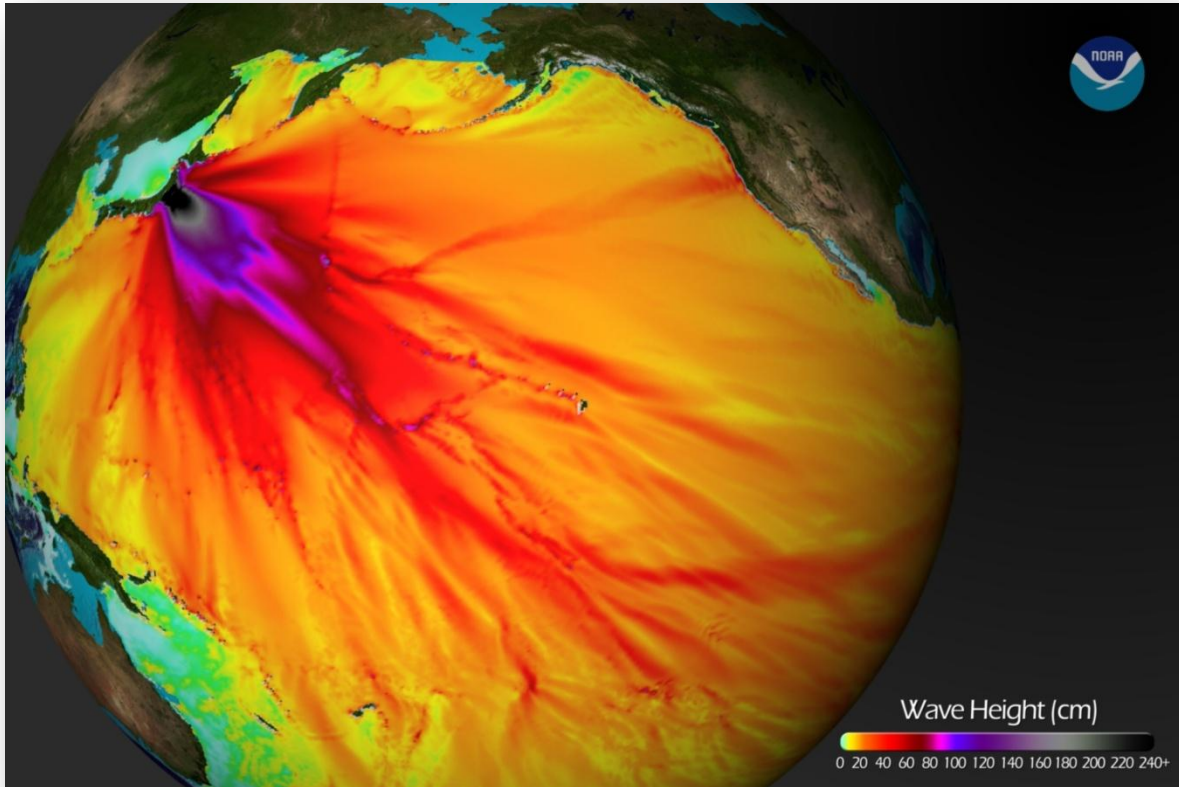


# GCSE Geography



## Restless Earth - Past Papers

Short / Data: [Questions](#) & [Answers](#)

Linked Ideas: [Questions](#) & [Answers](#)

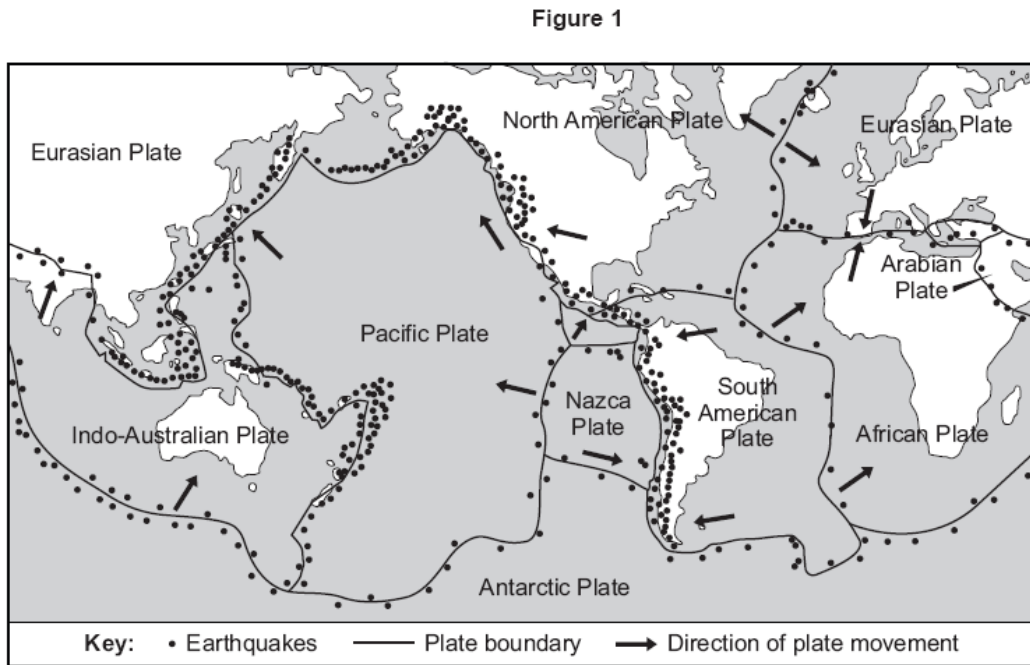
Paragraph / Extended: [Questions](#) & [Answers](#)

# Short / Data Response Questions

2010  
(a) (i)  
Qu

[Goto  
Ans](#)

1 (a) Study **Figure 1** which shows the earth's tectonic plates and the places where earthquakes occur worldwide.



1 (a) (i) Describe the distribution of earthquakes.

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(3 marks)

Spec  
(a) (ii)  
Qu

[Goto  
Ans](#)

1 (a) (ii) Explain why volcanoes are found at destructive plate boundaries.

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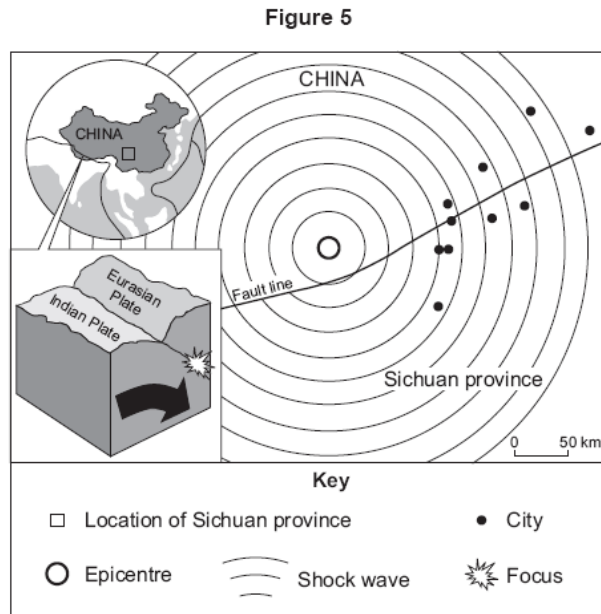
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(3 marks)

2010  
(4 a i)  
Qu

[Goto  
Ans](#)

4 (a) Study **Figure 5** which shows information about the earthquake in Sichuan province, China on 12 May 2008.



4 (a) (i) With the help of **Figure 5**, explain the difference between the epicentre and the focus of an earthquake.

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(2 marks)

2010  
old  
4(a ii)  
Qu

[Goto  
Ans](#)

4 (a) (ii) Using **Figure 5**, explain the cause of the earthquake in Sichuan province.

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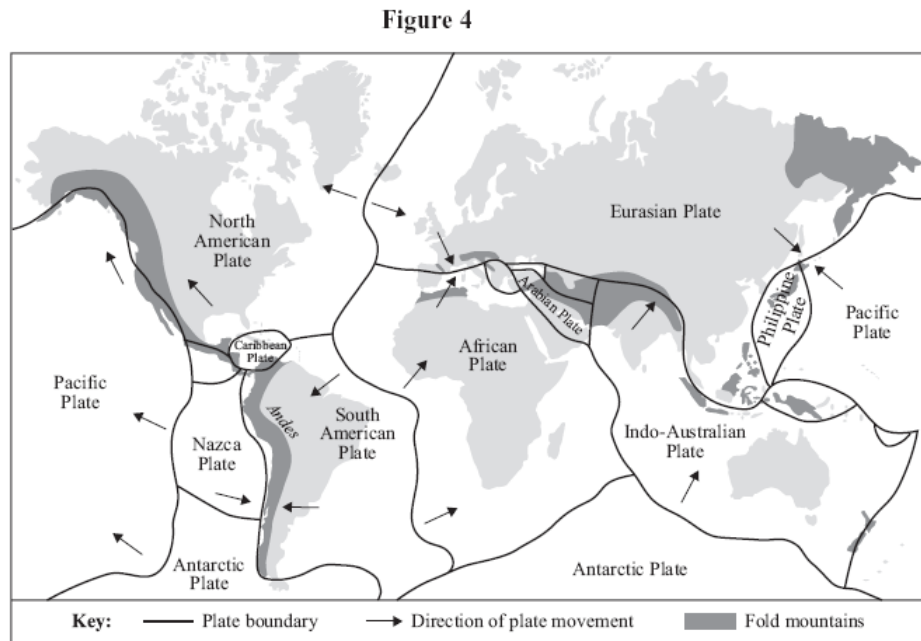
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(3 marks)

2009  
(a i)  
Qu

[Goto  
Ans](#)

- 4 (a) Study **Figure 4** which shows the earth's tectonic plates and the distribution of young fold mountains.



