

UNIT 1 COMMENTARIES

1 (a)(i) The table below shows the deaths and the tsunami wave height resulting from the 2011 Tohoku tsunami in 10 coastal districts in Japan.

See QP for data

Calculate the value of R for the data given

You must show your working. (3)

	Script A	Script B	Script C
Commentary	<i>Addition is correct</i>	<i>1 mark for correct addition of 118 – no marks for an incorrect equation and answer</i>	
Mark	1	1	3
<p>1 (a (ii) The table below shows the critical values of Spearman's rank R value and two hypotheses that are being tested.</p> <p>Using the Spearman's rank correlation R value calculated in part (i), state which hypothesis can be accepted (1)</p>			
Commentary	<i>This is because the candidate has correctly applied their calculated Spearman's rank value to the critical values given.</i>	<i>0 marks as even with a value of 5.65 (which of course cannot be an obtained Spearman's rank r value) it would be bigger than 0.78 and so logically accept the hypothesis.</i>	
Mark	1	0	1

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1 (b) Assess the importance of tectonic hazard profiles in understanding the severity of impacts resulting from earthquake events. (12)

<p>Commentary</p>	<p><i>The candidate gives a brief definition of a hazard profile and further on in the first paragraph identifies two characteristics of a hazard profile and so gains AO1 marks. The candidate also lists two advantages of using hazard profiles and so gains some AO2 credit.</i></p> <p><i>The candidate then assesses the importance of the hazard profile by stating that they are subjective and substantiates this point with detail of the Haiti and Christchurch earthquakes.</i></p> <p><i>Within this there was also an assessment of why the severity of the impacts of these two earthquakes varied and so gains more AO2 credit as relevant connections were being made as so it demonstrates level 3 AO2 qualities as it</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas logically, making relevant</i> 	<p><i>The candidate gives a brief definition of a hazard profile and further on in the first paragraph identifies a characteristic of a hazard profile through the use of a diagram with named earthquakes but does not use any data on these earthquakes so gains AO1 credit as it:</i></p> <ul style="list-style-type: none"> <i>Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1)</i> <p><i>The candidate then assesses the importance of the hazard profile by stating that they are effective in quickly displaying the lots of information and so gains AO2 credit as relevant connections were being made as so it demonstrates level 2 AO2 characteristics as it</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of</i> 	<p><i>The candidate gives a brief definition of a hazard profile and further on in the first paragraph identifies a characteristics of a hazard profile (magnitude) and later on uses slightly inaccurate data in two earthquakes so gains AO1 credit as it</i></p> <ul style="list-style-type: none"> <i>Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1)</i> <p><i>The candidate then assesses the importance of the hazard profile by stating that there is no direct correlation between magnitude and number and so gains AO2 credit as relevant connections are being made as so it demonstrates level 2 AO2 criteria as it;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas logically,</i>
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	<p><i>connections/relationships. (AO2)</i></p> <p><i>The candidate then makes an overall judgement on the utility of the hazard profile by explaining that it does not consider the vulnerability of the areas under investigation and suggest s an alternative better way (the Degg model) to assess the factors affecting the severity of earthquake events.</i></p> <p><i>This gives the candidate more AO1 credit and as the candidate has now demonstrated all three AO1 descriptors shown in the mark scheme so it is believed that this response demonstrates Level 3 AO1 marks as it;</i></p> <ul style="list-style-type: none"> <i>Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1)</i> <p><i>The candidate then evaluates this further gaining the candidate more AO2 credit as it demonstrates level 3 AO2 credit as it;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of</i> 	<p><i>geographical information/ideas logically, making some relevant connections/relationships. (AO2)</i></p> <p><i>The candidate then explains that hazard profiles do not take into account vulnerability and so obtains AO2 credit as it shows</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas to produce a partial but coherent interpretation that is mostly relevant and supported by evidence. (AO2)</i> <p><i>The candidate then makes an overall judgement on the utility of the hazard profile by explaining that it is important 'but not the most effective' in determining earthquake severity. This gains the candidate some AO2 credit as it demonstrates level 2 AO2 characteristics when he/she;</i></p>	<p><i>making some relevant connections/relationships. (AO2)</i></p> <p><i>The candidate then examines both spatial predictability and speed of onset and makes some judgments on the utility of these aspects of the hazard profile and so obtains AO2 credit as it shows;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas to produce a partial but coherent interpretation that is mostly relevant and supported by evidence. (AO2)</i> <p><i>The candidate then makes an overall judgement on the utility of the hazard profile by explaining that it does not consider human factors and indeed that human factors might be 'more significant' in determining earthquake severity. This gains the candidate more AO2 credit as it demonstrates level 2 AO2 marks as it;</i></p>
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	<p><i>geographical information/ideas to produce a full and coherent interpretation that is relevant and supported by evidence. (AO2)</i></p> <p><i>Finally, the candidate gives a summary of their assessment and justifies why they believe that other models are more important than the hazard profile in understanding the impacts resulting from earthquake events and so gains more AO2 credit as it demonstrates level 3 AO 2 credit as it;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas to make supported judgements about the significance of factors throughout the response, leading to a balanced and coherent argument. (AO2)</i> 	<ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas to make judgements about the significance of some factors, to produce an argument that may be unbalanced or partially coherent. (AO2)</i> <p><i>It could be improved by having case study material that shows both sides of the argument</i></p>	<ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas to make judgements about the significance of some factors, to produce an argument that may be unbalanced or partially coherent. (AO2)</i> <p><i>The answer could have been improved by having accurate data (the Haiti and Christchurch information is incorrect) and better is of Japanese earthquake information as it is presumably the Tohoku earthquake event that the candidate is referring to. It would also have been improved if the candidate had substantiated some of the reasons why human factors pay a 'more' significant role in determining earthquake impacts.</i></p>
Mark	10	5	8

