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91007



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12:14

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## Level 1 Geography, 2017

### 91007 Demonstrate geographic understanding of environments that have been shaped by extreme natural event(s)

9.30 a.m. Thursday 23 November 2017  
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate geographic understanding of environments that have been shaped by extreme natural event(s).	Demonstrate in-depth geographic understanding of environments that have been shaped by extreme natural event(s).	Demonstrate comprehensive geographic understanding of environments that have been shaped by extreme natural event(s).

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 attempt ALL the questions in this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–14 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.**

**Achievement**

**TOTAL**

10

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**INSTRUCTIONS**

In the box below, name **ONE** type of **extreme natural event**, and an **environment case study (studies)** in which it has occurred, that you will use to answer **ALL** of the questions in this booklet.

Extreme natural event:

Earthquake //

Environment case study (studies):

2011 Christchurch earthquake //

**QUESTION ONE: NATURAL PROCESSES**

Read the geographic concept below and refer to it when answering this question.

**Geographic Concept**

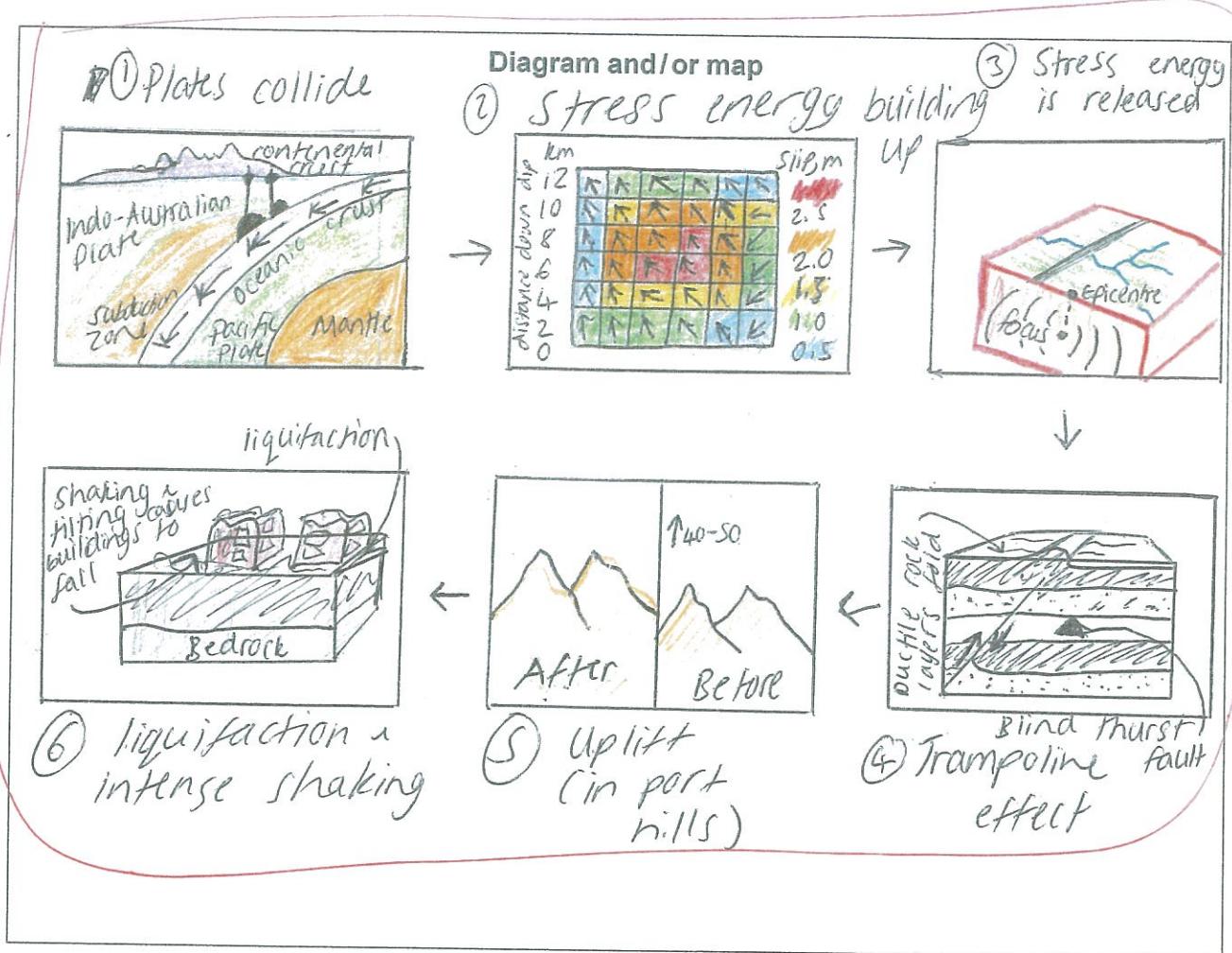
**Processes** are a sequence of actions, natural and / or cultural, that shape and change environments, places, and societies. Processes vary in time and space, and in magnitude (size) and frequency.

