

Surname	Centre Number	Candidate Number
Other Names		2



GCE A level

1215/01

**GEOLOGY – GL5
Thematic Unit 1
Quaternary Geology**

P.M. TUESDAY, 11 June 2013

ONE of TWO units to be completed in 2 hours

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

1215
010001

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. **Figure 1a** is a map of Pembrokeshire showing two ice sources (Irish Sea and Welsh) during the last Quaternary glaciation. Arrows show the direction of movement of the ice. **Figure 1b** is a cliff section at location **B**. At location **C** petrified tree stumps may be seen at low tide.

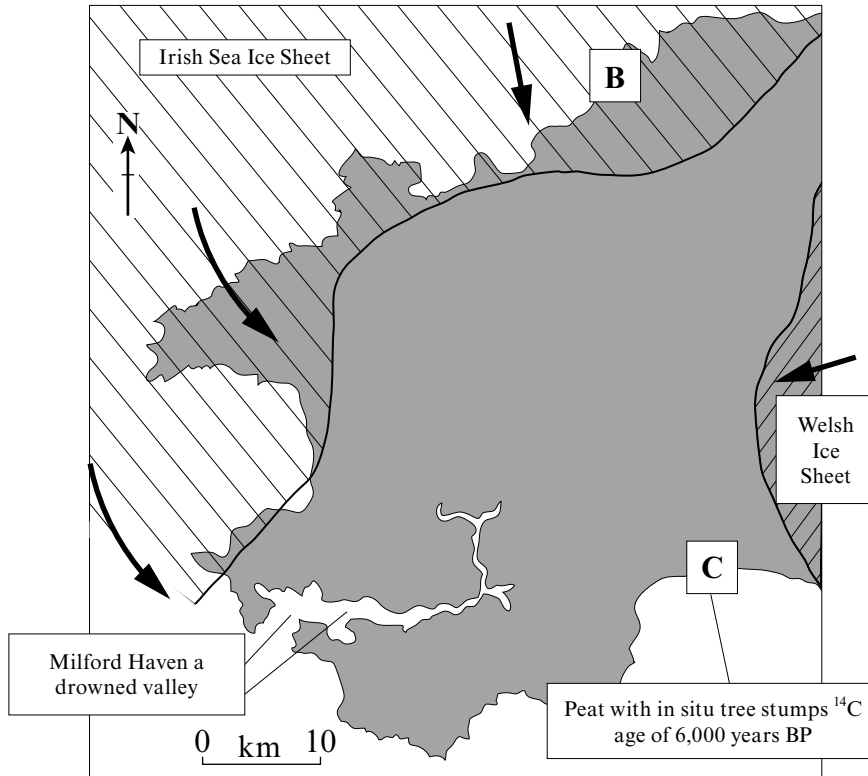


Figure 1a

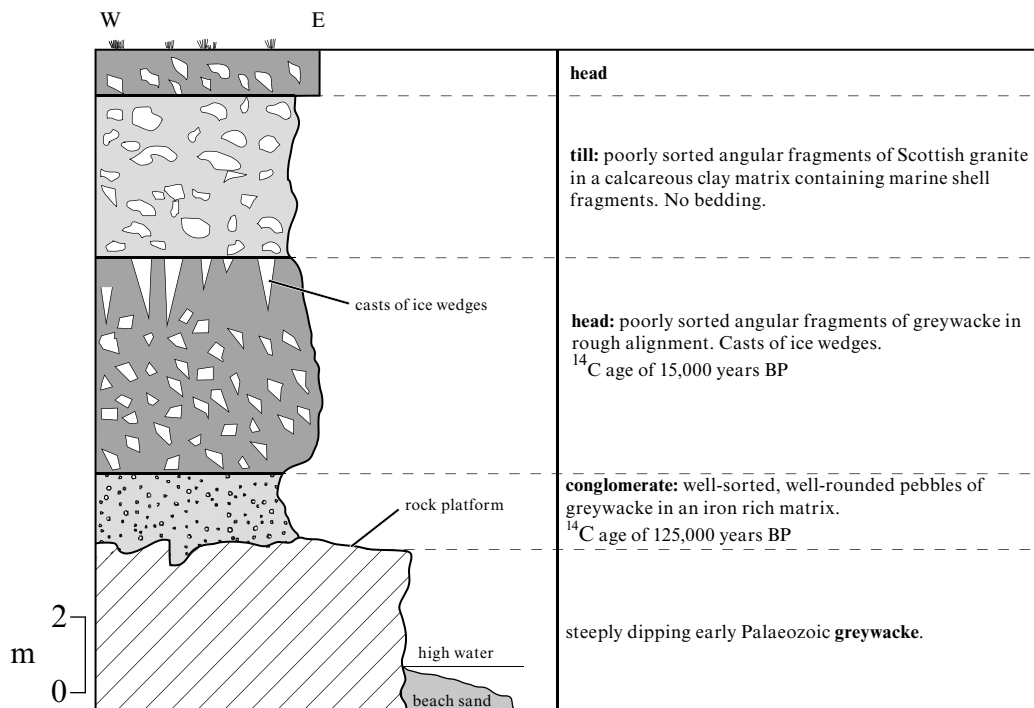


Figure 1b

- (a) (i) Describe **two** pieces of geological evidence shown in **Figure 1b** to support the conclusion that an ice sheet **advanced from Scotland** and over the Irish Sea across Pembrokeshire. [2]

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- (ii) **Using your knowledge**, describe and explain **one different piece of field evidence** that could support the conclusion that an ice sheet advanced **from the east** towards Pembrokeshire (as shown in **Figure 1a**). [2]

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- (b) (i) **Head** is a **periglacial** deposit. Explain **one** piece of evidence in **Figure 1b** to support this conclusion. [2]

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- (ii) Explain how the sedimentary textures and/or structures provide evidence for the processes of formation of the till in **Figure 1b**. [3]

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(c) (i) Give the evidence in **Figure 1b**, which suggests that sea level was higher **before** the last glaciation in Pembrokeshire. [1]

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(ii) Explain the evidence in **Figure 1a** which suggests that sea level rose **after** the last glaciation in Pembrokeshire. [2]

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(d) Stating the evidence in **Figures 1a** and **1b**, describe, in chronological order, the **climatic** fluctuations during the Quaternary in Pembrokeshire. [3]

