GCE A level

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 plus your additional time allowance

Surname _____

Other Names _____

Centre Number _____

Candidate Number 2 _____

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

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 or your usual method.

Write your name, centre number and candidate number in the spaces on the front cover.

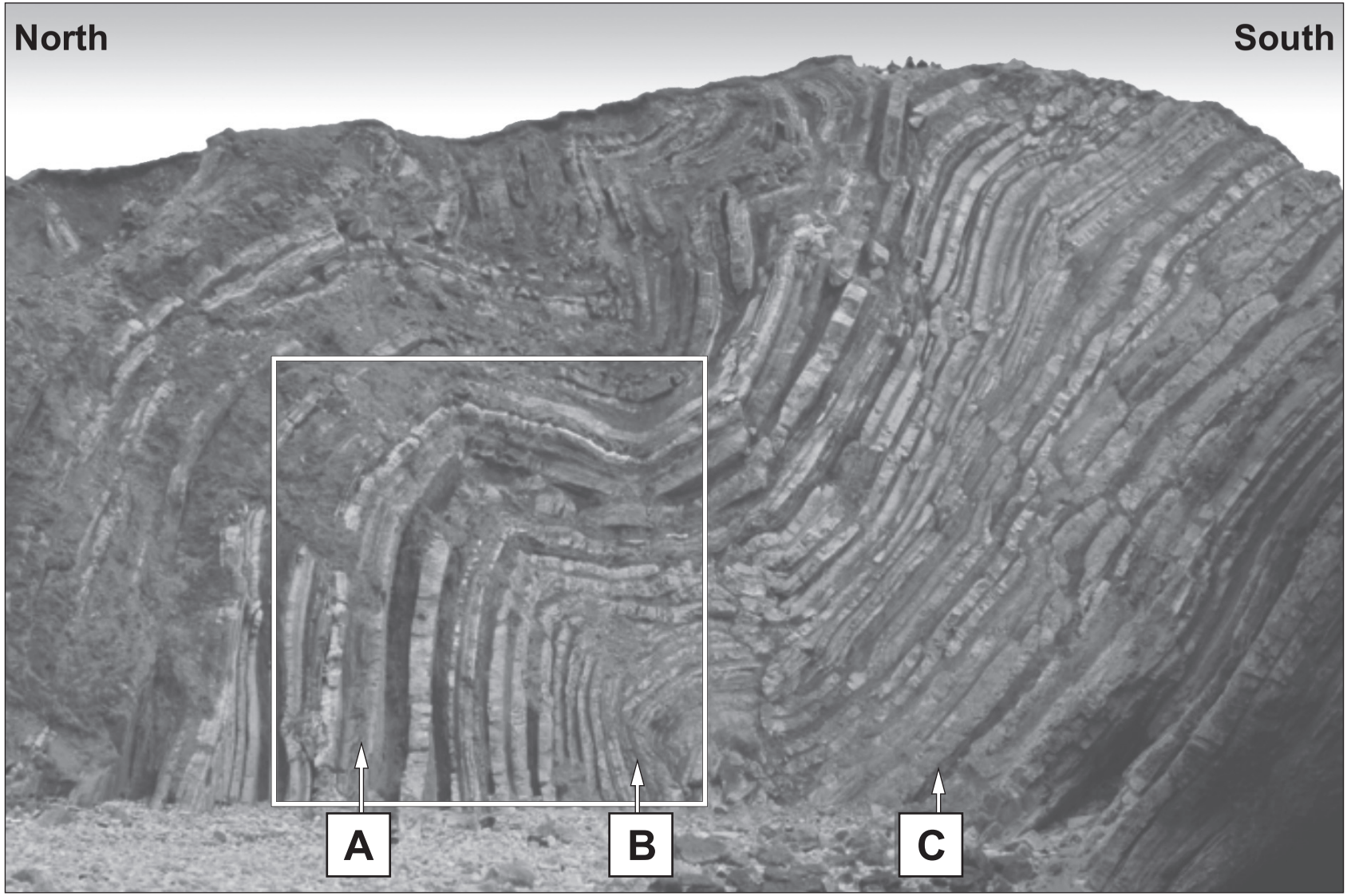
Answer QUESTION 1 in Section A (15 marks) and ONE question from Section B (25 marks).

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.