Processes are studied by geographers to help explain features of our world. These processes may cause extreme natural events that occur **above** the earth's surface, **on** the earth's surface, or **below** the earth's surface.

Fully explain the **natural** processes that operated to produce the extreme natural event in your environment case study (studies).

In your answer, include geographic terminology, the geographic concept of processes, with integrated detailed supporting evidence from your environment case study (studies), and a relevant supporting diagram and/or map.

**PLANNING (OPTIONAL)**



The Natural processes of an earthquake start off with tectonic plates colliding and in this case, the Indo-Australian plate collided with the Pacific plate, secondly the stress energy builds up as shown in diagram two which results in it being released in diagram three. The result of this causes the trampoline effect, as shown in diagram four where ductile rock layers fold and bounce off each other, there is also a blind thrust fault. The effect of the trampoline effect causes an uplift and in our case of the

2011 February earthquake there was a ~~the~~ lift in the port hills, ~~the~~ waves reflected (hard Balsalt, volcanic rock) onto ~~is~~ Christchurch, causing more damage. As shown in the final diagram, diagram 6, ~~the~~ intense shaking occurred, ~~in~~ bringing up unconsolidated gravels, leaving liquefaction. The intense shaking caused buildings to fall and made the ground unstable. Overall, that is the process of the natural events that took place during the 2011, February Earthquake. //

A3

**QUESTION TWO: ENVIRONMENTS**

Read the geographic concept below and refer to it when answering this question.

**Geographic Concept**

Environments may be natural and / or cultural. They have particular characteristics and features which can be the result of natural and / or cultural processes. The particular characteristics of an environment may be similar to or different from another. A cultural environment includes people and the built environment.

Fully explain how ONE cultural characteristic (feature) OR ONE natural characteristic (feature) has made your environment case study (studies) more vulnerable to your extreme natural event.

Cultural or natural characteristic: *Time of Day (cultural characteristic)*

In your answer, include geographic terminology, the geographic concept of environments, with integrated detailed supporting evidence from your environment case study (studies).

**PLANNING (OPTIONAL)**

The time of day played a major role in causing Christchurch to be certainly more vulnerable in the 2011 February earthquake as the time was at 12:51pm (lunchtime) which meant that people were out ~~at~~ at work and school where facades were collapsing. ~~and~~ People being out at work meant they experienced everything first hand and those in town near the CBD ~~were~~ were especially vulnerable as they were closer to the epicentre, meaning there would have been more damage around that area. Compared to the 2010 earthquake, this one resulted in ~~a~~ a higher rate of deaths as in the 2010 earthquake it was around 4am in the morning, meaning people were fast asleep whereas this 2011 earthquake it was at 12:51pm which is around lunchtime so people could have been on their lunch breaks and out on the streets where facades were collapsing.

A3

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The examination continues on the following page.

