

**ADVANCED SUBSIDIARY GCE****GEOLOGY**

The Rock Cycle – Processes and Products

**2832**

Candidates answer on the question paper

**OCR Supplied Materials:**

None

**Other Materials Required:**

- Ruler (cm/mm)

**Thursday 8 January 2009****Afternoon****Duration: 1 hour**

Candidate Forename		Candidate Surname	
-----------------------	--	----------------------	--

Centre Number						Candidate Number				
---------------	--	--	--	--	--	------------------	--	--	--	--

**INSTRUCTIONS TO CANDIDATES**

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

**INFORMATION FOR CANDIDATES**

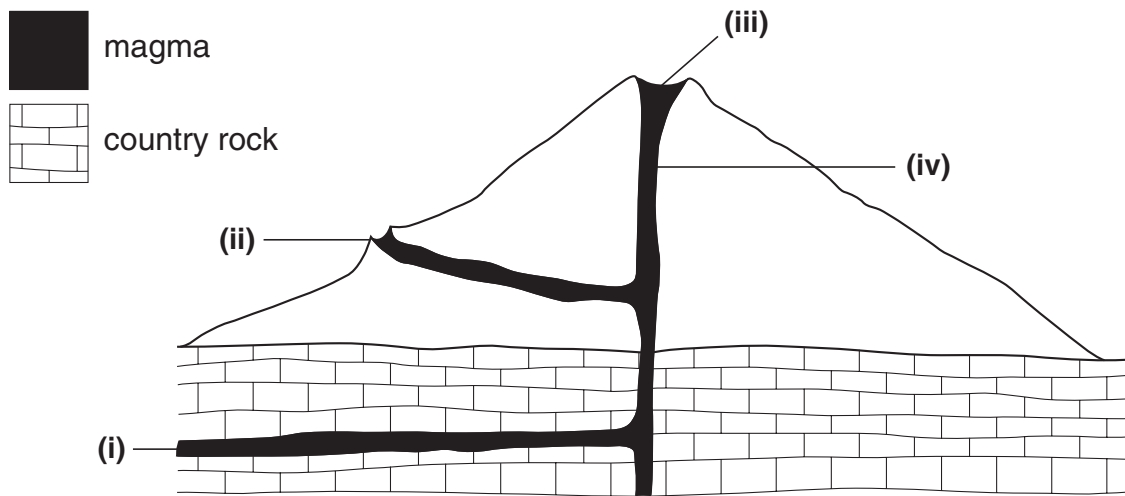
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is **60**.
- You will be awarded marks for the quality of written communication where this is indicated in the question.
- This document consists of **12** pages. Any blank pages are indicated.

**FOR EXAMINER'S USE**

Qu.	Max	Mark
1	17	
2	17	
3	16	
4	10	
<b>TOTAL</b>	<b>60</b>	

Answer **all** the questions.

- 1 The cross sectional diagram below shows a volcano and the country rocks.



- (a) Name the igneous features shown.

(i) ..... (ii) .....

(iii) ..... (iv) ..... [4]

- (b) (i) Describe **two** characteristics of fissure volcanoes.

.....  
 .....  
 .....  
 ..... [2]

- (ii) Describe **two** differences between the characteristics of shield and strato-volcanoes.

Difference 1: .....  
 .....  
 Difference 2: .....  
 ..... [2]

- (c) (i) Explain the origin of the magma forming shield volcanoes.

.....  
 ..... [1]

(ii) Explain the origin of the magma for strato-volcanoes.

.....

.....

.....

..... [2]

(d) Describe the activity at a geyser.

.....

.....

.....

..... [2]

(e) With the aid of labelled diagrams, describe how a caldera is formed.

