

Surname	Centre Number	Candidate Number
Other Names		2



**GCE A level**

1215/03

**GEOLOGY – GL5**

**Thematic Unit 3**

**Geological Evolution of Britain**

P.M. TUESDAY, 10 June 2014

ONE of TWO units to be completed in 2 hours

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
Section A 1.	15	
Section B 2.	25	
3.		
4.		
Total	40	

1215  
030001

## ADDITIONAL MATERIALS

In addition to this and one other examination paper, you will need a calculator.

## INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **question 1** in Section A (15 marks) and **one** question from Section B (25 marks).

## INFORMATION FOR CANDIDATES


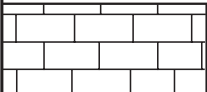
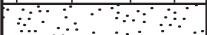
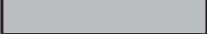
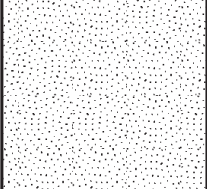
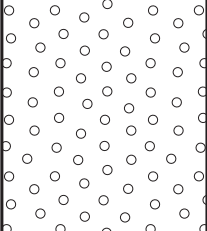
The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the necessity for good English and orderly presentation in your answers.

### SECTION A

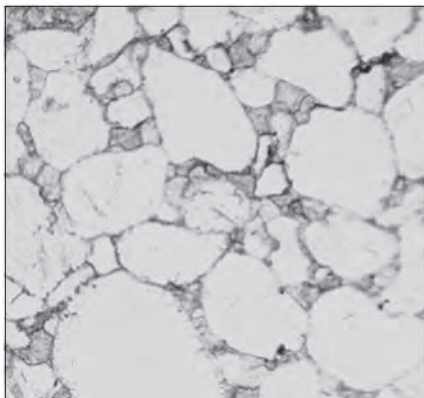
1. **Figure 1a** shows a stratigraphical section made by a student studying rocks in NW Scotland. The sequence dips to the east at angles of less than  $30^\circ$ .

**Figures 1b** and **1c** are photographs showing features of the quartz sandstone **X**.

Rocks	Rock names or descriptions
	foliated rock with quartz and mica
<b>Boundary</b>	
	limestone
	gritstone
	calcareous siltstone
	quartz sandstone Y
	quartz sandstone X

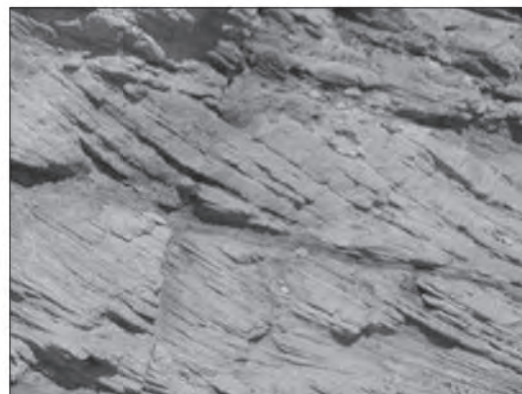
(not to scale)

**Figure 1a**



0 2  
mm

**Figure 1b**



0 0.5  
m

**Figure 1c**

- (a) (i) Using **Figure 1b** describe the texture of quartz sandstone **X**.

[3]

- (ii) Using **Figures 1a, 1b** and **1c** suggest, with reasons, the environment of deposition of the sediment which formed quartz sandstone **X**.

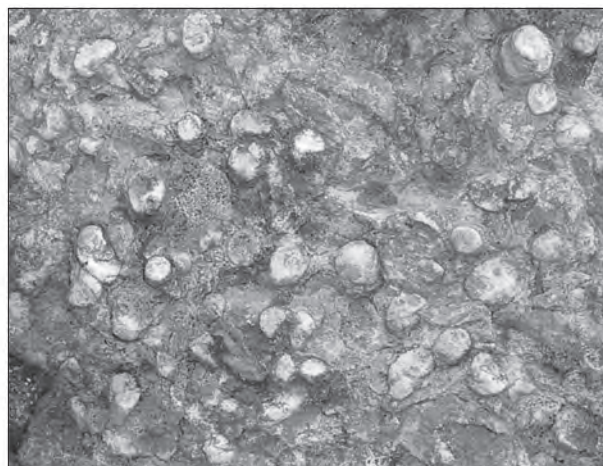
[3]

- (b) **Figures 1d** and **1e** show features identified as trace fossils found in quartz sandstone **Y**. **Figure 1d** is a vertical section while **Figure 1e** shows the upper bedding surface.



0 1  
cm

Figure 1d



0 1  
cm

Figure 1e

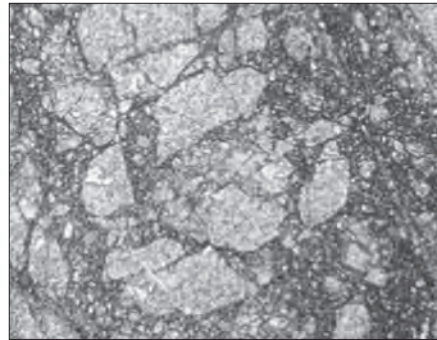
- (i) Name the trace fossils shown in **Figure 1d** and **Figure 1e**.

[1]

- (ii) Describe the features shown in **Figure 1d** and **Figure 1e**.

[2]

- (c) **Figure 1f** is a photograph of the top of the limestone just beneath the boundary.



0 5  
mm

**Figure 1f**

Refer to **Figure 1a** and **Figure 1f**.

- (i) Describe and explain the evidence that suggests that the boundary between the quartz mica rock and the limestone is a thrust fault. [3]

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- (ii) The student suggested that the thrust fault formed during the Alpine Orogeny. Evaluate this statement. [3]

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**SECTION B**

*Answer one question only.*

*Write your answer in the remaining pages of this booklet.*

2. (a) With reference to examples from the British stratigraphical column, explain how sedimentary rocks and their contained fossils may be used to interpret fluvial and deltaic environments of deposition.
- (b) Evaluate the reliability of the evidence. [25]
3. (a) Describe the rocks and fossils of the Carboniferous which suggest that they were formed in
- tropical,
  - shallow marine and
  - terrestrial environments.
- (b) Evaluate whether changes in climate through time are an accurate reflection of changes in latitude. [25]
4. Describe and evaluate the evidence from a named orogenic belt that may be used to reconstruct the plate tectonic regime in which it developed. [25]











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