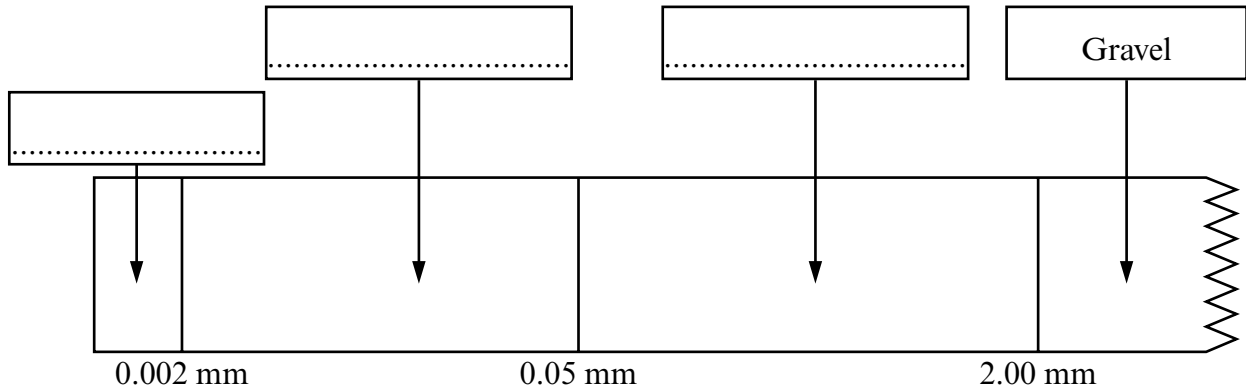
2

.....

(2 marks)

4 (a) The diagram shows part of a size classification of soil particles.

Complete the diagram by writing in the names of the appropriate components.



(3 marks)

(b) Describe the processes of:

(i) chelation

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

(2 marks)

(ii) eluviation.

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.....
.....

(2 marks)

(c) Explain how soil aeration may influence a soil's fertility.

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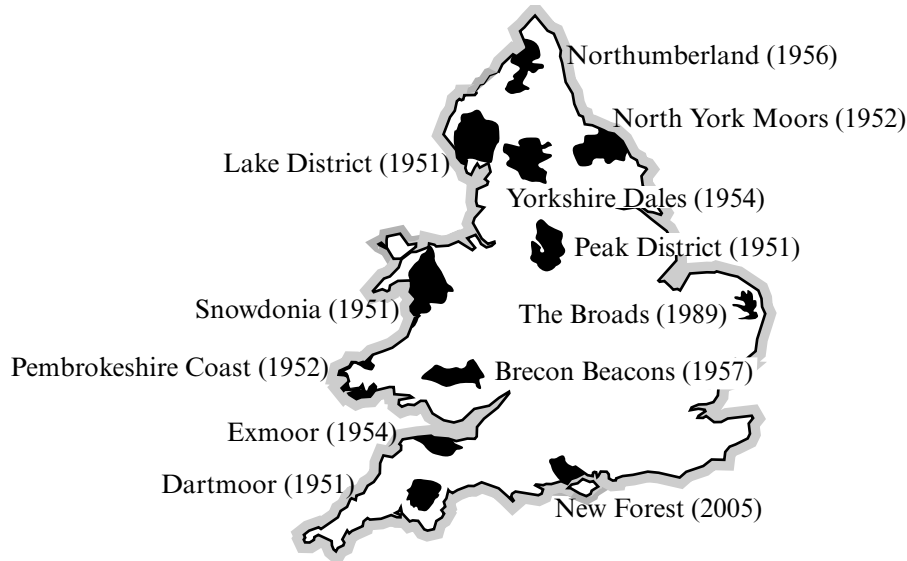
.....

(3 marks)

10

Turn over for the next question

5 (a) The map shows the location of National Parks in England and Wales in 2005.



Source: Council for National Parks, www.cnp.org.uk, 2005

State **two** main purposes of the National Park designation.

- 1
-
- 2
-

(2 marks)

(b) The table shows ownership of land in the Brecon Beacons National Park in Wales in 2005.

Land Ownership	Hectares
Private individuals	94 400
National Park Authority	22 822
Ministry of Defence	149
Forestry Commission	10 659
Countryside Council for Wales	1 014
National Trust	4 896
Local Authority	0
Water Authority	5 009
Wildlife Trust	270
Total	139 219

Outline why each of the following features may be a source of conflict within the National Park.

(i) Multiple land ownership

.....
.....
.....
(2 marks)

(ii) Large plantations of non-native coniferous trees

.....
.....
.....
(2 marks)

(iii) Reservoirs

.....
.....
.....
(2 marks)

(c) Outline **two** problems caused by quarrying in National Parks.

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

10

Turn over for the next question

6 (a) Suggest how:

(i) phosphate ions in seashells on the ocean floor may end up in bags of fertiliser

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

(2 marks)

(ii) a carbon dioxide molecule that is breathed out may end up in a drop of crude oil.

.....
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(3 marks)

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