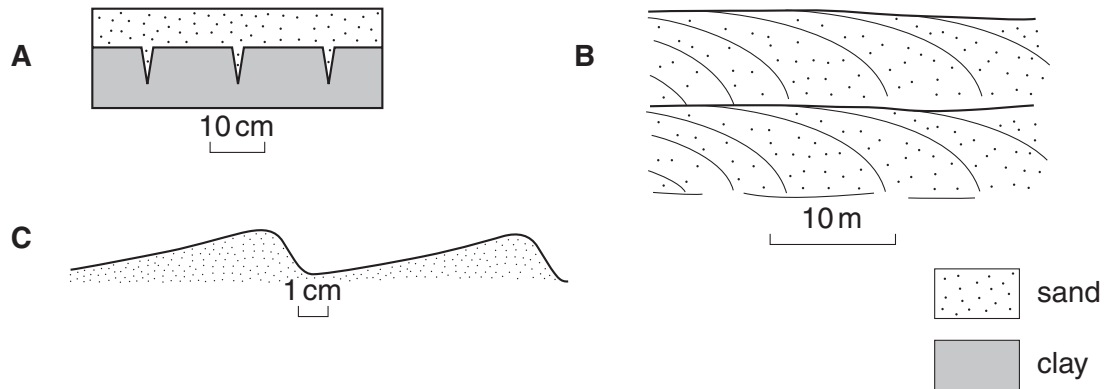
.....

.....

.....

..... [4]

2 The diagrams below show three sedimentary structures found in the same environment.



(a) (i) Name the sedimentary structures shown.

**A** .....

**B** .....

**C** ..... [3]

(ii) Which of **A**, **B** or **C** is not the right way up?

..... [1]

(iii) Explain how you can tell that this structure is not the right way up.

..... [2]

(iv) Mark with an arrow on diagram **C** the direction of sediment transport.

[1]

- (b) (i) Identify the environment in which all three of these sedimentary structures formed.

..... [1]

- (ii) Describe and explain how sedimentary structure **A** formed.

.....  
.....  
.....  
..... [2]

- (iii) Describe and explain how sedimentary structure **C** formed.

.....  
.....  
.....  
..... [2]

- (c) With the aid of a labelled diagram, describe how graded bedding is formed.

.....  
.....  
.....  
..... [3]

- (d) Complete the table below by writing down the correct number from the list in each of the spaces.

type of weathering	definition
exfoliation	
	Minerals break down by reacting with water. Under acidic conditions feldspar breaks down to kaolin (clay minerals).
carbonation	
	Expansion of water on freezing, in pores or cracks in rock.

**list**

1	Hydrolysis
2	Solution
3	Frost shattering
4	New minerals grow in rock spaces forcing rock apart
5	Reaction of minerals with carbonic acid produced by the solution of carbon dioxide in water
6	Breakdown of rocks due to different expansion and contraction rates

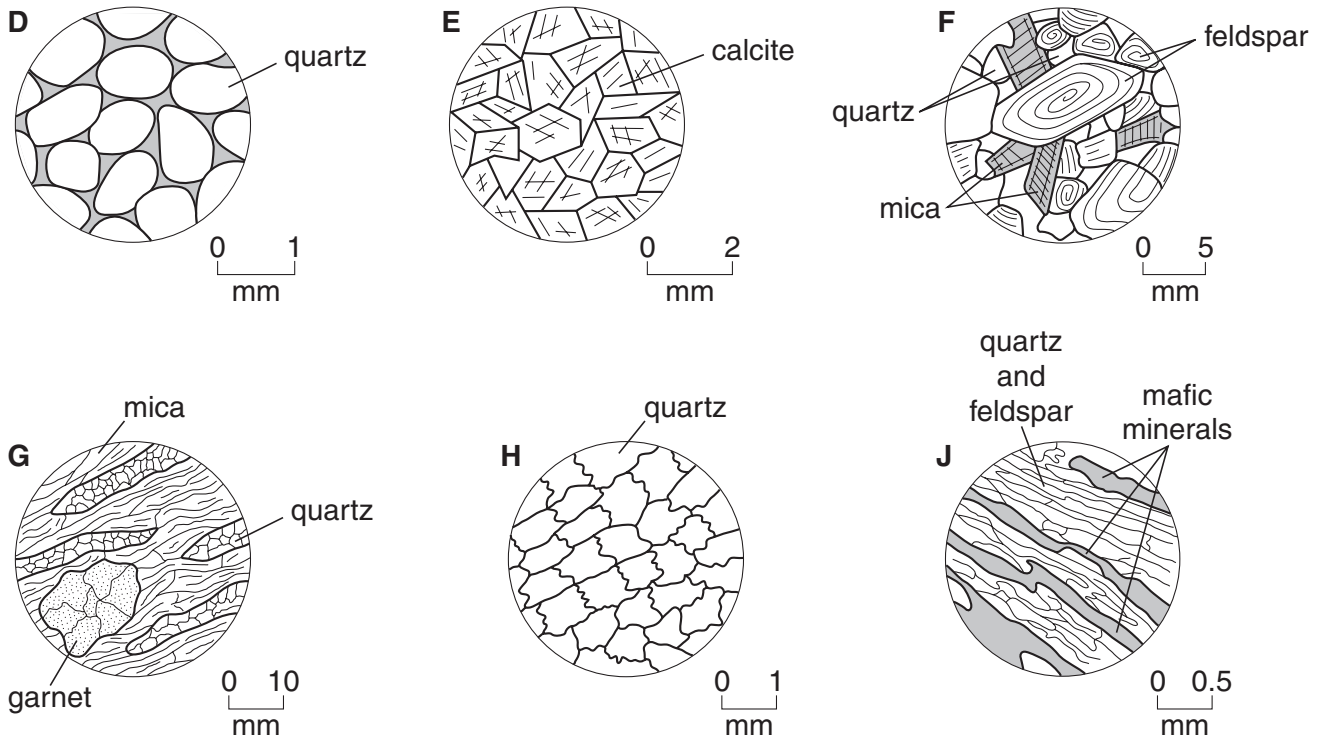
[2]

