THIS IS A LEGACY SPECIFICATION

OCR
RECOGNISING ACHIEVEMENT

ADVANCED SUBSIDIARY GCE

GEOLOGY

2832/01

The Rock Cycle – Process and Products

Candidates answer on the question paper

OCR Supplied Materials:
None

Other Materials Required:
- Electronic Calculator
- Ruler (cm/mm)

Wednesday 20 May 2009
Afternoon

Duration: 1 hour

2832012

OCE/V04929

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.

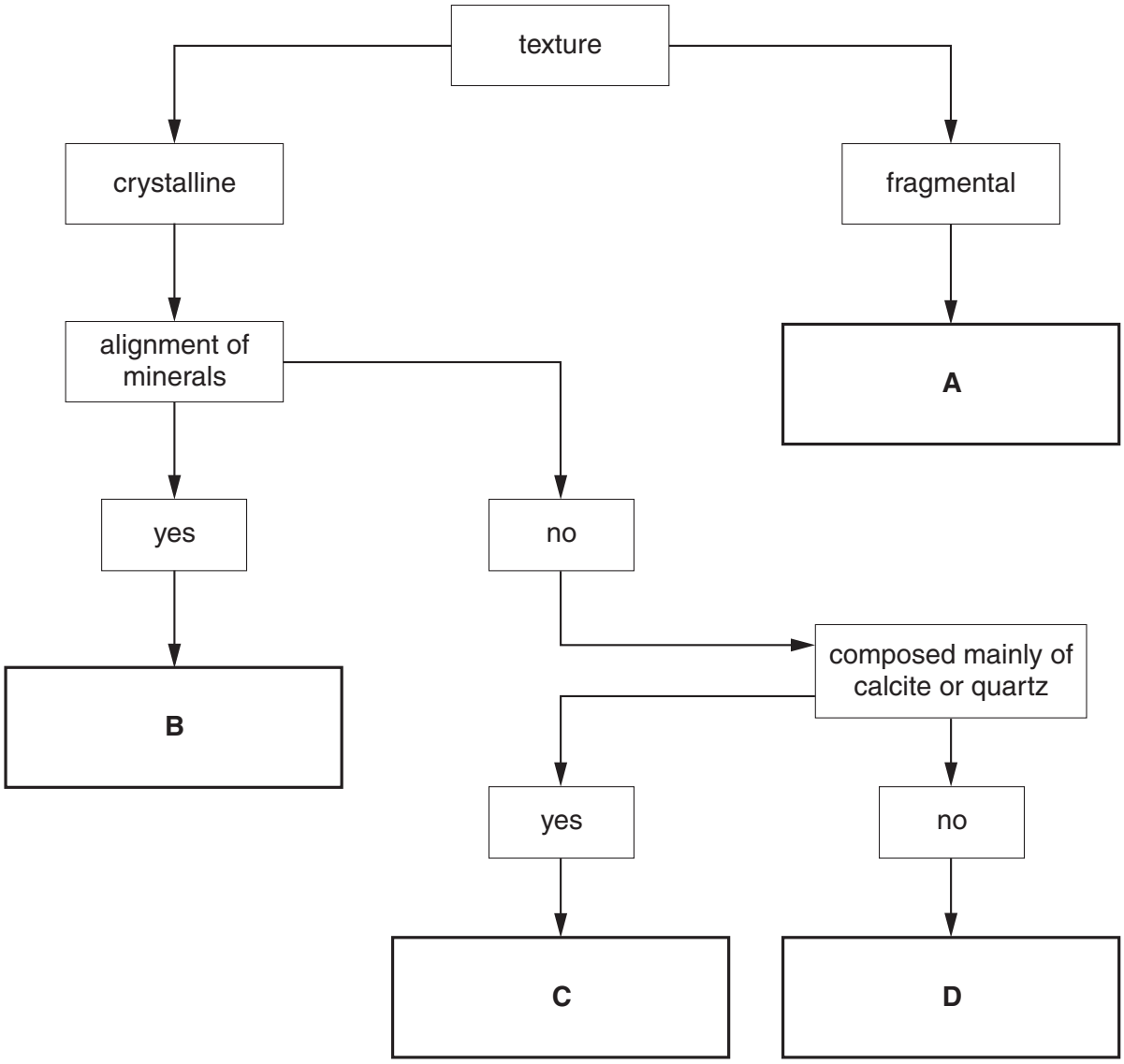
INFORMATION FOR CANDIDATES

- 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.
- You may use an electronic calculator.
- You are advised to show all the steps in any calculations.
- This document consists of **12** pages. Any blank pages are indicated.

FOR EXAMINER'S USE		
Qu.	**Max.**	**Mark**
1	**16**	
2	**17**	
3	**17**	
4	**10**	
TOTAL	**60**	

Answer **all** the questions.

1 **(a)** Complete the flow diagram below by entering the names of the correct broad rock groups in boxes **A**, **B**, **C** and **D**.



