

Surname	Centre Number	Candidate Number
Other Names		2



GCE A level

1215/03

GEOLOGY - GL5

THEMATIC UNIT 3

GEOLOGICAL EVOLUTION OF BRITAIN

P.M. THURSDAY, 14 June 2012

ONE of TWO units to be completed in 2 hours

			Examiner only
Section A	1.	15	
Section B	2.	25	
	3.		
	4.		
Total		40	

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ADDITIONAL MATERIALS

In addition to this and one other examination paper, you may require 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. (a) **Figure 1a** shows an anticline in Carboniferous rocks in South Wales. **Figure 1b** shows the orientation of a series of **strike** directions measured on the limbs of the anticline.

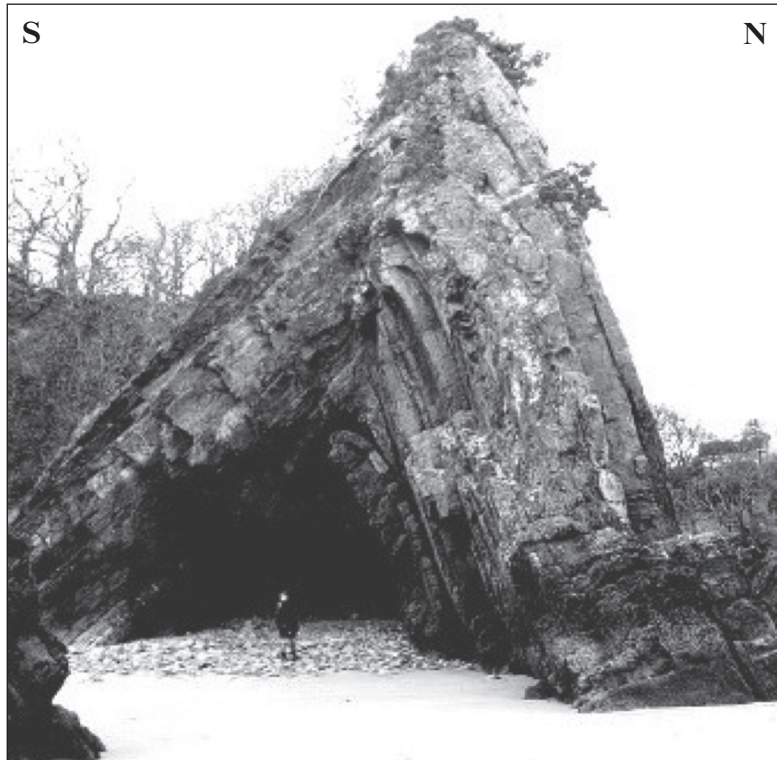


Figure 1a

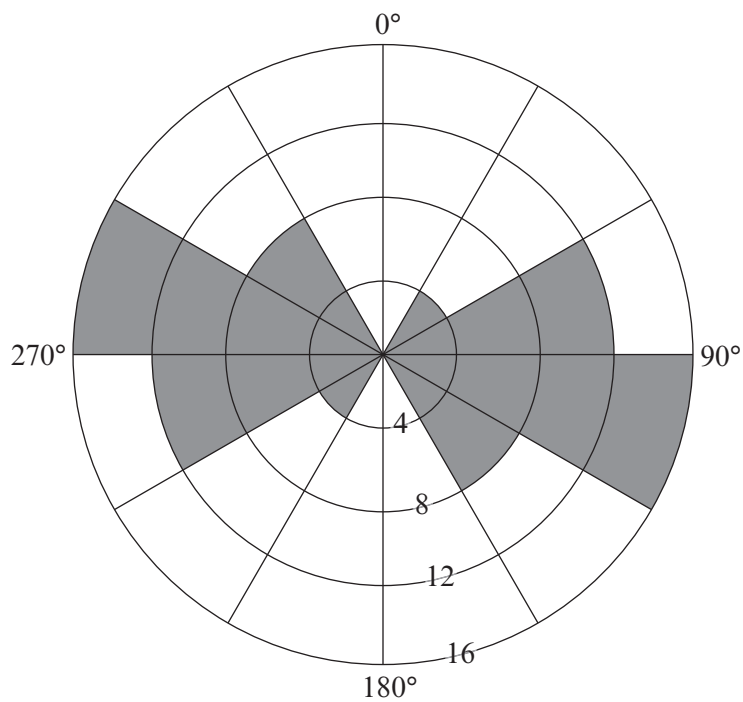


Figure 1b

(i) Using **Figure 1b** state the approximate mean **strike** direction of the folded beds. [1]

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(ii) Using arrows, mark on **Figure 1b** the directions of crustal shortening that formed the anticline. [1]

(iii) Name with reasons, the likely orogenic event which produced the anticline in **Figure 1a**. [3]

Orogenic event

Reasons

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(iv) What **other** evidence might be collected from this region to confirm that the fold in **Figure 1a** follows the main structural trend of this orogeny? [2]

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(b) **Figure 1c** is a graphic log constructed from a sequence of sedimentary rocks exposed near the anticline in **Figure 1a**.