[Total: 17]

**7**  
**BLANK PAGE**

**PLEASE DO NOT WRITE ON THIS PAGE**

3 Below are thin section diagrams of sedimentary, igneous and metamorphic rocks.



(a) (i) Use ticks to show:

	D	E	F	G	H	J
metamorphic rocks						
unfoliated metamorphic rocks						
rocks produced by regional metamorphism <b>only</b>						
one parent rock and the resultant metamorphic rock						

[6]

(ii) Explain how you identified the regional metamorphic rocks.

.....

.....

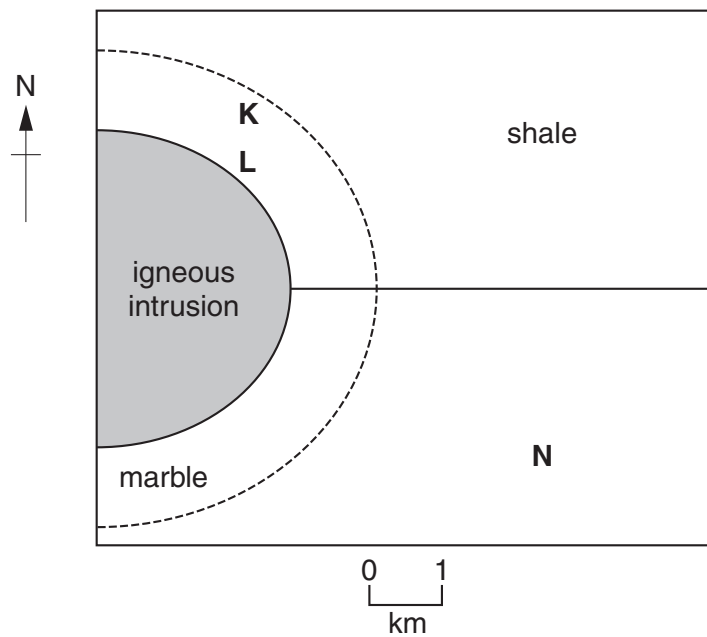
.....

.....

[2]



(b) The map below shows the rocks in an area affected by thermal metamorphism.



(i) Identify rocks **K** and **L**.

**K** .....

**L** ..... [2]

(ii) Identify rock **N**.

..... [1]

(iii) Describe and explain the variations in crystal grain size that would be found within the igneous intrusion.

.....  
 .....  
 .....  
 .....  
 .....  
 ..... [3]

(iv) Describe how the igneous intrusion caused the thermal metamorphism.

.....  
 .....  
 .....  
 ..... [2]

[Total: 16]

Turn over

**4** In this question, two marks are available for the quality of written communication.

Describe, with the aid of diagrams, the processes of compaction and cementation.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**[Total: 10]**

© OCR 2009