- 4 (a) (i) Describe the world distribution of young fold mountains.

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(2 marks)

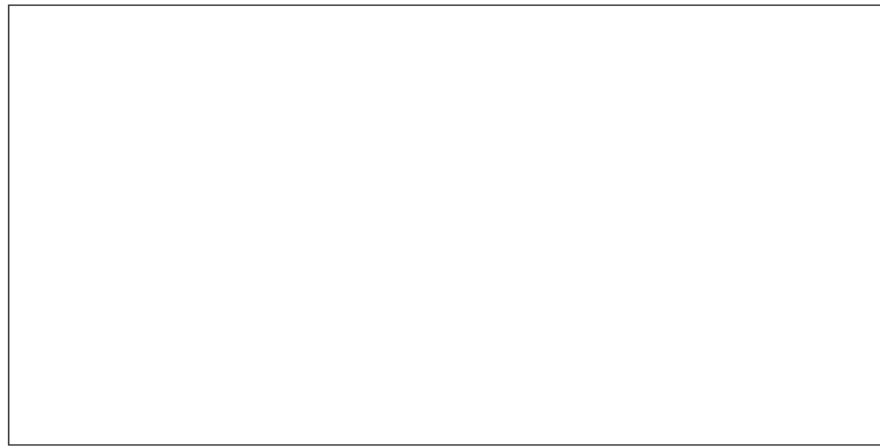
2009  
(b)  
Qu

[Goto  
Ans](#)

**Figure 5**



- 4 (b) Volcanoes can occur in fold mountain ranges. **Figure 5**, on the insert, shows Mt Fuji in Japan.  
In the space below, draw a labelled sketch of **Figure 5** to show the features of this volcano.



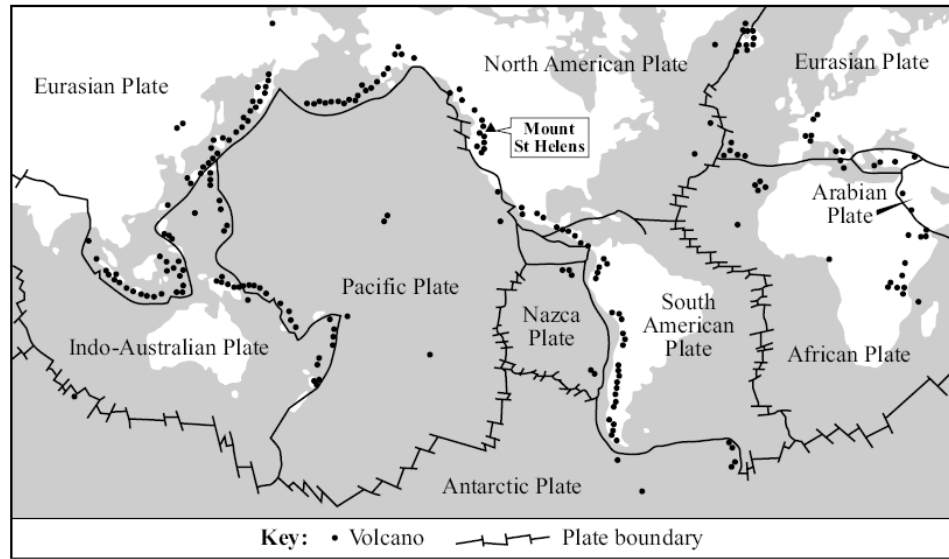
*(3 marks)*

2008  
(a i)  
Qu

[Goto  
Ans](#)

4 (a) Study **Figure 5** which shows the distribution of volcanoes.

**Figure 5**



4 (a) (i) Give **two** facts about the distribution of volcanoes.

Fact 1 .....

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Fact 2 .....

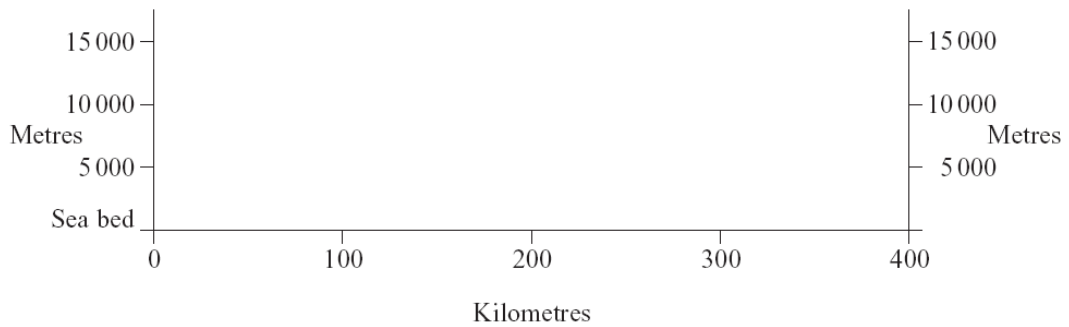
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(2 marks)

2007  
(a i)  
Qu

[Goto  
Ans](#)

(a) (i) On the outline below, draw a cross-section through Mauna Loa, a volcano in Hawaii. The volcano is 10 000 metres high and has a diameter of 400 kilometres.



(3 marks)

2007  
(4b)  
Qu

(b) Describe **one** advantage of living near a volcano.

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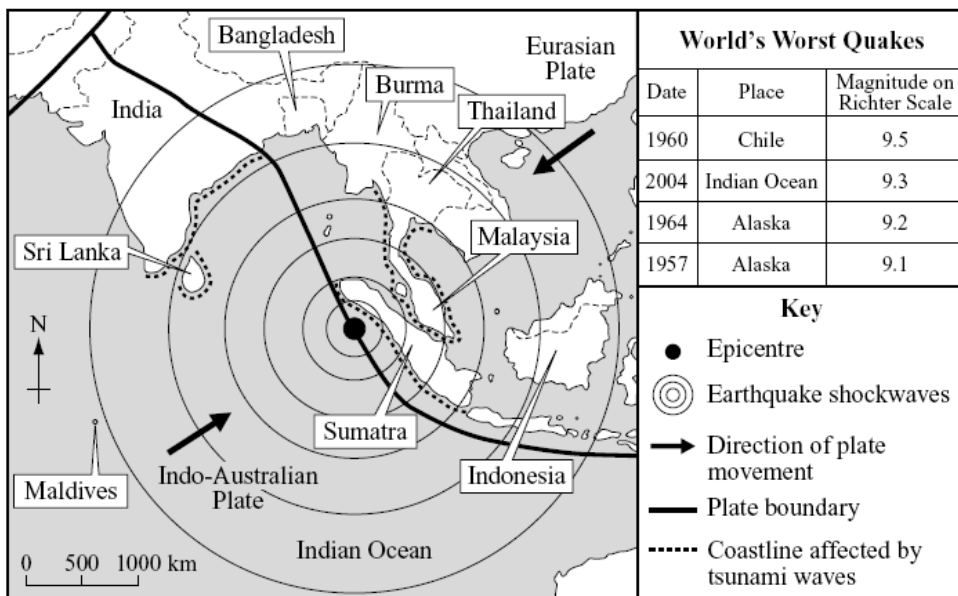
(2 marks)

[Goto  
Ans](#)

2006  
(4a ii)  
Qu

(a) Study **Figure 4**, which shows information about the earthquake in the Indian Ocean on 26 December 2004.

Figure 4



(i) Give **two** features of the earthquake in the Indian Ocean in 2004.

1 .....