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3 (a) (i) Study Figure 3a which shows a coastal landscape.

Explain how erosional processes have contributed to the formation of the features shown. (6)

Commentary	<p><i>The candidate interprets the resource and identifies that part of the landscape is a cave that was formed at the site of a fault. In this way the candidate is obtaining AO2 credit as it is showing;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding to geographical information inconsistently. Connections/relationships between stimulus material and the question may be irrelevant. (AO2)</i> <p><i>The candidate then develops this by a partial explanation of hydraulic action but is insecure in their knowledge and so gains some AO1 credit as the answer</i></p> <ul style="list-style-type: none"> <i>Demonstrates isolated or generic elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1)</i> 	<p><i>The candidate interprets the resource and identifies that part of the landscape is a cave. In this way the candidate is gaining AO2 credit as the answer;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding to geographical information to find some relevant connections/relationships between stimulus material and the question. (AO2)</i> <p><i>The candidate then develops this by an explanation of erosional processes (abrasion/corrosion/hydraulic action) and so gains some AO1 credit as the answer;</i></p> <ul style="list-style-type: none"> <i>Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1)</i> 	<p><i>The candidate interprets the resource and identifies that part of the landscape is a wave cut platform. In this way the candidate is gaining AO2 credit as the answer;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding to geographical information to find some relevant connections/relationships between stimulus material and the question. (AO2)</i> <p><i>The candidate then develops this by a partial explanation of hydraulic action and abrasion as well as subaerial processes and so gains some AO1 credit as the answer;</i></p> <ul style="list-style-type: none"> <i>Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1)</i>
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	<p><i>The candidate further interprets the resource and identifies that part of the landscape is a stump that was formed at the site of the cave. Yet the candidate failed to develop their answer by either detailing how erosional processes would have caused this or how other contributing factor/processes might also have led to the formation of a stump. In this way the candidate is still only gaining level 1 AO2 as the answer;</i></p> <ul style="list-style-type: none"> <i>• Demonstrates isolated or generic elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1)</i> <p><i>Overall the candidate has not accurately explained how erosional processes have led to the identified features nor explained the contribution of erosion to the landscape by identify other processes such as mass movement r weathering. If it had this would have raised the response to level 2 and perhaps beyond.</i></p>	<p><i>The candidate further interprets the resource and identifies that part of the landscape is a stack and stump. In this way the candidate is gaining AO2 credit as the answer;</i></p> <ul style="list-style-type: none"> <i>• Applies knowledge and understanding to geographical information to find some relevant connections/relationships between stimulus material and the question. (AO2)</i> <p><i>Overall the candidate has interpreted the resource and linked it well to the processes of erosion and but needs to make more of attempt to address the concept of contribution of erosion to the landscape. Although the candidate mentions cracks and fissures it would have been better to use technical language such as joints, faults and bedding planes. It was therefore felt that the response was not worthy of level 3 marks.</i></p>	<p><i>The candidate further interprets the resource and identifies that part of the landscape is a stack. In this way the candidate is gaining AO2 credit as the answer;</i></p> <ul style="list-style-type: none"> <i>• Applies knowledge and understanding to geographical information to find some relevant connections/relationships between stimulus material and the question. (AO2)</i> <p><i>Overall the candidate has interpreted the resource and linked it to erosion but has not fully addressed the concept of contribution of erosion to the landscape (though there is an attempt the explanation of subaerial processes). It was therefore felt that the response was worthy of level 2 4 marks.</i></p> <p><i>It could have gained more marks and obtained level 3 by developing its AO1 knowledge by explaining in more detail erosional processes.</i></p>
Mark	2	4	3

