



ADVANCED GCE
GEOLOGY
 Palaeontology

2834

Candidates answer on the question paper

OCR Supplied Materials:
 None

Other Materials Required:
 • Ruler (cm/mm)

Monday 8 June 2009
Morning

Duration: 1 hour 30 minutes



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

INFORMATION FOR CANDIDATES

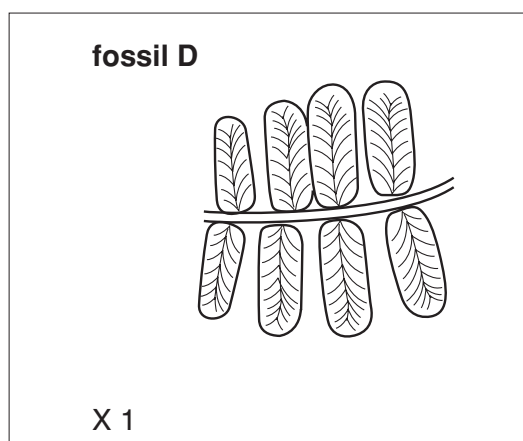
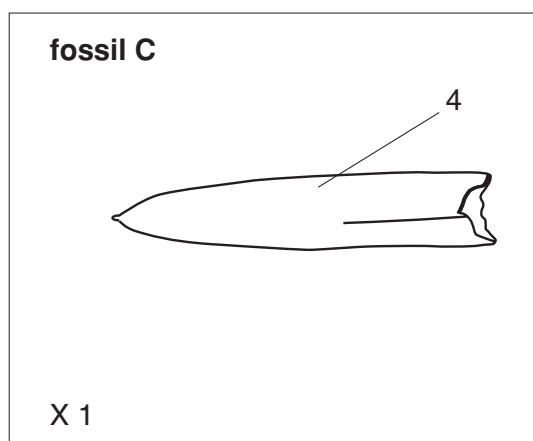
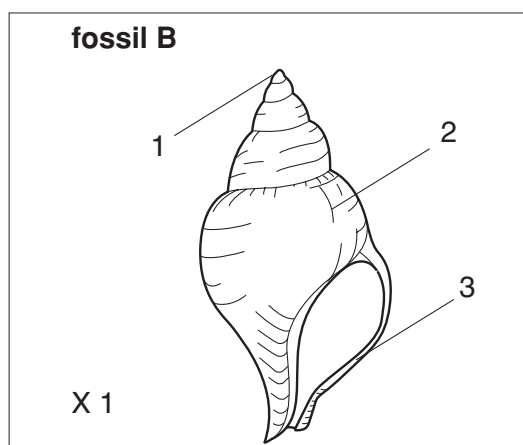
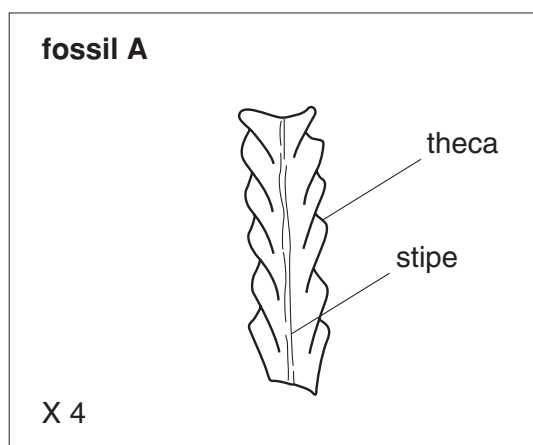
- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **90**.
- You will be awarded marks for the quality of written communication where this is indicated in the question.
- This document consists of **12** pages. Any blank pages are indicated.

FOR EXAMINER'S USE

Qu.	Max.	Mark
1	17	
2	19	
3	16	
4	13	
5	25	
TOTAL	90	

Answer **all** the questions.

1 Fossils **A**, **B**, **C** and **D** are shown below.



(a) (i) Identify the fossil phylum and group for each of the fossils above.

fossil	phylum	group
A		
B		
C		
D		

[4]

(ii) Name the morphological features shown on the diagrams of fossils **B** and **C**.

1

2

3

4

[4]

(iii) Describe how fossil **C** moved when it was alive.

.....

.....

.....[2]

(iv) Which of the fossils was planktonic? Give a reason for your answer.

.....

.....

.....[2]

(b) (i) Fully describe the environment in which fossil **D** lived and was preserved.

.....

.....

.....

.....

.....

.....[3]

(ii) Explain how fossil **D** can help us understand the movement of the British Isles over time.

.....

.....

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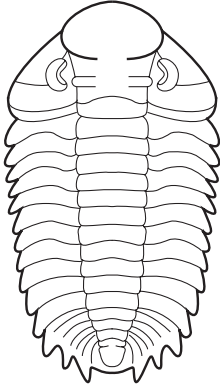
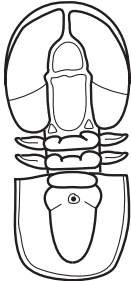
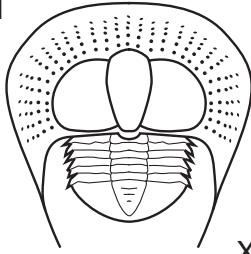
.....[2]

[Total: 17]

2 Below are diagrams of three fossil trilobites; **F**, **G** and **H**.

(a) (i) Using technical terms, complete the table below to show:

- a description of the morphological adaptations of the trilobite to its mode of life [6]
- the mode of life of the trilobite. [3]

fossil	description	mode of life
fossil F  X1
fossil G  X6
fossil H  X1

(ii) Label using the letters **C**, **P** and **T**, the cephalon (**C**), pygidium (**P**) and thorax (**T**) on each trilobite above. [2]

(iii) How many pairs of walking legs does fossil **F** have?