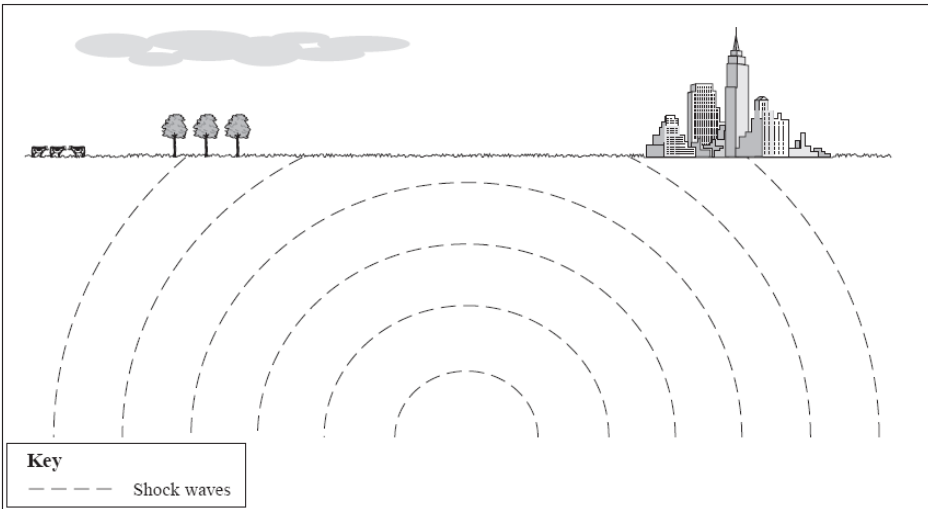
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(2 marks)

[Goto  
Ans](#)

<p>2006 (4b) Qu</p> <p><a href="#">Goto</a> <a href="#">Ans</a></p>	<p>Describe the advantages of living near to volcanoes such as Vesuvius.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p style="text-align: right;"><i>(3 marks)</i></p>
<p>2005 (4b i) Qu</p> <p><a href="#">Goto</a> <a href="#">Ans</a></p>	<p>(b) Study <b>Figure 5</b>, which shows a cross-section through an area affected by an earthquake.</p>  <p style="text-align: center;"><b>Figure 5</b></p> <p>(i) On <b>Figure 5</b>, clearly mark and label the following:</p> <p style="text-align: center;"><b>Focus</b> <b>Epicentre</b></p> <p style="text-align: right;"><i>(2 marks)</i></p>
<p>2005 (4b ii) Qu</p> <p><a href="#">Goto</a> <a href="#">Ans</a></p>	<p>(ii) Explain where you would expect the greatest loss of life to occur from the earthquake shown in <b>Figure 5</b>.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p style="text-align: right;"><i>(3 marks)</i></p>



2004  
(4a i)  
Qu

[Goto  
Ans](#)

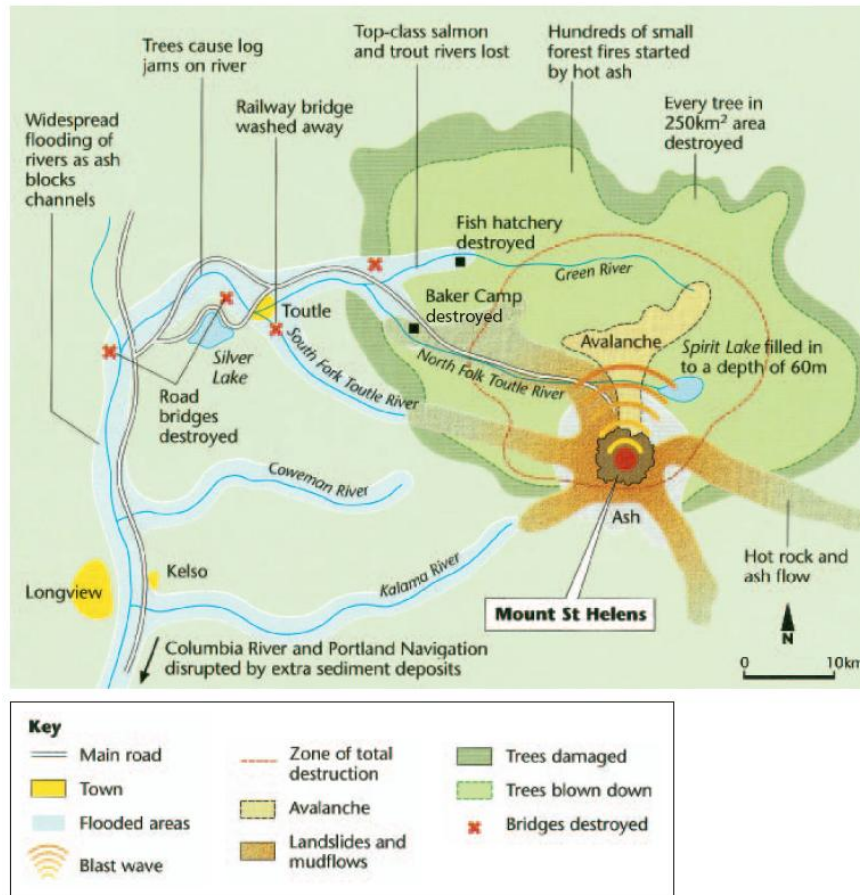


Figure 6

(a) Study **Figure 6**, on the insert, which shows the effects of the eruption of Mount St Helens in 1980.

(i) Using **Figure 6**, describe **two** effects of the eruption on the natural environment.

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(2 marks)

2004  
(5c )  
Qu

[Goto  
Ans](#)

(c) Describe the physical features of a range of young fold mountains that you have studied.

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(3 marks)

2004  
(4a i)  
Qu

[Goto  
Ans](#)

Figure 4 shows some information about earthquakes.

Magnitude of earthquake on the Richter Scale	Example	Death toll	Description	Average number of earthquakes per year
0 - 1.9			Minor	700,000
2 - 2.9			Minor	300,000
3 - 3.9			Minor	40,000
4 - 4.9			Light	6,200
5 - 5.9	1960, Morocco	14,000	Moderate	800
6 - 6.9	1988, Armenia	25,000	Strong	120
7 - 7.9	1995, Japan	5,500	Major	18
8 - 8.9	1964, Alaska	131	Great	1 every 10-20 years

Figure 4

- (a) (i) Describe the relationship between the average number of earthquakes per year and the magnitude.

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(2 marks)

2003  
(4b i)  
Qu

[Goto  
Ans](#)

- (b) Study Figure 5, which shows a cross section through Mount Vesuvius, a composite volcano.

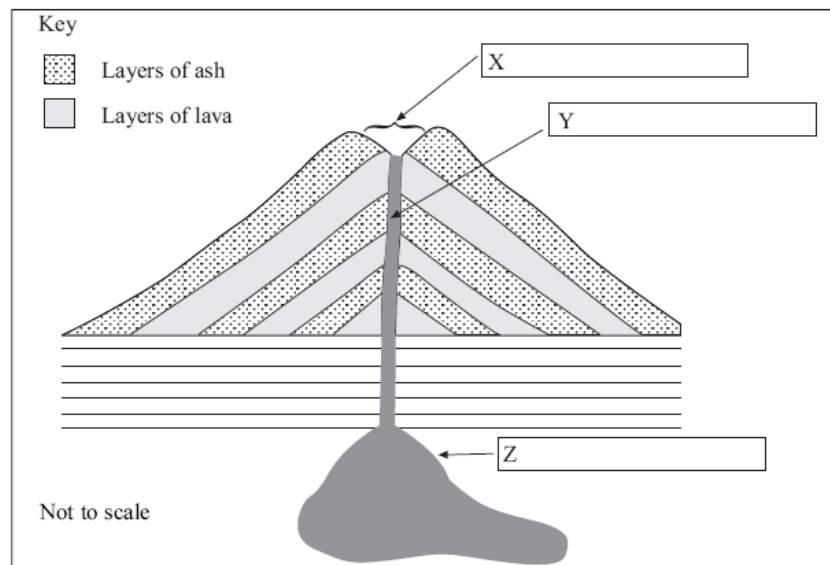


Figure 5

- (i) On Figure 5 label features X, Y and Z.

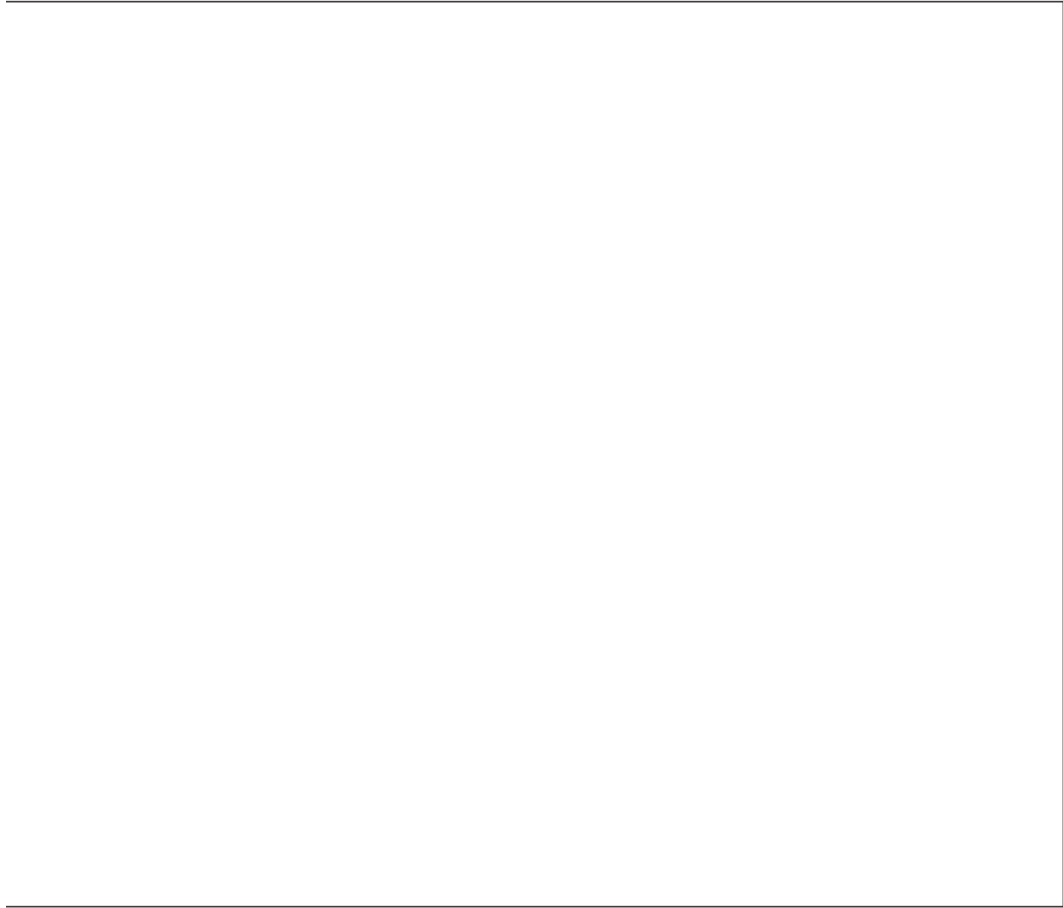
(3 marks)