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3 (a) (ii) Explain how subaerial processes have contributed to the development of this landscape. (6)

<p>Commentary</p>	<p><i>The candidate gains AO2 credit by identifying that the vegetation at the top of the cliff is likely to lead to biological weathering as the response shows</i></p> <ul style="list-style-type: none"> • <i>Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1)</i> <p><i>The answer could have been improved by explaining that as it was grass visible in the picture it was unlikely that root leverage would be the main form of biological weathering but rather weathering caused by the creation of humic acids.</i></p> <p><i>The candidate also gets some AO2 credit when they identify that debris at the entrance of the cave is likely to the result of block fall.</i></p> <p><i>The candidate gains some limited AO1 credit by identifying that</i></p>	<p><i>The candidate gains AO1 credit by explaining a variety of forms of mass movement and weathering and so shows that the response;</i></p> <ul style="list-style-type: none"> • <i>Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1)</i> <p><i>The candidate also gains AO2 credit by identifying that carbonation would attack the face of the cliff and so shows that the response shows;</i></p> <ul style="list-style-type: none"> • <i>Applies knowledge and understanding to geographical information to find fully relevant connections/relationships between stimulus material and the question. (AO2)</i> <p><i>It was therefore believed that as the candidate had identified that carbonation would act on the chalk/limestone face they were not</i></p>	<p><i>The candidate gains some AO2 credit by identifying that the heavily fractured cliff face is likely to lead to salt crystallisation as the response;</i></p> <ul style="list-style-type: none"> • <i>Applies knowledge and understanding to geographical information to find some relevant connections/relationships between stimulus material and the question. (AO2)</i> <p><i>The candidate gains AO1 credit by identifying that biological weathering was likely to be occurring and so shows that the response;</i></p> <ul style="list-style-type: none"> • <i>Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1)</i> <p><i>Finally the candidate gains further AO2 credit by identifying that the dip</i></p>
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	<p><i>oxidation was likely to be occurring but unfortunately links this with mass movement.</i></p> <p><i>Finally, the candidate also just gains AO2 credit by identifying that the small scree slope was likely to be the result of mass movement.</i></p> <p><i>This was thought to be worth level 2 marks as there was some use of the resource (cliff top vegetation, large block fall and small scree slope) but as with the previous response greater more detailed and accurate explanations of sub-aerial processes would have gained the candidate level 3.</i></p>	<p><i>only using the resource but also touching on how subaerial processes were contributing to the landscape and so the response was thought to be worth 13 5 marks.</i></p> <p><i>It could have been improved further by explaining how the geological structure also would have aided sub aerial processes</i></p>	<p><i>of the rock would lead to cliff falls. It could have been improved on more detail on sub-aerial processes as well as an acknowledgement of the role of these processes in the cave/arch/stack sequence.</i></p>
Mark	3	5	

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3 (b) Explain why hard engineering approaches are still used to protect some coastal environments. (8)