[3]

(b) (i) Define the terms

fragmental .....

.....

crystalline .....

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

(ii) Define the term *rock*.

.....

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

(iii) Explain the processes that cause minerals to be aligned in metamorphic rocks.

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.....

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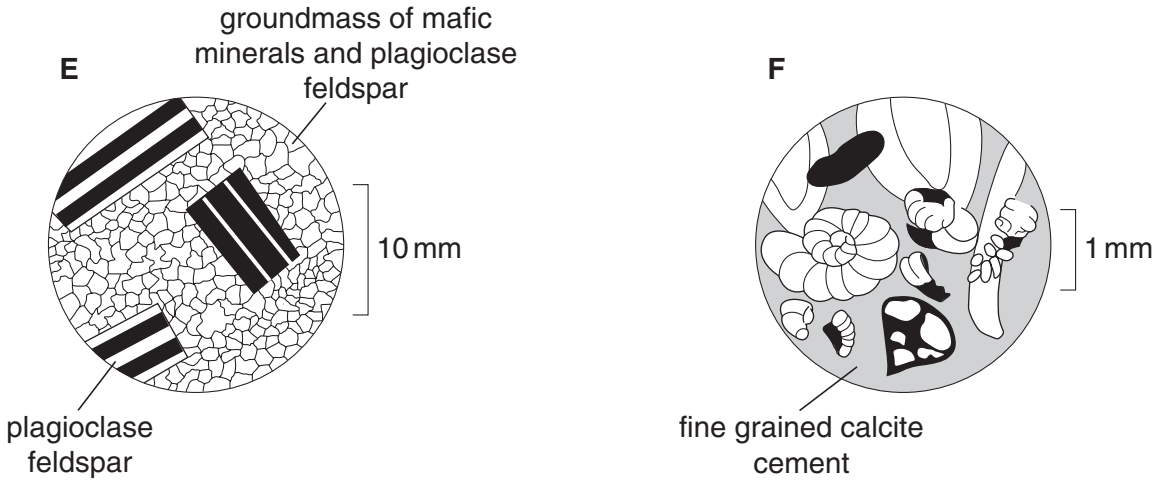
..... **[2]**

(c) Below are thin section diagrams of two rocks.



(i) Circle the broad rock group to which each rock belongs.

E igneous metamorphic sedimentary

F igneous metamorphic sedimentary **[2]**

(ii) Give **two** reasons for your choice for **E**.

1 .....

.....

2 .....

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

(iii) Give **two** reasons for your choice for **F**.

1 .....