## 4-mark linked Questions

2010  
(a) (ii)  
Qu

[Goto](#)  
[Ans](#)

1 (a) (ii) Draw a labelled diagram(s) to explain why earthquakes occur at conservative plate boundaries.



(4 marks)

<p>Spec (a iii) Qu</p> <p><a href="#">Goto</a> <a href="#">Ans</a></p>	<p>1 (a) (iii) Describe the ways in which a supervolcano is different from a volcano.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p style="text-align: right;">(4 marks)</p>
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Spec  
(b i)  
Qu

- 1 (b) Study **Figure 2** which shows information about frequency and magnitude of earthquakes between 2000 and 2007.

**Figure 2**

Magnitude (Richter scale)	Frequency
8.0 – 8.9	12
7.0 – 7.9	103
6.0 – 6.9	1033
5.0 – 5.9	11694
4.0 – 4.9	82762
3.0 – 3.9	62013
2.0 – 2.9	40491
1.0 – 1.9	7039
0.0 – 0.9	32082

Goto  
Ans

- 1 (b) (i) Describe the relationship between the magnitude of earthquakes and their frequency.

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(4 marks)

Spec  
(b ii)  
Qu

- 1 (b) (ii) Describe a method, other than the Richter Scale, of measuring earthquakes.

Goto  
Ans

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(4 marks)

<p>2010 Old 4 (b) Qu</p> <p><a href="#">Goto Ans</a></p>	<p><b>4 (b)</b> Describe how earthquakes are measured.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>(4 marks)</p>
<p>2009 (a ii) Qu</p> <p><a href="#">Goto Ans</a></p>	<p><b>4 (a) (ii)</b> Explain the formation of young fold mountains.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>(4 marks)</p>

2008  
(4a ii)  
Qu

[Goto](#)  
[Ans](#)

4 (a) (ii) The location of Mount St Helens, an active volcano in the USA, is shown on **Figure 5**. This volcano occurs at a compressional (destructive) plate boundary.

Draw a labelled diagram to explain why volcanoes occur at compressional plate boundaries.



(4 marks)

2007  
(5c)  
Qu

[Goto](#)  
[Ans](#)

(c) Using a volcanic eruption or an earthquake you have studied, describe the short-term responses to the disaster.

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(4 marks)

2006  
(4a ii)  
Qu

[Goto](#)  
[Ans](#)

(ii) Suggest why the loss of life was so great in Sumatra, part of an LEDC.

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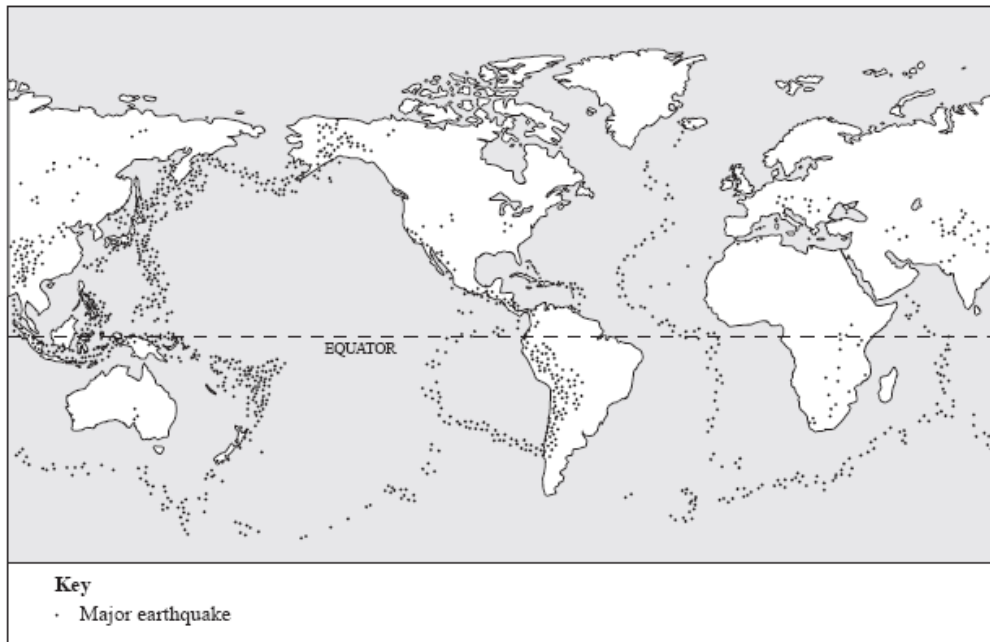
*(4 marks)*



2005  
(4a)  
Qu

[Goto  
Ans](#)

Study **Figure 4**, which shows the distribution of major earthquakes.



**Figure 4**

(a) Describe and explain the distribution of major earthquakes shown in **Figure 4**.

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*(4 marks)*

2004  
(4a ii)

Qu

[Goto  
Ans](#)

See next page

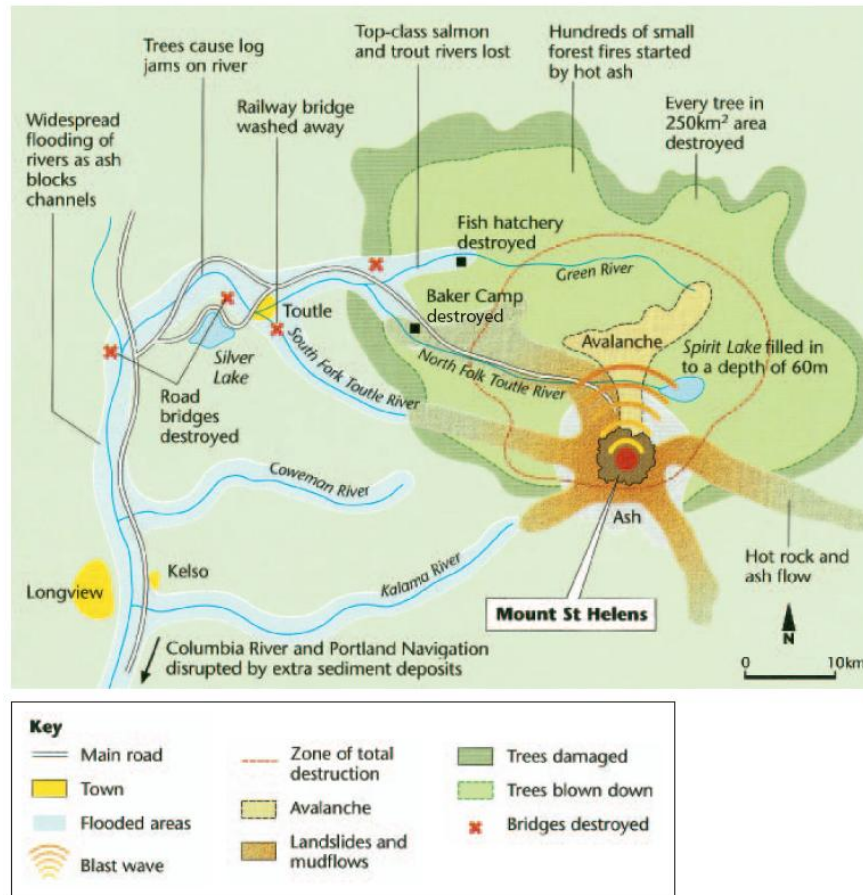


Figure 6

(ii) Using **Figure 6**, explain how the eruption may have affected the local people.

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(4 marks)

<p>2003 (4b ii)</p> <p>Qu</p> <p><a href="#">Goto</a> <a href="#">Ans</a></p>	<p>(ii) Using <b>one or more</b> examples of a volcanic eruption, describe the effects on the physical environment.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p style="text-align: right;"><i>(4 marks)</i></p>
<p>2005 (4b i)</p> <p>Qu</p> <p><a href="#">Goto</a> <a href="#">Ans</a></p>	<p>B13Q</p>
<p>2005 (4c ii)</p> <p>Qu</p> <p><a href="#">Goto</a> <a href="#">Ans</a></p>	<p>B14Q</p>
<p>2005 (4d i)</p> <p>Qu</p> <p><a href="#">Goto</a> <a href="#">Ans</a></p>	<p>B15Q</p>
<p>2005 (5c iii)</p>	<p>B16Q</p>







2008  
(4c)  
Qu

4 (c) Earthquakes are another example of tectonic activity.  
Using an example, describe the primary and secondary effects of an earthquake.