<p>Commentary</p>	<p><i>The candidate begins by explaining why one type of hard engineering (sea walls) was used to stop erosion and so gains AO1 credit as it;</i></p> <ul style="list-style-type: none"> <i>Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1)</i> <p><i>The candidate also uses Easington as an example and so gains AO1 credit as it ;</i></p> <ul style="list-style-type: none"> <i>Understanding addresses a range of geographical ideas, which are not fully detailed and/or developed. (AO1)</i> <p><i>The candidate then explains how in other locations (Mappleton) another form of hard engineering is used (groynes) and explains a second reason why they were chosen as they were 'effective' and 'long term. This was, however, similar to the reasons for the use of sea walls and</i></p>	<p><i>The candidate starts by explaining how hard engineering works and so gains some AO1 credit as they;</i></p> <ul style="list-style-type: none"> <i>Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1)</i> <p><i>The candidate then uses groynes in Swanage Bay as an example and so gains AO1 credit as it;</i></p> <ul style="list-style-type: none"> <i>Understanding addresses a range of geographical ideas, which are not fully detailed and/or developed. (AO1)</i> <p><i>The candidate then explains how in other non-exemplified locations hard engineering for the long term or to protect high value land and so gains more AO1 credit.</i></p> <p><i>The response could have been improved through either the use of a greater range of reasons why hard engineering is used or in greater</i></p>	<p><i>The candidate starts by explaining why hard engineering was used in the Netherlands with some case study detail and so gains AO1 credit as it;</i></p> <ul style="list-style-type: none"> <i>Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1)</i> <p><i>The candidate also uses the Holderness coast as an example and so gains AO1 credit as it</i></p> <ul style="list-style-type: none"> <i>Understanding addresses a broad range of geographical ideas, which are detailed and fully developed. (AO1)</i> <p><i>The candidate then explains how in other locations (Mexico) other forms of management would not be suitable or successful and so implicitly justifies the use of hard defences in their case studies.</i></p> <p><i>The response could have been improved through either the use of a</i></p>
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	<p><i>as a result it was not thought that this response was worthy of level 3. The candidate clearly has a good knowledge of the terminology of the topic but struggles to explain keywords. For instance, sea walls can unbalance dynamic equilibrium but for level 3 AO1 the candidate should go on to explain what they mean by such a term. Similarly, terminal groynes syndrome is a good use of technical language but has to be explained if level 3 AO1 is to be reached.</i></p> <p><i>In addition, the response could also have been improved through either the use of a greater range of reasons why hard engineering is used or in greater detail in the two examples used – perhaps in detailing the costs of the defences at Easington and comparing those with the value of the infrastructure that is being protected.</i></p>	<p><i>detail of the example used – perhaps in detailing the costs of the defences at Swanage and comparing those with the value of the infrastructure that is being protected.</i></p>	<p><i>greater range of reasons why hard engineering is used or in greater detail in the two examples used – perhaps in detailing the costs of the defences on the Holderness coast and comparing those with the value of the homes that are being protected.</i></p>
Mark	3	5	6

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3 (c) Evaluate the view that climate change is the most important factor in influencing coastal flood risk. (20)			
Commentary	<p><i>The candidate starts the response by explaining how climate change is likely to lead to sea level rise and so gains AO1 credit as it;</i></p> <ul style="list-style-type: none"> <i>Demonstrates geographical knowledge and understanding, which is mostly relevant and accurate. (AO1)</i> <p><i>The candidate then attempts to use Figure 3b (although inaccurately). It is important to realise that when these type of 20 mark questions are set the candidates must use the resource to satisfy the criteria of the mark scheme.</i></p> <p><i>By explaining how the climate change might be responsible for the increase in number of people at risk in Dhaka the candidate then gains AO2 credit as it shows;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas to find some logical and relevant</i> 	<p><i>The candidate starts the response by explaining how climate change is likely to lead to sea level rise and links this to the Maldives and so gains AO1 credit as it;</i></p> <ul style="list-style-type: none"> <i>Demonstrates geographical knowledge and understanding, which is occasionally relevant and may include some inaccuracies. (AO1)</i> <p><i>The candidate then makes links between climate change and isostasy and eustatic change and so gains AO2 credit as the answer;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical ideas in order to produce a partial interpretation that is supported by some evidence but has limited coherence. (AO2)</i> <p><i>There are some unfortunate misconceptions as to the role of</i></p>	<p><i>The candidate starts the response by explaining how climate change is likely to lead to sea level rise and so gains AO1 credit as it;</i></p> <ul style="list-style-type: none"> <i>Demonstrates geographical knowledge and understanding, which is mostly relevant and accurate. (AO1)</i> <p><i>The candidate then makes links between climate change and increase in storm surges and so gains AO2 credit as he;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas to find some logical and relevant connections/relationships. (AO2)</i> <p><i>The candidate then evaluates this by suggesting that other factors such as the extent of low lying land might also be responsible and so gains AO2 credit as it;</i></p>