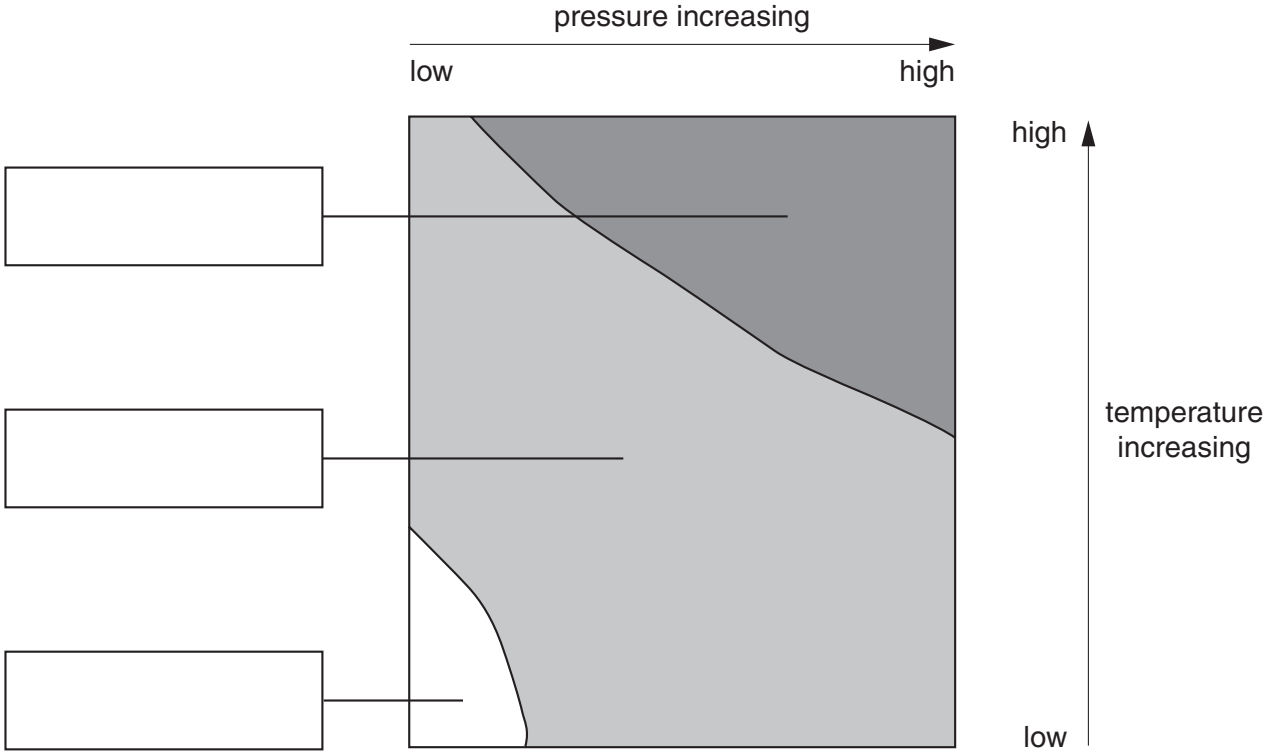
.....

2 .....

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

(d) The diagram below shows the temperature and pressure conditions under which the three broad rock groups form.