FIGURE 1a



Height of cliff is about 30 metres

SECTION A

1. FIGURE 1a opposite 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.

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

TABLE 1

1(a) Describe the characteristics of the fold shown in the box on FIGURE 1a. [4]

1(b) Use TABLE 1. Suggest, with reasons, the most likely orogenic event that produced the folding in FIGURE 1a. [3]

OROGENIC EVENT _____

_____

REASONS

_____

_____

_____

_____

_____

_____

_____

_____

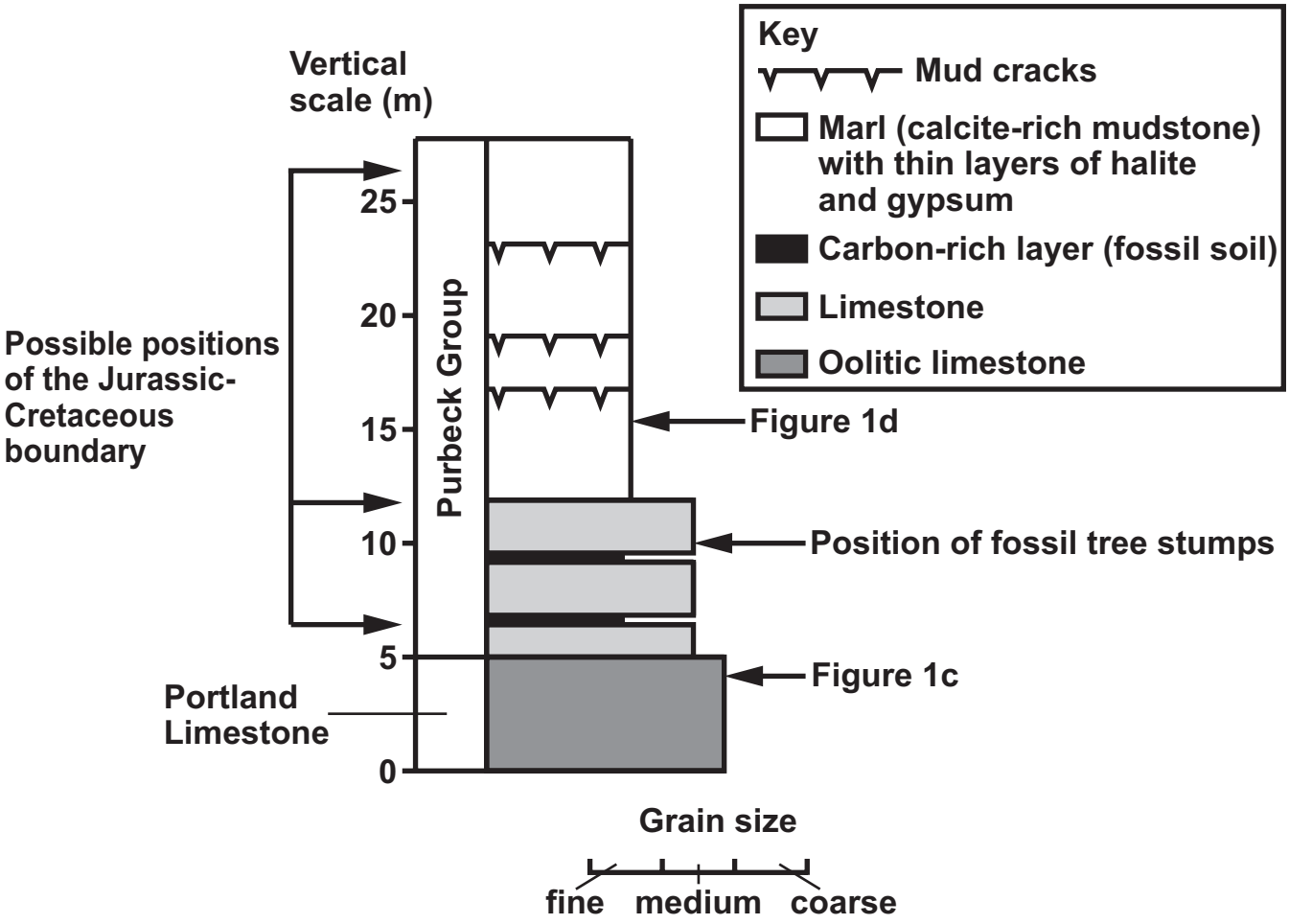


FIGURE 1b

FIGURE 1c

FIGURE 1d

Scale for both photographs

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

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

FOSSIL SHOWN IN FIGURE 1c

FOSSIL SHOWN IN FIGURE 1d

1(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 _____

_____

_____

_____

_____

_____

1(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]

15

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]

END OF PAPER

ACKNOWLEDGEMENT

Source for FIGURES 1b, 1c and 1d from http://www.southampton.ac.uk/~imw/