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**General Certificate of Education (A-level)
June 2013**

Geography

GEO4B

(Specification 2030)

Unit 4B: Geographical Issue Evaluation

Final

Mark Scheme

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all examiners participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for standardisation each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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General Guidance for GCE Geography Assistant Examiners

The mark scheme for this unit includes an overall assessment of quality of written communication. There are no discrete marks for the assessment of written communication but where questions are "Levels" marked, written communication will be assessed as one of the criteria within each level.

Level 1: Language is basic, descriptions and explanations are over simplified and lack clarity.

Level 2: Generally accurate use of language; descriptions and explanations can be easily followed, but are not clearly expressed throughout.

Level 3: Accurate and appropriate use of language; descriptions and explanations are expressed with clarity throughout.

Marking – the philosophy

Marking is positive and not negative.

Mark schemes – layout and style

The mark scheme for each question will have the following format:

- a) Notes for answers (nfa) – exemplars of the material that might be offered by candidates
- b) Mark scheme containing advice on the awarding of credit and levels indicators.

Point marking and Levels marking

- a) Questions with a mark range of 1-4 marks will be point marked.
- b) Levels will be used for all questions with a tariff of 5 marks and over.
- c) Two levels only for questions with a tariff of 5 to 8 marks.
- d) Three levels to be used for questions of 9 to 15 marks.

Levels Marking – General Criteria

Everyone involved in the levels marking process (examiners, teachers, students) should understand the criteria for moving from one level to the next – the “triggers”. The following general criteria are designed to assist all involved in determining into which band the quality of response should be placed. It is anticipated that candidates’ performances under the various elements will be broadly inter-related. Further development of these principles will be discussed during the standardisation process. In broad terms the levels will operate as follows:

Level 1: attempts the question to some extent (basic)

An answer at this level is likely to:

- display a basic understanding of the topic
- make one or two points without support of appropriate exemplification or application of principle
- give a basic list of characteristics, reasons and attitudes
- provide a basic account of a case study, or provide no case study evidence
- give a response to one command of a question where two (or more) commands are stated e.g. “describe and suggest reasons”
- demonstrate a simplistic style of writing perhaps lacking close relation to the terms of the question and unlikely to communicate complexity of subject matter
- lack organisation, relevance and specialist vocabulary
- demonstrate deficiencies in legibility, spelling, grammar and punctuation which detract from the clarity of meaning.

Level 2: answers the question (well/clearly)

An answer at this level is likely to:

- display a clear understanding of the topic
- make one or two points with support of appropriate exemplification and/or application of principle
- give a number of characteristics, reasons, attitudes
- provide clear use of case studies
- give responses to more than one command e.g. “describe and explain..”
- demonstrate a style of writing which matches the requirements of the question and acknowledges the potential complexity of the subject matter
- demonstrate relevance and coherence with appropriate use of specialist vocabulary
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which do not detract from the clarity of meaning.

Level 3: answers the question very well (detailed)

An answer at this level is likely to:

- display a detailed understanding of the topic
- make several points with support of appropriate exemplification and/or application of principle
- give a wide range of characteristics, reasons, attitudes
- provide detailed accounts of a range of case studies
- respond well to more than one command
- demonstrate evidence of discussion, evaluation, assessment and synthesis depending on the requirements of the assessment
- demonstrate a sophisticated style of writing incorporating measured and qualified explanation and comment as required by the question and reflecting awareness of the complexity of subject matter and incompleteness/ tentativeness of explanation
- demonstrate a clear sense of purpose so that the responses are seen to closely relate to the requirements of the question with confident use of specialist vocabulary
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which contribute to complete clarity of meaning.

Mechanics of marking

- Various codes may be used such as: 'rep' (repeated material), 'va' (vague), 'NAQ' (not answering question), 'seen', etc.
- Unless indicated otherwise, always mark text before marking maps and diagrams. Do not give double credit for the same point in text and diagrams.

Annotation of Scripts

It is most important that examiners mark clearly, according to the procedures set out below.

- The right hand margin should be used for marks only.
- Where an answer is marked using a levels response scheme, the examiner should annotate the scripts with 'L1', 'L2', or 'L3' at the point where that level has been reached in the left hand margin. At each point where the answer reaches that level, the appropriate levels indicator should be given. In addition, examiners may want to indicate strong material by annotating the script as "Good Level...". Further commentary may also be given at the end of the answer. Where an answer fails to achieve Level 1, zero marks should be given.
- Where answers do not require levels of response marking, the script should be annotated to show that one tick equals one mark. The tick should be positioned in the part of the answer which is thought to be creditworthy. For point marked question where no creditworthy points are made, zero marks should be given.

Other mechanics of marking

- All errors and contradictions should be underlined.
- Various codes may be used such as: 'rep' (repeated material), 'va' (vague), 'NAQ' (not answering question), 'seen', etc.
- Use a wavy line to indicate weak dubious material (avoiding crossing out).

Unless indicated otherwise, always mark text before marking maps and diagrams. Do not give double credit for the same point in text and diagrams.