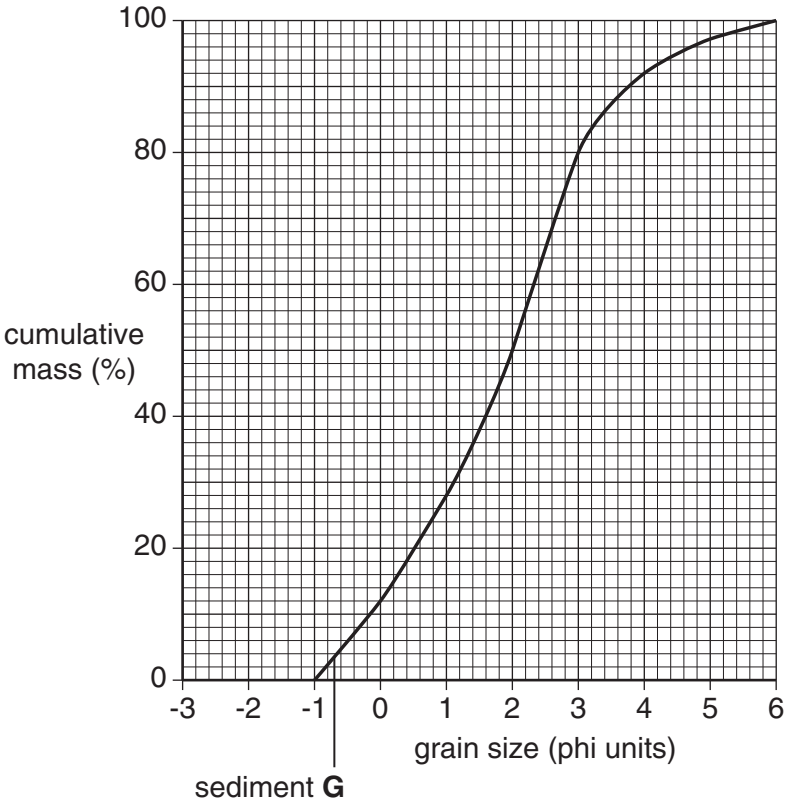
Label the position of the three broad rock groups on the diagram.



[2]

[Total: 16]

2 **(a)** The graph below shows the cumulative frequency curve for sediment **G**. The table shows the grain size distribution for sediment **H**.



grain size (phi ϕ)	mass (%)	cumulative mass (%)
0	0	
1	2	
2	14	
3	78	
4	6	
5	0	
6	0	

sediment **H**

(i) Using the data
- complete the table to show the cumulative mass % for sediment **H**.
- plot the data on the graph
- draw the cumulative frequency curve. **[3]**

(ii) Define the term *sorting*.

.....

.....

.....

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

(iii) Using the cumulative frequency curves and the information below, calculate the coefficient of sorting for sediments **G** and **H.** Show your working.

$$\text{coefficient of sorting} = \frac{\phi 84 - \phi 16}{2}$$

(Where $\phi 84$ is the grain size of the cumulative mass of 84% of the sample and $\phi 16$ is the grain size of the cumulative mass of 16% of the sample.)

coefficient of sorting **G** = ... coefficient of sorting **H** = ...

[3]

coefficient of sorting	description
<0.50	well sorted
0.50 – 1.00	moderately sorted
>1.00	poorly sorted

(iv) Describe the difference in sorting between sediment **G** and sediment **H**.

.....

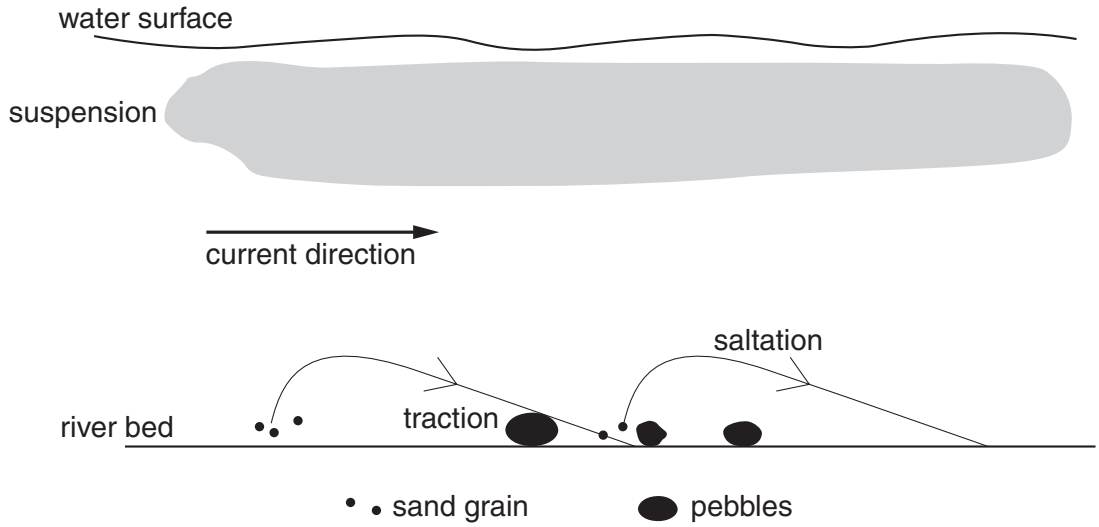
..... **[1]**

(v) Identify possible environments in which sediments **G** and **H** were formed.