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15

SECTION B

Answer one question only.

Write your answer in the remaining pages of this booklet.

2. (a) Draw a sketch section across a modern carbonate reef system. Describe the variation in grain type, grain size and texture of limestones that may be found in this environment.
- (b) Evaluate the extent to which biological, physical and chemical processes contribute to the formation of the types of limestone shown in the sketch section. [25]
3. (a) Describe how an analysis of
- (i) pollen diagrams and
 - (ii) the vertebrate record
- can provide evidence for climatic fluctuations in Britain during the Quaternary.
- (b) Evaluate the use of radiocarbon dating (^{14}C) of organic material from the Quaternary. [25]
4. (a) Using illustrated examples, explain the relationship between geology and topography in **three** of the following: [25]
- dipping strata
 - folds
 - faults
 - joints
 - igneous bodies
- (b) Evaluate the view that Quaternary landforms are only partly controlled by geological structure and lithology.

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GCE A level

1215/01-A

GEOLOGY GL5

P.M. TUESDAY, 11 June 2013

REMINDER

A copy of this reminder should be given to all candidates before the examination begins and should be available to all invigilators.

INSTRUCTIONS TO CANDIDATES

You are required to complete **two** units during this 2 hour examination.

You will be given both units at the beginning of the examination and are advised to spend approximately 1 hour on each.

Please ensure that you write your name, centre number and candidate number in the spaces on the front cover of both units. At the end of the examination you should place one unit inside the other.

INFORMATION FOR INVIGILATORS

Candidates are required to complete **two** units during this 2 hour examination.

Both units should be given to candidates at the beginning of the examination and they should be advised to spend approximately 1 hour on each.

Candidates should be reminded that their name, centre number and candidate number should be written in the spaces on the front cover of both units. At the end of the examination they should place one unit inside the other.