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	<p><i>connections/relationships. (AO2)</i></p> <p><i>The candidate then evaluates this by suggesting that other factors such as the removal of mangrove swamps or human factors might be more responsible and so gains AO2 credit as it shows;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical ideas in order to produce a partial but coherent interpretation that is supported by some evidence. (AO2)</i> <p><i>The candidate then loses focus on the question and evaluates whether Shanghai is at risk due to the greenhouse gas emissions of China and then tries to link this to subsequent increase in risk.</i></p> <p><i>The candidate then again loses focus on the question by linking the population of India and China (not all of whom live by the coast) to those at risk but does gain some AO1 credit by examining the risk to the Maldives.</i></p>	<p><i>heavy rainfall and sea level rise but it is important to stress that work is never negatively marked. This paragraph simply doesn't assist the answer.</i></p> <p><i>The candidate then uses some of Figure 3b in relation to Bangladesh. It is important to realise that when these type of 20 mark questions are set the candidates must use the resource to satisfy the criteria of the mark scheme. By explaining how the climate change might be responsible for the increase in number of people at risk in Dhaka the candidate then gains AO2 credit as it shows;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas to find limited but logical and relevant connections/relationships between the stimulus material and the question (AO2).</i> 	<ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical ideas in order to produce a partial but coherent interpretation that is supported by some evidence. (AO2)</i> <p><i>The candidate then uses some of Figure 3b in relation to Dhaka. It is important to realise that when these type of 20 mark questions are set the candidates must use the resource to satisfy the criteria of the mark scheme. By explaining how the climate change might be responsible for the increase in number of people at risk in Dhaka the candidate then gains AO2 credit as it;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas to find some logical and relevant connections/relationships between the stimulus material and the question (AO2).</i>
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	<p><i>The candidate then develops a conclusion by agreeing with the view that climate change is the most important factor in influencing coastal flood risk. It is important to note that the candidate uses key facts and figures that have already been cited to come to this judgement. In this way the candidate shows that they can;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas to come to a conclusion, largely supported by an argument that may be unbalanced or partially coherent. (AO2)</i> <p><i>The answer could be improved by explaining what they understood by the meaning of risk and then evaluating whether climate change was indeed the biggest threat to future flood risk. It could also be improved by using the resource more effectively by perhaps looking at financial risk as opposed to just the increase in the risk to the number of people.</i></p>	<p><i>The candidate then makes a conclusion by disagreeing with the view that Climate change is the most important factor in influencing coastal flood risk. It is important to note that the candidate does not use key facts and figures that have already been cited to come to this judgement. Although the candidate is obtaining AO2 credit as it shows that they can;</i></p> <ul style="list-style-type: none"> <i>Applies knowledge and understanding of geographical information/ideas to come to a conclusion, partially supported by an unbalanced argument with limited coherence. (AO2)</i> <p><i>However, it a L4 answer would usually offer some substantiation.</i></p> <p><i>The answer can be improved by using Figure 3b far more and evaluating whether other factors such as population growth are more important in determining flood risk as opposed to climate change.</i></p>	<p><i>The candidate then makes a conclusion by disagreeing with the view that climate change is the most important factor in influencing coastal flood risk although this really doesn't 'follow' from the rest of the essay. It is important to note that the candidate does not use key facts and figures that have already been cited to come to this judgement. Although the candidate is obtaining AO2 marks as it shows they can;</i></p> <p><i>Applies knowledge and understanding of geographical information/ideas to come to a conclusion, largely supported by an argument that may be unbalanced or partially coherent. (AO2)</i> <i>It cannot gain L4 as it is not substantiated.</i></p> <p><i>The answer can be improved not only by using Figure 3b far more effectively but also evaluating whether other factors such as population growth are more important in determining flood risk as opposed to climate change to add some weight to their case.</i></p>
Mark	13	8	11

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