.....[1]

- (b) (i) Describe how some trilobites formed trace fossils when they were alive. Use diagrams to illustrate your answer.

.....

[3]

- (ii) Trilobites belong to the Phylum Arthropoda. Give **two** reasons why trilobites are considered to be arthropods.

1

 2
[2]

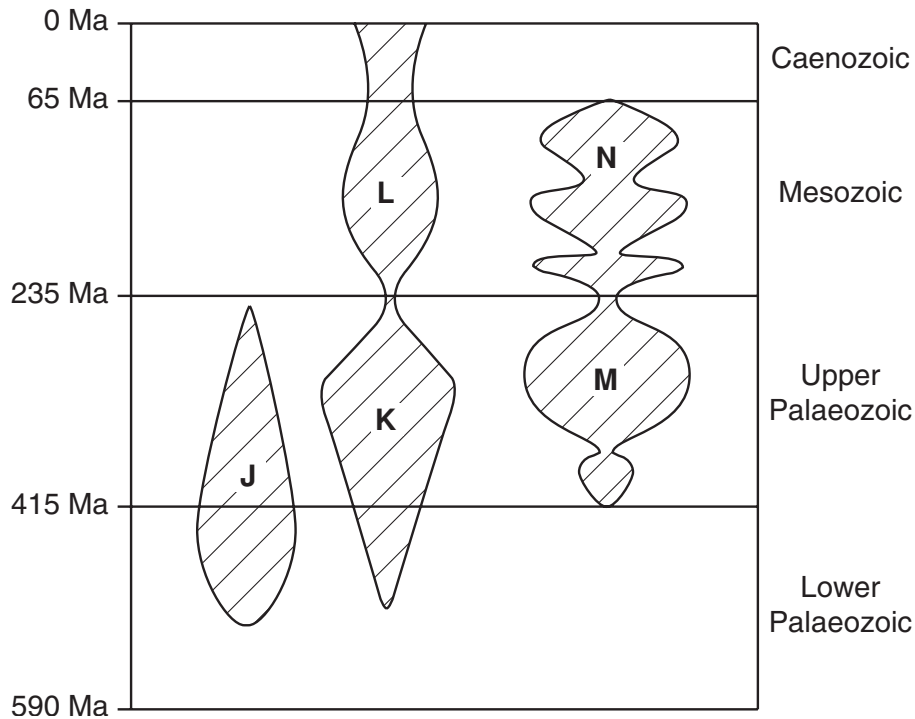
- (iii) Trilobites can be found as death assemblages. Define the term *death assemblage*.

.....

[2]

[Total: 19]

- 3 (a) (i) The diagram below shows time ranges for groups of corals and ammonoids. The width of the column represents the species abundance.



Identify the fossil groups shown in the diagram above.

J.....

K.....

L.....

M.....

N.....

[4]

- (ii) Explain how this type of information has been used to establish a relative time scale.

.....

[2]

- (b) (i) Explain how volcanic ash deposits are used to date rocks.

.....

.....

.....

.....[2]

- (ii) Explain how varves are used to date rocks.

.....

.....

.....

.....[2]

- (c) A major extinction event occurred at the Cretaceous-Tertiary boundary.

- (i) When was the Cretaceous-Tertiary mass extinction event?

.....Ma [1]

- (ii) Name one major fossil group, other than the ammonites, that became extinct at this time.

.....[1]

- (iii) The Cretaceous-Tertiary extinction event may have been caused by a large meteorite impact. Describe and explain **two** pieces of evidence that support this theory.

1

.....

.....

.....

2

.....

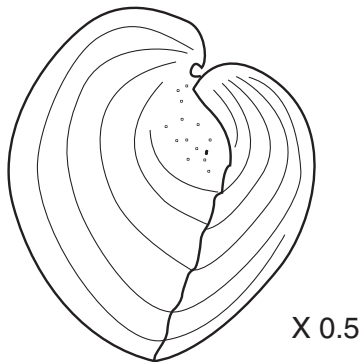
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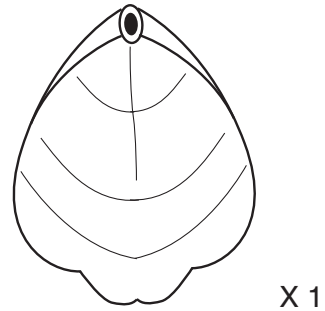
[Total: 16]

- 4 (a) The diagrams of two fossil brachiopods, **P** and **Q**, are shown below.

fossil P



fossil Q



- (i) Label the following morphological features on the appropriate diagram.

- growth line
- hinge line
- pedicle valve

[3]

- (ii) Describe the function of the following features found in brachiopods:

lophophore

.....

brachidium

.....[2]

- (iii) Explain how brachiopods open and close their valves

.....

.....

.....

.....[2]

(b) The suture lines of ammonoids evolved over time.

(i) Define the term *suture line*.

.....
[1]

(ii) In the space below draw labelled diagrams to illustrate the differences between the suture lines of an ammonite and a ceratite. Label a lobe and a saddle.

ammonitic suture

ceratitic suture

[3]

(c) Describe the function of the siphuncle in ammonoids.

.....

[2]

[Total: 13]

- 5** In this question, two marks are available for the quality of written communication. Use diagrams to illustrate your answers.

(a) Describe the morphological differences between regular and irregular echinoids.

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This image shows a blank sheet of white paper with horizontal dashed lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no other markings or text on the page.

[Total: 25]



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