

Surname	Centre Number	Candidate Number
Other Names		2



GCE A level

1215/03



S16-1215-03

GEOLOGY – GL5

Thematic Unit 3

Geological Evolution of Britain

P.M. FRIDAY, 10 June 2016

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	

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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).

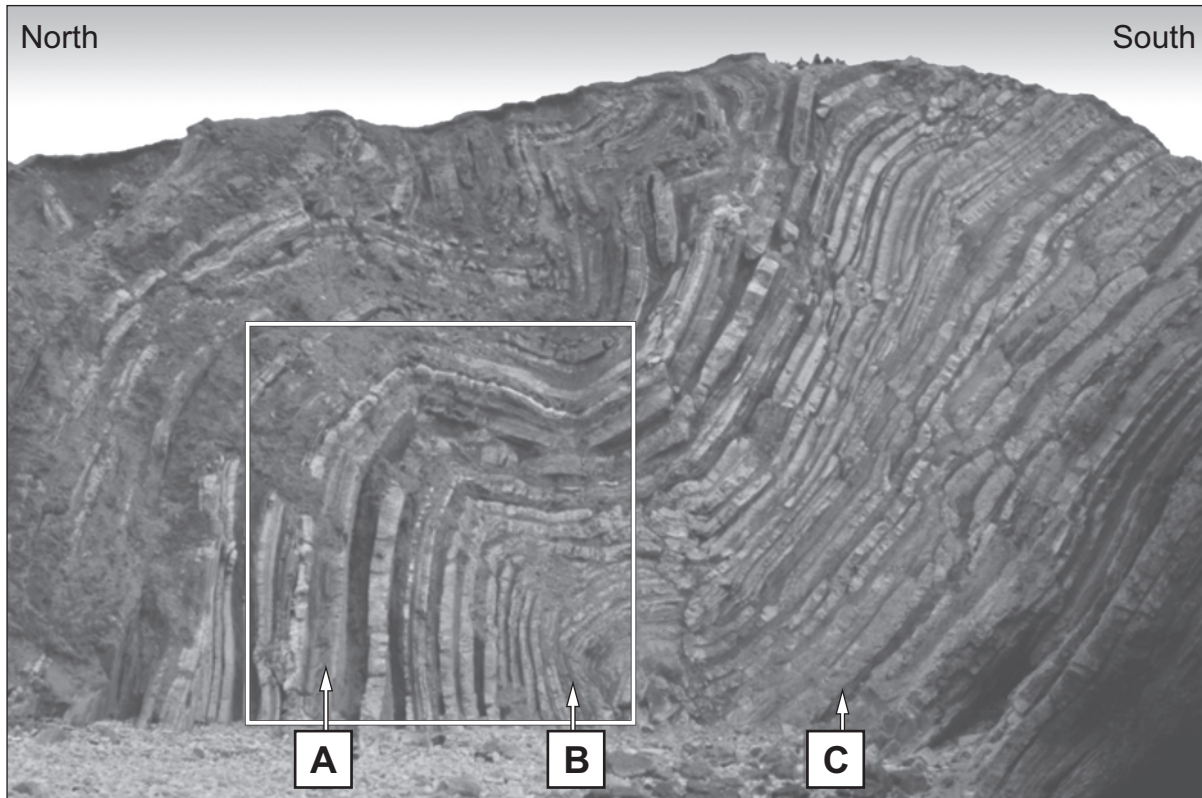
INFORMATION FOR CANDIDATES

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 sequence of folded late Jurassic and early Cretaceous strata in the south of England. **Table 1** shows dip and strike values measured at locations **A**, **B** and **C** on **Figure 1a**.



Height of cliff is about 30 metres

Figure 1a

Location	Strike orientation of beds	Mean strike orientation of beds	Dip of beds
A	100-280	102-282	88° N
B	090-270		80° S
C	116-296		64° N

Table 1

(a) Describe the characteristics of the fold shown in the box on **Figure 1a**.

[4]

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(b) Use **Table 1**. Suggest, with reasons, the most likely orogenic event that produced the folding in **Figure 1a**.

[3]

Orogenic event

Reasons

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Figure 1b shows a sedimentary log of part of the late Jurassic and early Cretaceous strata in the south of England. **Figures 1c** and **1d** are photographs of fossils collected at the positions shown on **Figure 1b**.

