

Surname	Centre Number	Candidate Number
Other Names		2



GCE A Level

1215/03



GEOLOGY – GL5
Thematic Unit 3
Geological Evolution of Britain

THURSDAY, 8 JUNE 2017 – AFTERNOON

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 the location of metamorphic zones and associated granite intrusions southwest of Aberdeen. **Figure 1b** is a geological cross section (A-B) through this sequence as shown on **Figure 1a**.

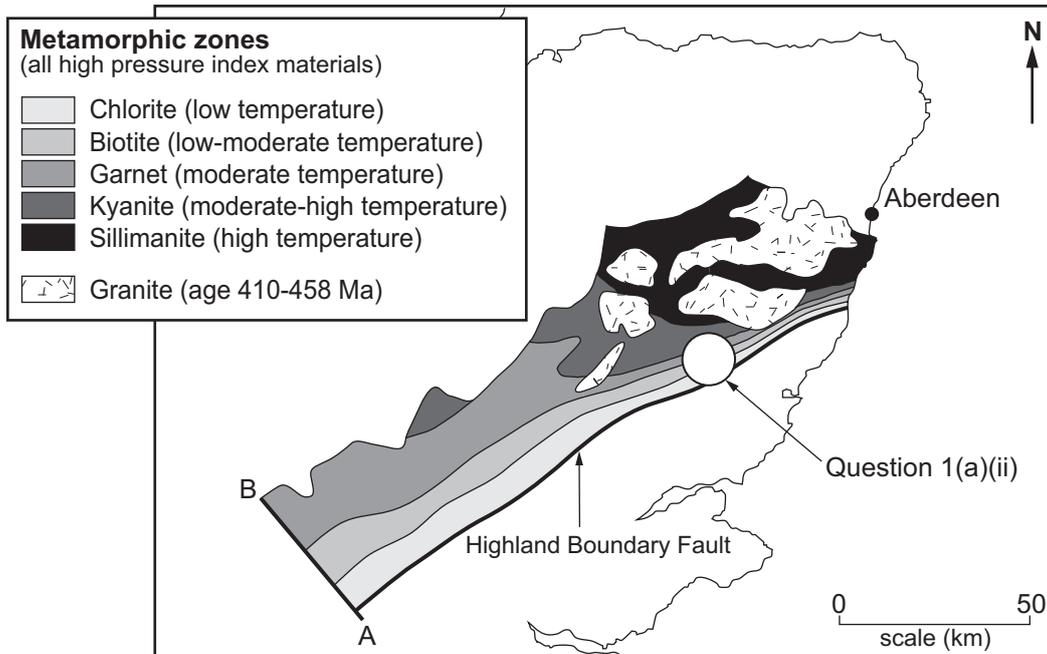
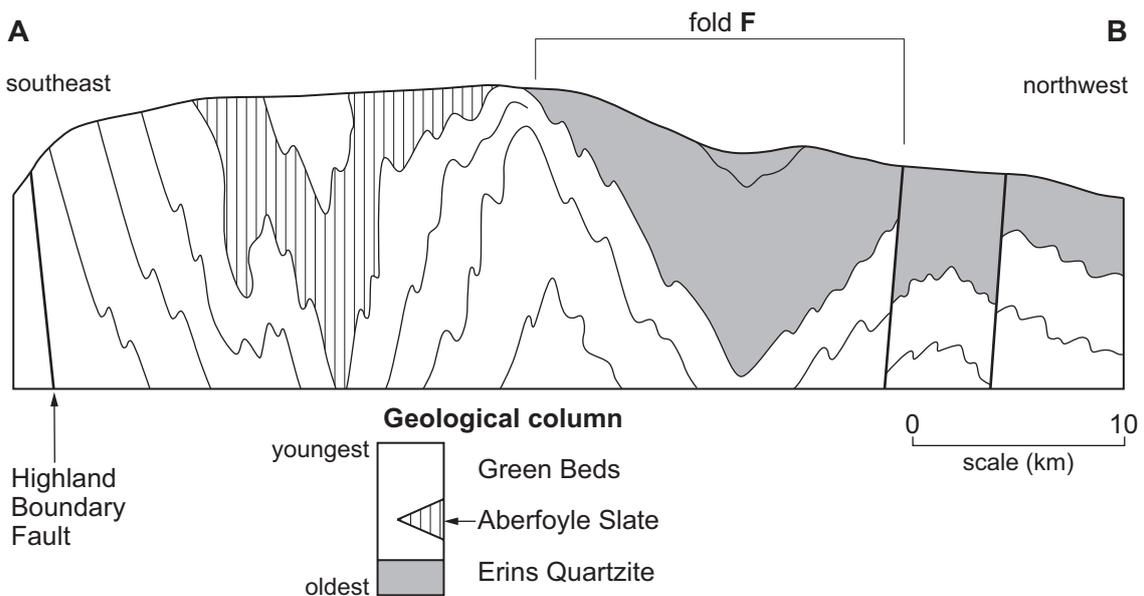


Figure 1a



Cross section drawn at right angles to the trend of the fold axial planes.

Figure 1b

(a) Refer to **Figure 1a**.

(i) State the orientation of the metamorphic zones. [1]

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(ii) Indicate the direction of increasing metamorphic grade by drawing an arrow (→) in the circle on **Figure 1a**. [1]

(iii) Describe the outcrop pattern and location of the granites relative to the metamorphic zones. [2]

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(iv) Explain the origin of these granites. [3]

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(b) Refer to **Figure 1b**.

(i) Mark the position of the axial plane trace of fold **F** on **Figure 1b**. [1]

(ii) With reference to the geological column, describe the characteristics of fold **F**. [3]

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(c) Refer to **Figures 1a** and **1b**.

Explain the evidence that the rocks and structures in this region were formed during the Caledonian orogeny. [4]

Rocks

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Structures

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SECTION B

Answer **one** question only.

Write your answer in the remaining pages of this booklet.

2. (a) Describe how sedimentary rocks and their contained fossils can be used to interpret shallow marine environments of deposition.
- (b) *'The lower Palaeozoic sedimentary rocks of the British Isles were deposited in deep marine environments.'* Evaluate this statement. [25]
3. (a) Describe the evidence for rifting and subsidence in the North Sea area during the Mesozoic.
- (b) Evaluate the evidence in the British Isles for the opening of the Atlantic Ocean during the Tertiary. [25]
4. *'The effects of the Variscan and Alpine orogenies can be found in England and Wales.'*
Describe and evaluate the geological evidence which supports this statement. [25]

Acknowledgements

Source for **Figure 1a** amended from <http://www.brocku.ca/earthsciences/people/gfinn/petrology/barrow1.htm>

Source for **Figure 1b** taken from Leslie, G. 2009. *Border skirmish*. *Geoscientist*, v19-2, p16-19.

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