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*(6 marks)*

2007  
(1a  
ii)  
Qu

(ii) Mauna Loa is a shield volcano. Explain the characteristics of shield volcanoes and how they are formed.

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*(6 marks)*



2006  
(1c)  
Qu

(c) Explain how **one** type of volcano is formed.

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*(6 marks)*

2005  
(1c)  
Qu

(c) For an earthquake **or** volcanic eruption you have studied, describe the short-term and long-term responses to the disaster.

[Goto](#)  
[Ans](#)

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(6 marks)

2004  
(1b)  
Qu

(b) Mount St Helens is part of the Cascade Range of young fold mountains.

With the aid of a diagram(s), explain the formation of young fold mountains.

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[Goto](#)  
[Ans](#)

2003  
(1b)  
Qu

(ii) Using examples of earthquakes, explain why some cause more deaths than others.

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*(6 marks)*

## Short / Data Response Answers

<p><b>2010</b> 5 (a)( i) <a href="#">Goto Qus</a></p>	<p>Any 3 facts from Figure 1 e.g. earthquakes occur in linear clusters (1), many occur on plate boundaries (1) especially destructive and/or conservative plate boundaries(1); with example (1). Clustering around edge of Pacific plate (1). Maximum 1 for negative 3x1</p>
<p><b>2010</b> 1 (a)(ii) <a href="#">Goto Qus</a></p>	<p>Oceanic and continental plates move towards each other (1); the denser oceanic crust goes below the lighter continental crust (1); as it is pushed into the mantle, it is melted and destroyed (1); a pool of magma and an increase in pressure results (1); this is released by an eruption at the surface where the magma escapes along a crack (1). 3 x 1</p>
<p><b>2010 Old</b> 4 (a) (i) <a href="#">Goto Qus</a></p>	<p>Focus is the point within the Earth’s crust or/underground where the earthquake begins (1). Epicentre is the point directly above the focus at the surface and where the effect is most severely felt. (1) 2 x 1 Must refer to focus and epicentre.</p>
<p><b>2010 Old</b> 4 (a) (ii) <a href="#">Goto Qus</a></p>	<p>1 mark for identifying the movement of the plates together. 1 mark for describing the role of convection current. 1 mark for recognising that plates stick together for a long time / pressure builds up. 1 mark for subduction along destructive margin. 1 mark for noting that pressure is suddenly released and 1 mark for realising that the subsequent jerking movements are earthquakes. 3x1</p>
<p><b>2009</b> 4 (a) (i) <a href="#">Goto Qus</a></p>	<p>Any 2 valid facts from Figure 4, Credit positives only. Max one mark for plate boundaries using correct context. there are a lot along the west coast of the Americas; they cluster around the Pacific Ocean; there is a band to north, east and west of India; there is only one range in North Africa.</p>
<p><b>2009</b> 4 (b) <a href="#">Goto Qus</a></p>	<p>1 mark for drawing sketch shape – which should resemble clearly the profile in Figure 5. Use S for shape mark. 2×1 for appropriate labels – such as crater / shape of land here; steep sides; cone shape, ridged appearance.</p>

<p><b>2008 Old</b> 4 (a i)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>Any 2 valid facts from Figure 5, e.g. volcanoes occur in lines/along plate margins there are a lot along the west coast of the Americas they cluster around the Pacific Ring of Fire There are only a few in Europe/Asia/Antarctica. Accept only one negative.</p>
<p><b>2007</b> 4 (a i)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>Correct dimensions, i.e. correct height at top in outline = 1 mark. Base must be correct i.e. sea-bed = 1 mark. Crater present = 1 mark. Ignore any internal detail.</p>
<p><b>2007</b> 4 (b)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>e.g. some volcanoes have fertile soils around them (1) e.g. Mount Etna (1) where they grow peaches and tomatoes (1). In Iceland (1) the geothermal energy is used for electricity (1). If farming is stated, must be qualified. Credit tourism, hot springs, etc. Must be one advantage developed.</p>
<p><b>2006</b> 4 (a ii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>Epicentre off the coast of Sumatra, measured 9.3 on Richter scale, 2<sup>nd</sup> strongest, created tsunami. Submarine quake. Plate boundary. Shockwaves travel 2,500km.</p>
<p><b>2006</b> 4 (b)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>3 × 1 or developed points. Farming in fertile soils/growing lemons, tomatoes, etc. Tourism – trips to the volcano. Climate – cooler than in the lowlands. Geothermal energy. Minerals.</p>
<p><b>2005</b> 4 (b i)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>Correct locations – Focus where earthquake began within crust – to be located within smallest shock wave area/ Epicentre at surface directly above focus. Needs clear indication of position. Accept F and E.</p>
<p><b>2005</b> 4 (b ii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>(3 x 1 or dp) Greatest loss of life in built-up area due to density of buildings/ people. Likelihood of more roads/cars/electricity cables, gas and water mains, etc. Built up area = 1 mark + explanation. At/near Epicentre with explanation = 1 mark.</p>
<p><b>2004</b> 4 (a i)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>Trees destroyed, flooding of rivers, extra sediment in rivers, avalanche, Spirit Lake filled up, hot rock and ash flows, landslides and mudflows, fish killed, forest fires</p>
<p><b>2004</b> 5 (c)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>High mountains, deep valleys, volcanoes, e.g. Alps. There are glaciers and aretes and many rivers e.g. Rhone start in the Alps, snow capped peaks/mountains. Reserve 1 mark for eg but details must ring true for eg. (3x1) developed points</p>
<p><b>2003</b> 4 (A I)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>As the magnitude increases the frequency decreases/negative correlation, illustration with examples from fig 4 may earn 2nd mark. or developed point</p>

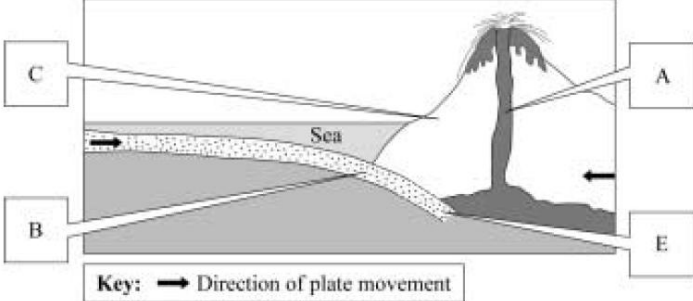
<p><b>2003</b> 4 (a iii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>X = Crater Y = Vent/pipe Z = Magma chamber/ batholith</p>
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## 4-mark linked Answers

<p><b>2010</b> 5 (a)(ii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<ul style="list-style-type: none"> <li>Diagram should show plates moving in similar directions (but not the same); should label to show sliding past each other; or same direction, but at different speeds; the pressure building up as the plates stick and the sudden release causing the jerking movement which is the earthquake.</li> <li>An example may be used – likely to be San Andreas Fault. Diagrams may be plan view, cross section or a combination of both. (4 marks)</li> </ul> <p>Level 1 (Basic) (1-2 marks)</p> <ul style="list-style-type: none"> <li>A partial diagram – piecemeal – offers some back up to text. Sequence incomplete.</li> <li>No diagram – text only</li> </ul> <p>Level 2 (Clear) (3-4 marks)</p> <ul style="list-style-type: none"> <li>Diagram is clear and supports labels – makes clearer. Sequence complete. Develops points.</li> </ul>
<p><b>Spec</b> 5 (a iii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<ul style="list-style-type: none"> <li>May refer to shape / appearance, size of feature, scale of an eruption, impact of an eruption.</li> <li>Shape – supervolcanoes are flat / surrounded by higher mountains in contrast to the gentle / steep sided mountain / presence of a crater of a volcano.</li> <li>Size – they are much bigger than a volcano, but less easy to see on the ground e.g. Yellowstone National park is essentially a supervolcano.</li> <li>Scale – supervolcano would be much more violent and dwarf eruptions such as Mt St Helens will have much wider effects – on a global scale; will emit much more material – either ash or magma.</li> <li>Impact – will have devastating consequences within 200km – all life gone and serious impact on continents unlike volcano where effects more localised.</li> </ul> <p>Level 1 (Basic) 1–2 marks</p> <ul style="list-style-type: none"> <li>Describes the features of either a volcano and/or supervolcano separately. Simple statements. Knowledge of basic information. Simple understanding. Few links; limited detail; uses a limited range of specialist terms. Limited evidence of sentence structure. Frequent spelling, punctuation and grammatical errors.</li> </ul> <p>Level 2 (Clear) 3–4 marks</p> <ul style="list-style-type: none"> <li>Links statements. Develops points. Makes contrasts clear. Knowledge of accurate information</li> <li>Clear understanding. Answers have some linkages; occasional detail/exemplar; uses some specialist terms where appropriate. Clear evidence of sentence structure. Some spelling, punctuation and grammatical errors.</li> </ul>