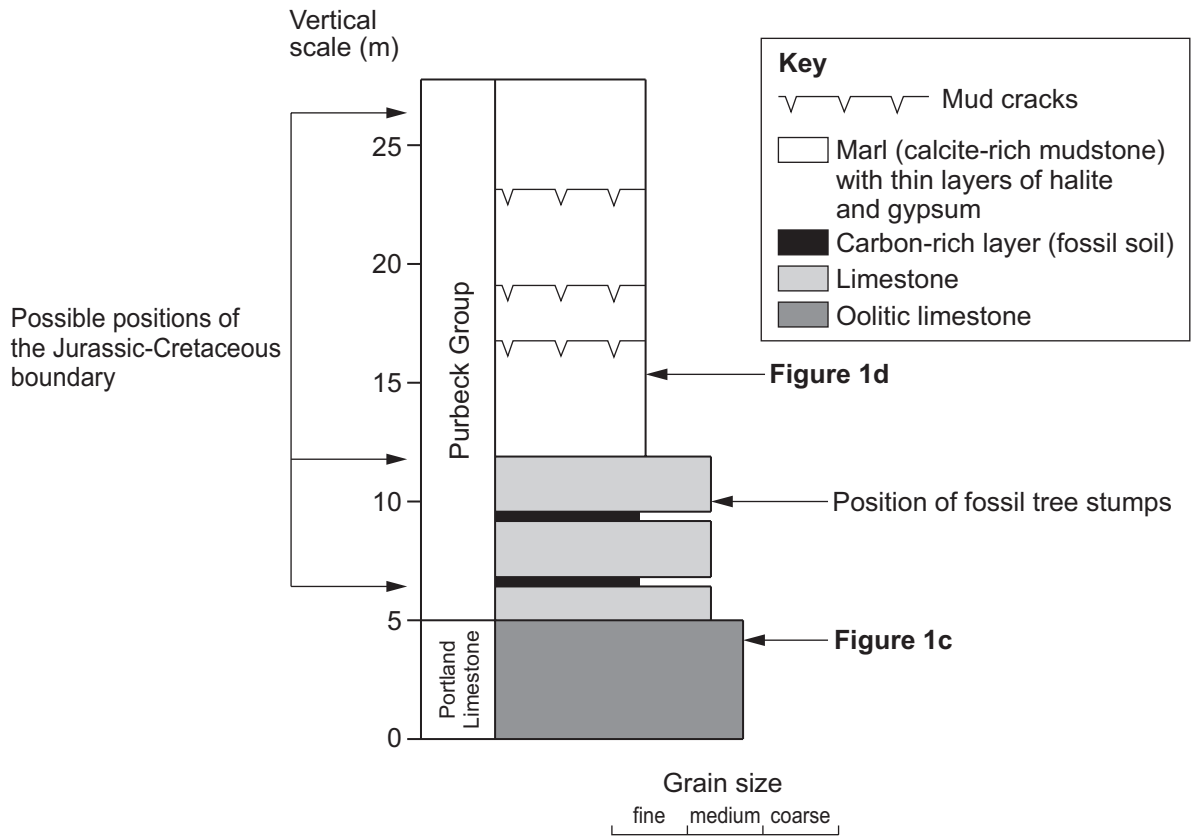


Figure 1b



Figure 1c

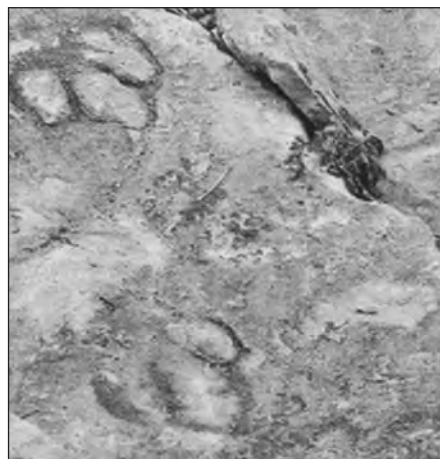


Figure 1d

Scale for both photographs 0.5 m

(c) Name the type of fossils shown in **Figures 1c** and **1d**. [2]

Fossil shown in Figure 1c

Fossil shown in Figure 1d

(d) Using **Figures 1b** and **1d**, suggest the environment of deposition of the Purbeck Group. Explain the evidence for your answer. [3]

Environment of deposition

Evidence

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.....

(e) **Figure 1b** shows three possible locations of the Jurassic-Cretaceous boundary.

Explain why the fossil content and sedimentary rocks of the Purbeck Group make it difficult to determine the position of this boundary. [3]

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SECTION B

Answer one question only.

Write your answer in the remaining pages of this booklet.

2. (a) Describe the large scale structures and rock types (igneous and metamorphic) of the Variscan orogenic belt in Britain.
- (b) Evaluate the use of these large scale structures and rock types in the reconstruction of the plate tectonic setting of Britain during the Carboniferous and Permian. [25]
3. (a) Describe the rocks and fossils of the late Palaeozoic and/or early Mesozoic 'red beds' which suggest that they were formed in a variety of terrestrial environments.
- (b) Evaluate the reliability of the palaeomagnetic evidence which indicates that Britain drifted north across the Equator during the late Palaeozoic and into the early Mesozoic. [25]
4. *'Our confidence in interpreting sedimentary environments of deposition decreases with geological time.'*
- Evaluate this statement. [25]

Acknowledgement

Source for **Figures 1b, 1c and 1d** from <http://www.southampton.ac.uk/~imw/>