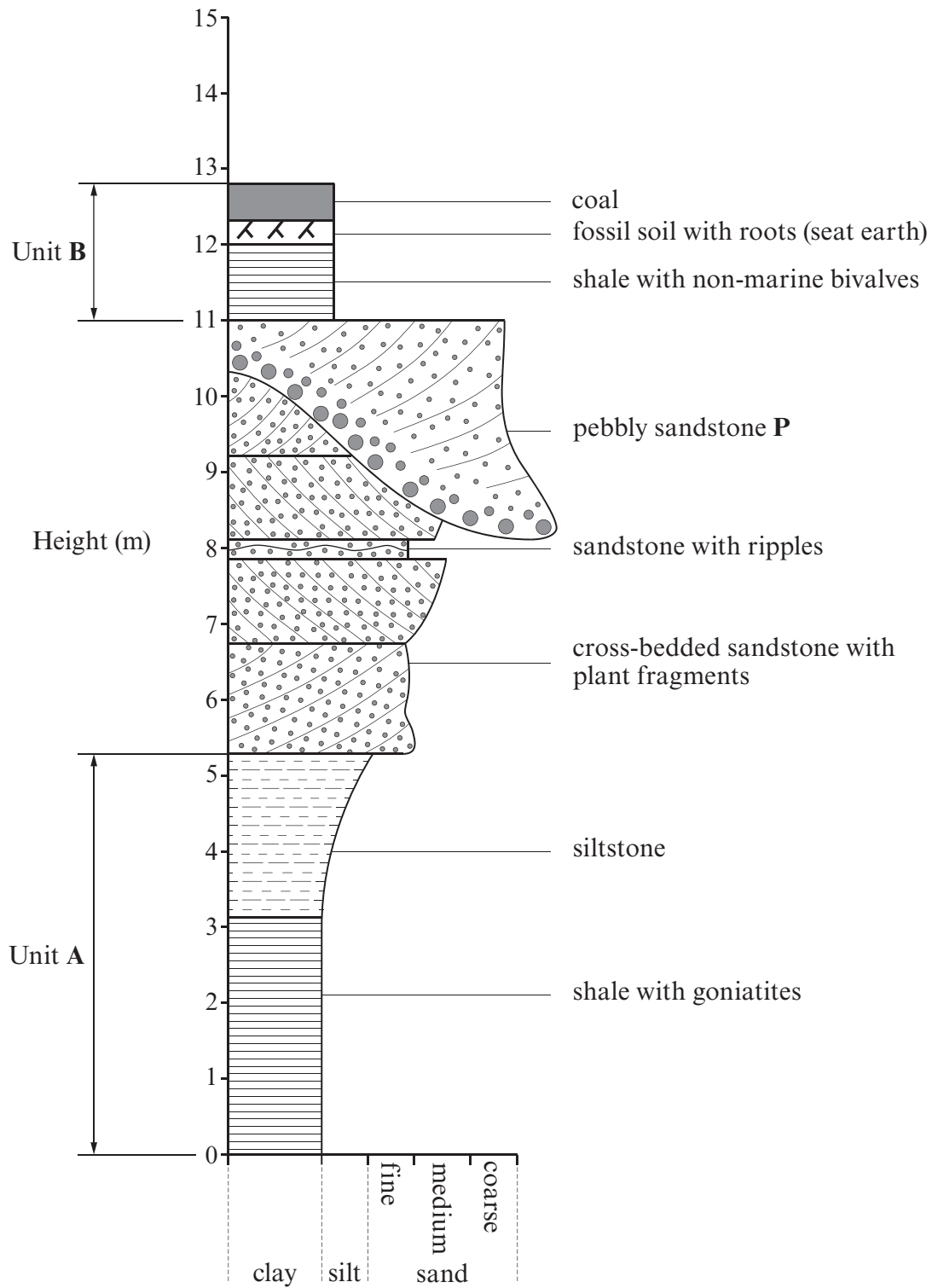


Figure 1c

Refer to **Figure 1c**.

(i) Complete the graphic log to show a younger bed that is a coarse sandstone of uniform grain size and is 120 cm thick. [1]

(ii) Describe the base of the pebbly sandstone (**P**) and explain its origin. [2]

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(iii) Using evidence from the graphic log, describe and explain the differences in the environments of deposition of units **A** and **B**. [5]

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Total 15 marks

SECTION B

Answer one question only.

Write your answer in the remaining pages of this booklet.

2. (a) Using one or more diagrams, describe **one** named major fault in the British area resulting from the **Caledonian** Orogeny.
- (b) Evaluate the extent to which large-scale geological features, formed during the **Caledonian** Orogeny, can be used to reconstruct the plate tectonic regime at that time. [25]
3. (a) Explain how variation in magnetic inclination and apparent polar wandering curves can be used to determine palaeolatitude changes through time for the British area.
- (b) Evaluate the reliability of the evidence and assumptions that are made in using these methods. [25]
4. (a) Describe the evidence from sedimentary rocks which shows that:
- (i) semi-arid and desert terrestrial and
 - (ii) hypersaline marine
- conditions existed in the British area during the Permo-Triassic.
- (b) Evaluate the extent to which climatic change demonstrated by sedimentary rocks can be used to interpret changes in palaeolatitude. Discuss any assumptions that are made. [25]

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