<p><b>Spec</b> 5 (b i)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<ul style="list-style-type: none"> <li>The strongest earthquakes occur least frequently (1). As they become weaker, there is an increase until 3.0 – 3.9 magnitude (1). The number then falls, but it is still much higher than those at 8 or above (1). Surprisingly, the weakest earthquakes are not the highest frequency (1). However, there are far more of them than the strongest ones (1). Allow 1 mark for specific use of evidence from table where figures are used, not just copied.</li> <li>Any valid point - 4 x 1</li> </ul>
<p><b>Spec</b> 5 (b ii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<ul style="list-style-type: none"> <li>Mercalli Scale will form the basis of the answer.</li> <li>There should be an understanding that this uses observed effects to determine the position on the scale. These may be described as text or as pictures. The scale goes up to XII. The score is given to match the level of impact. E.g. V will mean that everyone will feel the earthquake and dishes and windows will be broken. In contrast, a level XII will mean total destruction.</li> </ul> <p><b>Level 1 (Basic) 1–2 marks</b></p> <ul style="list-style-type: none"> <li>Simple, listed points. An idea that it relates to different levels of damage done. Knowledge of basic information. Simple understanding. Few links; limited detail; uses a limited range of specialist terms. Limited evidence of sentence structure. Frequent spelling, punctuation and grammatical errors.</li> </ul> <p><b>Level 2 (Clear) 3–4 marks</b></p> <ul style="list-style-type: none"> <li>Points are developed and linked. The name of the method will be known. Examples of the types of damage will be linked to the score. Knowledge of accurate information. Clear understanding Answers have some linkages; occasional detail/exemplar; uses some specialist terms where appropriate Clear evidence of sentence structure. Some spelling, punctuation and grammatical errors.</li> </ul>
<p><b>2010</b> <b>Old</b> 4 (b)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<ul style="list-style-type: none"> <li>There are three possible routes to answering this question. Each route or combination is permissible.</li> <li>May refer to actual measurements made and equipment used. A seismograph consists of a rotating drum that moves in response to the shock waves and produces a fluctuating line recording the earthquake on a seismogram. The initial waves are generally small, but later waves show greater fluctuation on the trace, showing the severity of the earthquake.</li> <li>The Richter scale is commonly used method of reporting on severity of earthquake. This has scores from 0.1 to 9.9 (0-9 or 10) and is a logarithmic scale. Thus, as the scores increase, there is a 10 fold increase in severity. For example a scale 4 earthquake is 10 times more powerful than scale 3 and a scale 5 earthquake 100 times more powerful than a scale 3.</li> <li>The Modified Mercalli scale is the final option. This is a visual or descriptive representation of the damage caused by earthquakes on a scale from 1 to XII. A written (initially) or pictorial description is used to depict the likely damage e.g. at IX, ground cracking, pipes fractured, partial collapse of substantial buildings</li> </ul> <p>Level 1 (1-2 marks)</p> <ul style="list-style-type: none"> <li>Simple, listed points. Separate statements, general information. e.g. They have a graph that is like a line that goes up and down showing the shock waves. The scale goes from 0 – 9.9.</li> </ul> <p>Level 2 (3-4 marks)</p> <ul style="list-style-type: none"> <li>Statements are linked and response structured. Points are developed and information is precise. e.g. They have a seismograph that measures the strength of the earthquake. It is a rotating drum and a line graph is printed called a seismogram. There is scale that goes from 0 – 9.9 called the Richter scale that is used to say how strong an earthquake is.</li> </ul>
<p><b>2009</b> <b>Old</b> 4 (a ii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<ul style="list-style-type: none"> <li>Statements relating to existence of large depressions called geosynclines. The erosion of material from land surface by rivers / accumulation of material on seabed. Further layers of material being added as the erosion process continues / being compressed into rock by weight of particles / sea above.</li> <li>The movement of plates together – compressional (destructive) boundary/sediment being crumpled into fold mountains / anticlines and synclines forming. (4 marks)</li> <li>Diagrams are worthy of credit.</li> </ul> <p><b>Level 1 (Basic) (1-2 marks)</b></p> <ul style="list-style-type: none"> <li>An idea of how fold mountains form. Separate statements. Partial sequence – likely to refer to</li> </ul>



	<p>end of it, rather than the start, e.g. material collects under the ocean. Plates shift together and material is folded into mountains.</p> <p><b>Level 2 (Clear) (3-4 marks)</b></p> <ul style="list-style-type: none"> <li>• Describes clearly how fold mountains form. Linked statements. Complete sequence – links aspects of last two points to first two, e.g. material is eroded from the land by rivers and</li> <li>• transported to the sea. Here, in a geosyncline the material is deposited and compressed by the weight of further layers and the water into rock. The plates move together and the material folds creating anticlines and synclines present in fold mountains.</li> </ul>
<p><b>2008</b> 4 (a ii)</p> <p><a href="#">Goto Qus</a></p>	 <p>The diagram illustrates a destructive plate margin. On the left, an oceanic plate (labeled C) is moving towards the right, indicated by a black arrow. It is subducting under a continental plate (labeled B) on the right, which is moving towards the left, also indicated by a black arrow. The oceanic crust is shown sinking beneath the continental crust. A volcano (labeled A) is shown on the continental plate, with magma rising from the subducting plate. The area between the plates is labeled 'Sea'. A key at the bottom indicates that the black arrow represents the 'Direction of plate movement'.</p> <ul style="list-style-type: none"> <li>• Likely labels <ul style="list-style-type: none"> <li>○ Oceanic crust meets continental crust.</li> <li>○ Former is denser than latter and so sinks beneath continental crust.</li> <li>○ Pressure exerted during this subduction leads to the oceanic crust melting.</li> <li>○ Pressure is released by the magma travelling through the crust along a crack/ fault in an explosive eruption.</li> </ul> </li> <li>• Accept a sequence of diagrams.</li> <li>• No diagram = 0.</li> </ul> <p><b>Level 1 (1-2 marks)</b></p> <ul style="list-style-type: none"> <li>• Basic diagram - showing plates.</li> <li>• Describes destructive plate margin.</li> <li>• Partial sequence – links aspects of last two points above.</li> </ul> <p><b>Level 2 (3-4 marks)</b></p> <ul style="list-style-type: none"> <li>• Clear diagram - shows plate movement, types of plates, volcano.</li> <li>• Describes how the presence of destructive plate margin results in a volcano.</li> <li>• Complete sequence – links aspects of last two points to first two.</li> <li>• Can achieve low Level 2 without volcano / eruption.</li> </ul>

<p><b>2007</b> 5 (c)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p><b>Level 1 (1-2 marks)</b></p> <ul style="list-style-type: none"> <li>• Simple, may be without an example e.g. people were evacuated, aid was sent.</li> </ul> <p><b>Level 2 (3-4 marks)</b></p> <ul style="list-style-type: none"> <li>• Clear, information rings true for example given, e.g. in Montserrat the people moved to the north of the island and e.g. tents from the UK were sent.</li> <li>• 2 responses for top of Level 2.</li> </ul> <p>No credit simply for effects</p>
<p><b>2006</b> 4 (a ii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p><b>Level 1 (1-2 marks)</b></p> <ul style="list-style-type: none"> <li>• Basic statements.</li> <li>• Sumatra is close to the earthquake epicentre. Waves very large.</li> <li>• Earthquake large. LEDC issues, e.g. no warning system, poor buildings.</li> </ul> <p><b>Level 2 (3-4 marks)</b></p> <ul style="list-style-type: none"> <li>• Clear statements.</li> <li>• May link information, give direct contrasts or go beyond the resource – the waves would be much larger in Sumatra because it is closer to the epicentre, Sumatra may have a higher density of population at the coast, there may be no warning systems in Sumatra. Sumatra is closer to the epicentre while other countries are much further away.</li> </ul>
<p><b>2005</b> 4 (a)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p><b>Level 1: (1 – 2 marks)</b></p> <ul style="list-style-type: none"> <li>• On the plate boundaries/unstable/plates move/most in the sea/narrow belts/along coasts/locations or non-locations.</li> </ul> <p><b>Level 2: (3 – 4 marks)</b></p> <ul style="list-style-type: none"> <li>• Clear – They occur along other plate boundaries including the tensional boundary at the Mid-Atlantic ridge. They occur here because the boundaries are unstable and movement takes place causing the earthquakes. Linked statements or broader patterns such as Mid-Atlantic Ridge, Pacific Ring of Fire.</li> </ul>
<p><b>2004</b> 4 (a ii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p><b>Level 1 Basic (1-2 marks)</b></p> <ul style="list-style-type: none"> <li>• Impact given but not explained, e.g. jobs lost, homes lost, roads gone.</li> </ul> <p><b>Level 2 Clear (3-4 marks)</b></p> <ul style="list-style-type: none"> <li>• Clear explanation, e.g. jobs will be lost at the fish hatchery so people may have to move away for a job OR people can no longer use the local roads so they cannot access any services/need to find alternative routes</li> </ul>
<p><b>2003</b> 4 (b ii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<p>Level 1 1 – 2 marks (Basic)</p> <ul style="list-style-type: none"> <li>• Basic statements such as loss of land, animals; causes fires, tidal waves. No accurate reference to example. Accept positive effects</li> </ul> <p>Level 2 3 – 4 marks (Clear)</p> <ul style="list-style-type: none"> <li>• Clear statements with reference to an example. The erupting lava in Montserrat burned huge areas of trees. The eruptions of ash and dust blocked out the sun. Created new land.</li> <li>• Accept positive efforts; e.g. eruption from Mt Etna have weathered over time producing fertile soils used to grow citrus fruits, peaches, tomatoes, olives and vines.</li> </ul>
<p>2005 4 (b ii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<ul style="list-style-type: none"> <li>• <b>B13A</b></li> </ul>
<p>2005 4 (c ii)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<ul style="list-style-type: none"> <li>• <b>B14A</b></li> </ul>
<p>2005 4 (d i)</p> <p><a href="#">Goto</a> <a href="#">Qus</a></p>	<ul style="list-style-type: none"> <li>• <b>B15A</b></li> </ul>
<p>2005 (5c iii)</p>	<ul style="list-style-type: none"> <li>• <b>B16A</b></li> </ul>

