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90767

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

National Certificate of Educational Achievement
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

Level 2 Science, 2005

90767 Describe New Zealand's geological history

Credits: Three
2 pm Friday 18 November 2005

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–7 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

For Assessor's use only	**Achievement Criteria**				
Achievement		**Achievement with Merit**		**Achievement with Excellence**	
Describe New Zealand's geological history.		Explain New Zealand's geological history.		Discuss New Zealand's geological history.	
Overall Level of Performance					

You are advised to spend 35 minutes answering the questions in this booklet.

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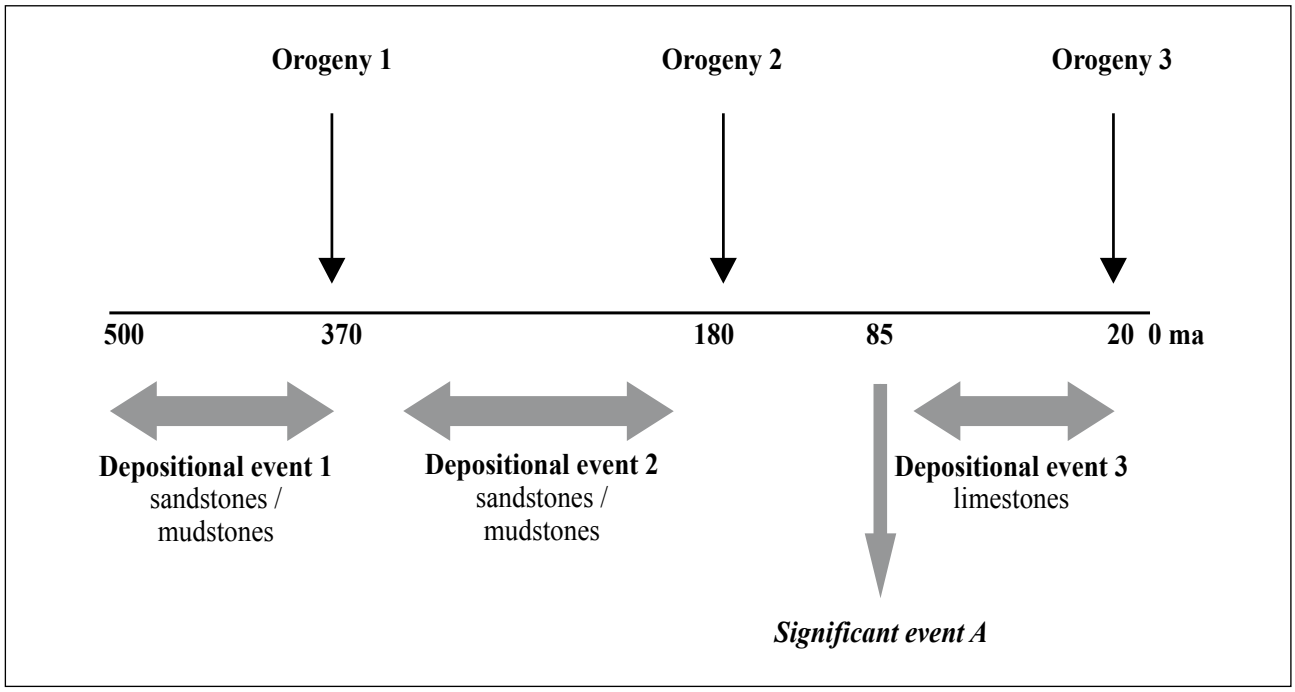
Timeline of New Zealand's geological history

(ma = millions of years ago)



Refer to the above timeline when answering Question One.

QUESTION ONE: NEW ZEALAND'S GEOLOGICAL HISTORY

(a) Referring to the timeline above, **name** the three orogenies that occurred in New Zealand's geological history.

Orogeny 1 is the _____ orogeny

Orogeny 2 is the _____ orogeny

Orogeny 3 is the _____ orogeny

(b) Identify the **'significant event A'** on the above timeline.

_____

(c) Explain how **'significant event A'** happened.

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(d) The sedimentary rocks that make up most of New Zealand were formed during depositional events. The **key** rock types of the first two depositional events are sandstone (greywacke) and mudstone, and the **key** rock type of the last depositional event is limestone (see timeline on opposite page).

Discuss why sandstones and mudstones were deposited in depositional events 1 and 2, and limestone was deposited in depositional event 3.

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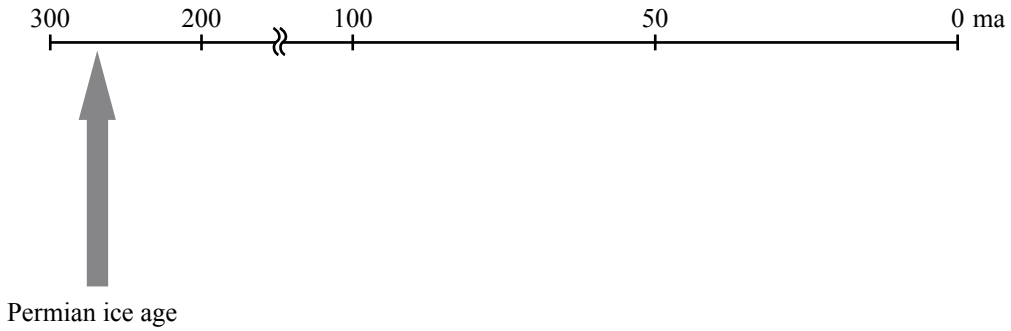
(e) On the timeline below, use arrows and labels to **indicate each** of the following.

(i) a time of peneplanation
(ii) the start of movement on the Alpine Fault
(iii) the time of the **last** ice age.
(Note: the Permian ice age has been indicated for you.)



(f) Discuss the role of plate tectonics in the geological history of New Zealand, using the following key processes:

- **orogenies**
- **sedimentary (depositional) phases**
- **plate boundary types.**

(The timeline on page 2 could be useful to help you answer this question.)

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Please turn over.

QUESTION TWO: THE ALPINE FAULT

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[FOR COPYRIGHT REASONS, THIS RESOURCE CANNOT BE REPRODUCED HERE. SEE BELOW.]

Alpha 104, 'New Zealand's Alpine Fault', The Royal Society of New Zealand, 2000

(a) The Alpine Fault occurs between which TWO plates?

(b) The Alpine Fault is associated with which Orogeny?

(c) Explain the **link** between the Alpine Fault, the Southern Alps and the plates you identified in (a) above.

Extra paper for continuation of answers if required.
Clearly number the question.

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Question number	