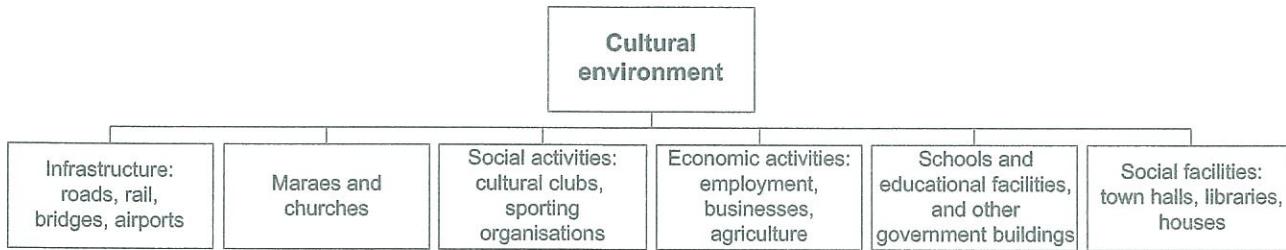
### QUESTION THREE: CHANGE

Read the geographic concept below and refer to it, as well as the diagram, when answering this question.

#### Geographic Concept

Change involves any alteration to the natural or cultural environment. Change can be spatial and/or temporal. Change is a normal process in both natural and cultural environments. It occurs at varying rates, at different times, and in different places. Some changes are predictable, recurrent or cyclic, while others are unpredictable or erratic. Change can bring about further change.

A cultural environment can be made of the following characteristics:



Fully explain the effects of your extreme natural event on the **cultural** environment of your case study (studies).

In your answer, include geographic terminology, the geographic concept of change, with integrated detailed supporting evidence from your environment case study (studies), and a relevant supporting diagram and/or map.

#### PLANNING (OPTIONAL)

## Diagram and/or map

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From the 2011 Christchurch February Earthquake, the cultural environment was impacted from things like infrastructure as after the quake, power was out for a while but restored to 82% of households within 5 days however the other 18% of households had their power restored after 5 days. All public transport networks were not running, including buses, trams, trains and airports due to liquification and cracks covering roads, runways, etc... Schools were also impacted as 163 primary and secondary schools had ~~11~~

damage or unsafe buildings, out of these, 11 were seriously damaged with liquefaction and cracks. ~~Most schools~~ Most schools closed down for a few days after the quake and ~~the~~ others for over a month, Avonside girls ~~being~~ ended up combining with Burnside High School for a while ~~as~~ and one ~~new~~ school would have lessons in the morning and the other in the evening. Household and residential areas were also impacted as 10,000 houses required demolition and ~~about~~ 10,000 houses were damaged, 450 mobile homes were newly located around Christchurch after the earthquake. Economic activities were impacted as immediately after the earthquake, ~~about~~ over 6,000 people lost their jobs. The re-build cost was said to be over \$40 billion dollars and there was over \$1 billion dollars of lost income.

# Annotated Exemplars Geography 91007

## Achieved exemplar 2017

Subject:		Geography	Standard:	91007	Total score:	10
Q	Grade score	Annotation				
1	A3	The candidate has described the natural processes that operated to produce the 2011 Christchurch earthquake. In the written responses, parts of the process are omitted (i.e. convection currents); however, the diagrams (in particular diagram 1) show some understanding of the process of plate tectonics. The candidate has included some specific evidence (plate names, basalt rock, and the Port Hills fault). A full description of each stage of the natural processes is required for A4, as well as more supporting evidence (such as the magnitude of the quake, depth of focus, or location of epicentre).				
2	A3	The candidate response shows an understanding that people are more vulnerable to earthquakes if they occur during the day, and provides some evidence to support this (12.51pm, CBD and 4am). General statements such as “higher rates of death” and “facades were collapsing” are not supported with evidence. To gain an A4, the candidate could have included more evidence, such as the death toll of each quake and street/building names where casualties occurred from collapsing facades.				
3	A4	The candidate has provided more specific evidence in their response, and has received an A4. The answer is mostly a description: most effects have been listed but not explained in any depth. The effect on education has been explained in some depth. The candidate could have received an M5 had there been more depth and some explanation around the effects on infrastructure.				