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## 6-8 mark - Extended Answers

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- Actual content will depend on the case study being used – Boxing Day tsunami of 2004 is likely to be used. Expect reference to either whole area affected or a focus on just one country – either approach is permissible.

Following exemplar refers to Boxing Day tsunami.

- **Immediate** – There will be reference to the need to rescue people – getting people to safety – out of the water, possibly references to moving inland or to higher ground. People searching for friends and relatives, getting people to hospital. A need to try to provide adequate medical help, to ensure there is clean water (and food). All of this required international aid and teams of sniffer dogs, heavy equipment, medical staff, provisions of water purifying tablets, blankets, setting up shelters, tents etc. There was a need to bury the dead – often in mass graves to stop the spread of disease. The launching of appeals to support international aid effort.
- **Longer term** – this will involve the need to rebuild houses – ideally using different materials and designs – to make them less easy to destroy; to provide the means to be able to do this and to rebuild public buildings; to rebuild roads, railways; to ensure jobs are being created (arguably tourism prospered and aid provided real impetus in some places); to help people to come to terms with a traumatic event and loss of parents, children; to predict tsunami and installation of early warning system in Indian Ocean – with details on how it works and the action taken.

#### Level 1 (Basic) (1-4 marks)

- Describes responses to a tsunami
- Statements are general in a random order.
- No example or generic information.
- People ran away from the sea. They tried to find family they had been separated from. Holidaymakers tried to get back home out of the countries affected. People tried to get injured to hospital.

#### Level 2 (Clear) (5-7 marks)

- Likely to begin to categorise – such as immediate and long term responses – to give a clearer structure.
- May be clear imbalance between immediate and long term (to immediate) classification may be implicit.
- Statements are linked.
- There is clear reference to the case study named.
- People were caught unaware – holidaymakers were on beaches in Thailand and fled as the wave approached. They tried to get to higher storeys in hotels, out of the way of the wave. After, there were many bodies that had to be buried quickly so that disease would not spread. Mass graves were dug. Later, schools had to be rebuilt as well as people's homes.

#### Level 3 (Detailed) (8-9 marks)

- Will have a clear structure – likely to be determined by time scale -
- immediate and long term responses – in greater balance and explicit classification.
- Statements are logically ordered and linked.
- Detailed references to specific case study.
- People were caught unaware – holidaymakers were on beaches in Phuket, Thailand and fled as the wave approached. They tried to get to higher storeys in hotels, out of the way of the wave. In Banda Aceh, the first area to be hit, hospitals couldn't cope and people were left untreated in corridors. After, there were many bodies that had to be buried quickly so that disease would not spread. Mass graves were dug, as the scale of the disaster was so large. Aid agencies brought in water purification tablets and tents for survivors. The Disasters Emergency Committee spent £40m on rebuilding projects in Sri Lanka and Indonesia, following a major appeal for aid. A

	<p>new Indian Ocean tsunami warning system became operational in 2006, so that warning of future tsunamis can be given.</p>
<p><b>Spec</b> 5 (b)(ii)</p> <p><u>Goto</u> <u>Qus</u></p>	<ul style="list-style-type: none"> <li>• Actual content will depend on the case study being used.</li> <li>• <b>Immediate – Rich parts</b> – response will be rapid; often practice emergency drills; these will be put into effect / Emergency services mobilised, including helicopters, emergency departments of hospitals, fire service etc. Contingency plans for ensuring supplies of clean water, medical supplies, blankets, shelters.</li> <li>• <b>Poorer areas</b> - There will be reference to the need to rescue people – may be done by relatives and basic equipment or just by hand initially, a need to put out fires, to provide medical help, to ensure there is clean water (and food). All of this may require international aid and teams of sniffer dogs, heavy equipment, medical staff, provision of water purifying tablets, blankets, setting up shelters, tents etc.</li> </ul> <p><b>Level 1 (Basic) 1–4 marks</b></p> <ul style="list-style-type: none"> <li>• Describes responses to an earthquake in a richer or poorer part of the world. Statements are general in a random order. Knowledge of basic information. Simple understanding Few links; limited detail; uses a limited range of specialist terms. Limited evidence of sentence structure. Frequent spelling, punctuation and grammatical errors.</li> </ul> <p><b>Level 2 (Clear) 5–6 marks</b></p> <ul style="list-style-type: none"> <li>• Immediate similarities or differences in responses are distinguished or contrasts between rich and poor. Statements are linked. There is reference to at least one of the case studies named.</li> <li>• Knowledge of accurate information Clear understanding. Answers have some linkages; occasional detail/exemplar; uses some specialist terms where appropriate. Clear evidence of sentence structure. Some spelling, punctuation and grammatical errors.</li> </ul> <p><b>Level 3 (Detailed) 7–8 marks</b></p> <ul style="list-style-type: none"> <li>• Immediate similarities and differences in responses are distinguished. Contrasts between rich and poor are clear. Detailed reference to specific case studies.</li> <li>• Knowledge of accurate information appropriately contextualised and/or at correct scale. Detailed understanding, supported by relevant evidence and exemplars. Well organised, demonstrating detailed linkages and the inter-relationships between factors. Range of ideas in a logical form; uses a range of specialist terms where appropriate. Well structured response with effective use of sentences. Few spelling, punctuation and grammatical errors.</li> </ul> <ul style="list-style-type: none"> <li>• Level 3 does not always equate to full marks, a perfect answer is not usually expected, even for full marks.</li> </ul>

<p><b>June 2010 old</b> 4 (c)(ii)</p> <p><a href="#">Goto Qus</a></p>	<ul style="list-style-type: none"> <li>The content will depend on the selection of case studies candidates have been taught. There is no need to use case studies, but it could enhance the answer.</li> <li><b>Advantages:</b> the creation of fertile soil for agriculture; the ability to harness energy – geothermal power; the development of tourist attractions as a source of wealth e.g. Mt St Helens, Vesuvius; the presence of minerals in mountainous areas such as Yanacocha gold mine in Peru.</li> <li><b>Disadvantages</b> likely to refer to impact regarding loss of life, damage to property; lava flows consuming houses as they are burnt, ash on roofs causing them to collapse, the need to evacuate; damage to roads/railways making access difficult as lava solidifies; risk of mudslides, avalanches etc, disruption to air travel.</li> </ul> <p><b>Level 1 (1-2 marks)</b></p> <ul style="list-style-type: none"> <li>Simple, listed points. May be general without reference to illustration.</li> <li>Will refer to either advantages or disadvantages. e.g. People can be killed in an eruption. They lose their homes and land.</li> </ul> <p><b>Level 2 (3-4 marks)</b></p> <ul style="list-style-type: none"> <li>Points are developed and linked. There will be clear specific development. Will make some reference to advantages as well as disadvantages. e.g. People lose their homes and they may have to leave the area completely as happened in Montserrat. In some areas, people visit volcanoes and locals make money out of tourism.</li> </ul> <p><b>Level 3 (5-6 marks)</b></p> <ul style="list-style-type: none"> <li>Detailed, developed points purposefully linked. Disadvantages and advantages are considered in a balanced account. Appropriate geographical terminology is used. e.g. Hot lava will set fire to houses and people must stand helplessly and watch. Ash leaves land unusable and people are forced to move away to the north eastern part of Montserrat – or off the Island. However, areas of tectonic activity offer some advantages. People visit Mt Etna in Sicily – this is a major tourist attraction and Iceland generates most of its electricity using geothermal resources and gold and tin are mined in the Andes.</li> </ul>
<p><b>June 2009</b> 4 (c)(ii)</p> <p><a href="#">Goto Qus</a></p>	<ul style="list-style-type: none"> <li>The content will depend on the selection of case studies.</li> <li>Answers likely to focus on immediacy of response in MEDCs – ability to get emergency services moving; immediate rescue attempts; providing adequate hospital care; evacuating people if necessary.</li> <li>In LEDCs, less resources to cope and the need to rescue people may be hampered; the scale of the task is likely to be greater given the fact that more buildings are likely to have collapsed; there may be a need to await the arrival of international aid in the form of firemen, doctors, clean water, water purifying tablets etc.</li> </ul> <p><b>Level 1 (Basic) (1-2 marks)</b></p> <ul style="list-style-type: none"> <li>Simple, listed points. May be general without reference to example. Will refer to responses generally. Accounts are separate or links implicit,</li> <li>e.g. People rescued in MEDCs, hospitals had emergency plans. In LEDCs people were trapped for days.</li> </ul> <p><b>Level 2 (Clear) (3-4 marks)</b></p> <ul style="list-style-type: none"> <li>Points are developed. There will be clear reference to specific responses. Contrasts between MEDC and LEDC will be clear. Clear contrast between MEDCs and LEDCs,</li> <li>e.g. fire crews were on the scene quickly trying to free people from the collapsed roads/buildings. However, it takes longer to get official rescue operations underway in poor countries. Early rescue attempts saw locals digging people out with basic tools. This was less organised than in a rich country. There may be reference to case studies.</li> </ul> <p><b>Level 3 (Detailed) (5-6 marks)</b></p> <ul style="list-style-type: none"> <li>Detailed reference to specific case studies. May refer to both volcanic eruptions and earthquakes. Greater variety of points made in the answer. Detailed answers of contrasting responses. Links are sequential,</li> <li>e.g. in 1989 San Francisco earthquake, fire crews reached the collapsed upper section of the Bay Bridge and the Cypress Freeway in Oakland quickly. They began assessing the situation</li> </ul>