G .....

H ..... **[2]**

(b) The diagram below shows different types of sediment transport.



(i) Define the term *suspension*.

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

(ii) Explain why the same grain can be transported by suspension and by saltation at different times.

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

(iii) Describe and explain **one** difference between grains transported by ice and by wind.

difference .....

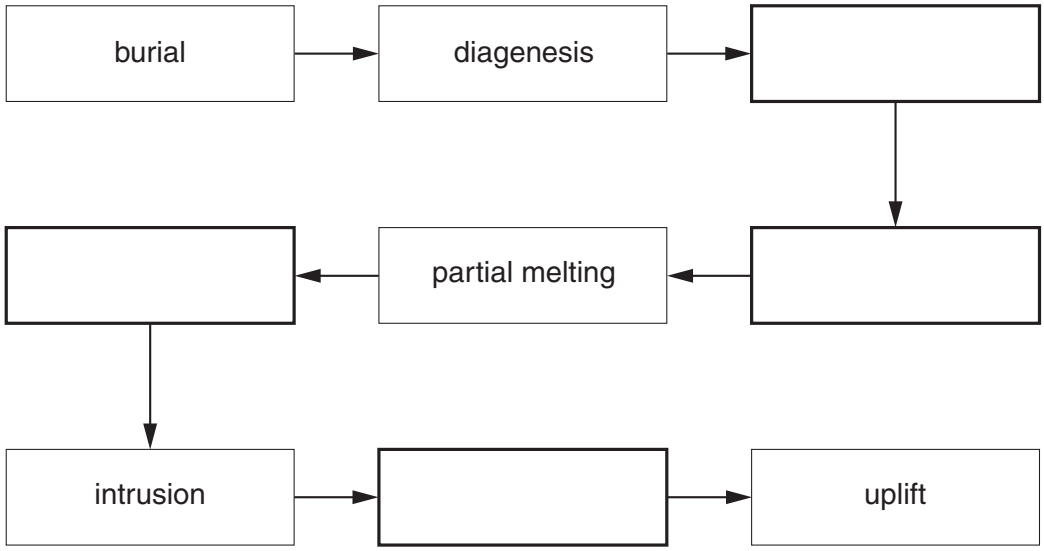
..... **[1]**

reason .....

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

[Total: 17]

3 The diagram below shows a sequence of processes that operate in the rock cycle.



(a) (i) Complete the sequence by entering the name of the correct process in each box above. Choose from the list below.

crystallisation

magma accumulation

metamorphism

recrystallisation

transport

[4]

(ii) Describe the process of compaction.

.....

.....

.....

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

(iii) Describe the process of cementation.

.....

.....

.....

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

(b) (i) Describe **one** similarity **and one** difference between weathering and erosion.

similarity .....

.....

difference .....

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

(ii) With the aid of labelled diagrams, describe how frost shattering occurs.

.....

.....

.....

..... **[4]**

(iii) Name the climatic zone in which chemical weathering is most significant.

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

(iv) Describe **one** chemical weathering process.

.....

.....

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

[Total: 17]

4 In this question, two marks are available for the quality of written communication. You may use diagrams to illustrate your answer.

Describe how you would distinguish a sill from a lava flow.

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.... **[8]**

Quality of Written Communication **[2]**

[Total: 10]

END OF QUESTION PAPER

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