	<p>and identifying the location of survivors. Rescuing those trapped began very quickly. In Gujarat, locals were digging with their bare hands in places near the epicentre in Bhuj. Food was sent in rather than equipment for rescue which made locals angry. Only 48 hours after did teams with sniffer dogs and heat-seeking equipment arrive, yet the best chance of survival is within the first 48 hours.</p>
<p><b>June 2008</b> 4 (c)(ii)</p> <p><a href="#">Goto Qus</a></p>	<ul style="list-style-type: none"> <li>The content will depend on the selection of case study. Primary effects refer to the immediate and direct effects of the hazard e.g. deaths or collapsing roads/buildings for earthquakes. The secondary effects are the knock-on effects occurring in the aftermath of an earthquake such as tsunami, fire, damage to the tourist area.</li> </ul> <p><b>Level 1 (1-2 marks)</b></p> <ul style="list-style-type: none"> <li>Basic, listed points. May be general without reference to example. Will refer to effects without distinguishing primary from secondary</li> <li>e.g. people died as roads collapsed, gas mains caught fire.</li> </ul> <p><b>Level 2 (3-4 marks)</b></p> <ul style="list-style-type: none"> <li>Clear points are developed and fit example. There will be clear reference to primary and secondary effects,</li> <li>e.g. as a direct result of the earthquake, the top layer of a double decker highway collapsed. Fire spread as a result of gas mains rupturing.</li> </ul> <p><b>Level 3 (5-6 marks)</b></p> <ul style="list-style-type: none"> <li>Detailed reference to specific case study. Both primary and secondary effects will be included, although these may not be equal, e.g. the top tier of the Hanshin Expressway collapsed as the earth shook; a secondary effect was the fires caused by ruptured gas mains that led to the loss of many of the wooden buildings in Kobe.</li> <li>Use p for primary s for secondary</li> <li>No distinction re: primary / secondary Max = L1</li> </ul>

<p><b>June 2007</b> 4 (c)(ii)</p> <p><a href="#">Goto Qus</a></p>	<p><b>Level 1 (1-2 marks)</b></p> <ul style="list-style-type: none"> <li>Basic may be characteristics or formation, e.g. it has gentle sides, formed from runny lava, found at plate boundaries.</li> </ul> <p><b>Level 2 (3-4 marks)</b></p> <ul style="list-style-type: none"> <li>Clear, may still be imbalanced. Shield volcanoes have a wide base and gentle sides because they are formed of runny lava that flows long distances before cooling.</li> </ul> <p><b>Level 3 (5-6 marks)</b></p> <ul style="list-style-type: none"> <li>Detailed, needs to have both characteristics and formation but not necessarily both at Level 3. As for Level 2, plus more detail on their formation - usually at constructive boundaries, reference to basalt, hot spots all acceptable.</li> <li>Credit good use of terminology.</li> </ul>
<p><b>June 2006</b> 4 (c)(ii)</p> <p><a href="#">Goto Qus</a></p>	<p><b>Level 1 (1-2 marks) Basic statements.</b></p> <ul style="list-style-type: none"> <li>Simple points lacking completeness or clarity, e.g. lava erupts and builds up.</li> </ul> <p><b>Level 2 (3-4 marks) Clear statements.</b></p> <ul style="list-style-type: none"> <li>Greater clarity in sequence and process, e.g. plates move and magma moves along a fault to the surface, repeated eruptions build up layers of lava to form a volcano.</li> </ul> <p><b>Level 3 (5-6 marks) Detailed statements.</b></p> <ul style="list-style-type: none"> <li>Likely to be clear responses to one type, e.g. Composite cone at destructive boundary. Sequence and processes in detail with reference to subduction zone, convection currents, repeated eruptions, layer of ash and lava, etc.</li> </ul>

<p><b>June 2005</b> 4 (c)(ii)</p> <p><a href="#">Goto Qus</a></p>	<ul style="list-style-type: none"> <li>• Earthquake or volcanic eruption.</li> </ul> <p><b>Level 1: (1 – 2 marks)</b></p> <ul style="list-style-type: none"> <li>• Simple statements, probably not linked to an example or to idea of short- and long-term, e.g. <b>panic, left the town, dug through the rubble, rebuilt houses.</b></li> </ul> <p><b>Level 2: (3 – 4 marks)</b></p> <ul style="list-style-type: none"> <li>• Clear statements with at least passing reference to an example. May still not make short- or long-term explicit, e.g. <b>in Kobe many people had to leave their homes and live in schools. Gangs quickly began to knock down unsafe buildings, put out fires and connect the phone systems. Eventually rebuilding began.</b></li> </ul> <p><b>Level 3: (5 – 6 marks)</b></p> <ul style="list-style-type: none"> <li>• Detailed with reference to an example and short- and long-term responses. Information rings true to example chosen, e.g. <b>in Kobe in the short term there was panic and grief. People searched through the rubble for relatives. Many evacuated to schools or lived in makeshift tents. A few days later emergency services were able to put out the fires, knock down unsafe property and set up emergency telephone systems. In the long term, rebuilding began of the houses, railways and roads that were destroyed.</b></li> </ul>
<p><b>June 2004</b> 4 (c)(ii)</p> <p><a href="#">Goto Qus</a></p>	<p><b>Level 1 Basic (1-2 marks)</b></p> <ul style="list-style-type: none"> <li>• Basic points made e.g. they are found at plate boundaries where the plates have moved together, diagram may be absent.</li> </ul> <p><b>Level 2 Clear (3-4 marks)</b></p> <ul style="list-style-type: none"> <li>• Clear with at least one diagram e.g. FM are found along plate boundaries where movement has taken place e.g. <b>Andes. A gap between the two plates filled with softer rocks that were folded upwards when the plates moved together.</b></li> </ul> <p><b>Level 3 Detailed (5-6 marks)</b></p> <ul style="list-style-type: none"> <li>• Detailed with at least two labelled diagrams. Detail from correct use of geographical vocabulary e.g. <b>destructive plate margins, geosynclines, folding, faulting, sedimentary rocks, possible links to examples and different margins such as continent □ continent and ocean □ continent and in detail on sequence of formation. Accept diagrams at appropriate level.</b></li> </ul>
<p><b>June 2003</b> 4 (c)(ii)</p> <p><a href="#">Goto Qus</a></p>	<p><b>Level 1 1 – 2 marks (Basic)</b></p> <ul style="list-style-type: none"> <li>• Simple statements, probably no reference to Figure 4 e.g. <b>more violent earthquake, higher population, more flimsy buildings, secondary effects e.g. disease, fire, tsunami.</b></li> </ul> <p><b>Level 2 3 – 4 marks (Clear)</b></p> <ul style="list-style-type: none"> <li>• Clear statements that explain in more detail e.g. <b>some earthquakes take place in LEDCs where the buildings are flimsy and collapse more easily killing more people; some occur in the middle of the night when people are asleep in their homes, may use examples from Figure 4 or elsewhere to illustrate.</b></li> </ul> <p><b>Level 3 5 - 6 marks (Detailed)</b></p> <ul style="list-style-type: none"> <li>• Answer is detailed and makes good use of examples. Would need additional information on any quakes quoted from Figure 4 e.g. <b>Alaska the strongest earthquake shown killed only 131 people. This is because very few people live in Alaska whereas the earthquake in Japan killed 5500 because it hit a major city. Reference to other earthquakes not included in table are acceptable.</b></li> </ul>