<p>1 (a)</p> <p>AO3 – 6</p>	<p>Notes for answers</p> <ul style="list-style-type: none"> • The total number has risen fairly steadily throughout the period. • Between 1980 and 2009 the total has doubled. • The peak for total disasters was in 2007 at over 1000. • The number of storms has also increased steadily and has doubled from about 200 p.a. to around 400 p.a. • Hydrological events have increased faster, from around 100 p.a. to around 300 p.a. • Climatological events have also increased but perhaps not as quickly as some others. • Climatological events have also shown most variability, with low numbers in 1984-6 and 2003-5. • Geophysical events have not shown the same pattern of increase over the period. • Some increase can be seen between 1980 and 2000 but the number seems to have fallen and then steadied in the last ten years or so. <p>Mark scheme</p> <p>Only give marks for description not for explanation and not for criticism of the source of the data</p> <p>Level 1 (1 – 3 marks) mid-point 2 Some relevant points are made. However, these points are isolated and do not provide any sense of overview of the figures. The answer may be 'data-waffle' with little reference to patterns or trends. The nature of the compound graph may not be clearly understood. Observations are vague.</p> <p>Level 2 (4 – 6 marks) mid-point 5 To reach level 2 there must be a clear reference to the overall pattern or clear reference to at least one of the 4 elements; and there must be some use of figures to illustrate a point. At the top end of the level candidates must draw a comparison between the elements with big increases and those with small increases and there must be an element of manipulation of the data.</p>	<p>(6 marks)</p>
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<p>1 (b)</p> <p>AO1 – 1 AO2 – 1 AO3 – 4</p>	<p>Notes for answers</p> <p>The table shows that all of the ten hottest years for the globe have come since 1998.</p> <p>It also shows that 8 years in the first decade of the 2000s, so all except 2000 and 2008, have been in the top 10.</p> <p>This evidence supports the idea of global warming, which is generally taken to be causing climate change.</p> <p>One commonly cited possible result of climate change is an increase in the frequency and the intensity of storms.....and this suggests a reason for the increase in 'meteorological events' on the graph.</p> <p>Similarly, a possible result of climate change is increased rainfall in some areas and this may be a cause of the increase in 'hydrological events' on the graph.</p> <p>Of course climate change also affects 'climatological events' although these are likely to be seen over longer periods. However, climate change and global warming would almost certainly be at least a partial cause of the increase in these events shown on the graph.</p> <p>However, climate change is likely to have only a very minor effect on geophysical events through isostatic rebound – if it has any – and this is consistent with the fact that no clear increase in these events is shown on the graph.</p> <p>Some doubt might be cast on the relationship though, by the dip in the number of climate related events between 2001 and 2004. All of these years were in the top 10, so why should the number have fallen?</p> <p>Therefore, it is only sensible to conclude that there does appear to be a link but that there is nowhere near enough evidence here to be confident that such a link exists. On the other hand there are many other sets of evidence that also support the conclusion that global climate is changing, getting warmer and less stable, and that these changes are affecting the number and severity of natural disasters around the world.</p> <p>If melting/isostasy/crust movement argument is made clearly allow it. But also allow the <i>no link between climate change and tectonics</i> argument.</p> <p>Spearman might have been attempted but it is not very easy to apply and must be justified and explained in detail to reach Level 2. There is no credit for the formula but do credit explanations of how the ranking was done or how Rs was interpreted.</p> <p>It is more useful to do Spearman with individual elements than with the overall pattern.</p> <p>Scatter graphs to show trends in individual elements are even more useful. These show clear patterns of change for hydrological, meteorological and climatological events than are apparent on the compound bar. This might well show Level 2 qualities.</p>	<p>(6 marks)</p>
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	<p>Mark scheme</p> <p>Level 1 (1 – 3 marks) mid-point 2 Basic points are made but these do not form a clear and coherent argument. The answer may make comments that may be sensible but are not supported with clear evidence. The answer may lift evidence from the graphs but not use it to support sensible points. Answers may be too sweeping, making strong points from flimsy evidence.</p> <p>Level 2 (4 – 6 marks) mid-point 5 Clear points are made, which develop a coherent argument. At least once, evidence is taken from the graphs to support a clearly made and relevant point. As the number and clarity of clear points increases, the answer moves up through the level. To reach the top of the level there should be clear reference to at least two of the different sets of data in Figure P1. To reach the top of the level climate-based and number-based arguments should be well integrated.</p>	
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<p>2</p> <p>AO1 – 5 AO2 – 5 AO3 – 5</p>	<p>Notes for answers</p> <p>At the time of writing there has been a series of well-publicised earthquakes (some followed by tsunamis) and volcanoes – Pakistan, Haiti, China, New Zealand, Japan, Iceland, etc. Their occurrence in places with either dense populations, poor populations or with easy access to the world’s media, or with all of these, has led to a large amount of publicity in a variety of media outlets. This may well have created an impression of an increase. However, the evidence does not support this.</p> <p>Figure P3 shows that the total number of quakes of M7 and above has stayed approximately constant since 1973 when the USGS records began. There have been some fluctuations in the total, and 1979-89 might have had slightly fewer than the rest of the period, with 1986-9 having a particularly low number. Then 1991 – 2009 seems to have a slightly higher number.....but there is no indication of a serious trend in these figures, according to the USGS.</p> <p>Figure P4 shows the magnitude of all earthquakes in each year and there does seem to have been an increase over the period from 1973 to 2009, and more particularly over the period from 2004-09. However, this apparent increase is mainly due to two particular events in 2004 and 2007 and this is not enough to provide conclusive evidence of a long-term trend.</p> <p>Figure P5 shows that two other events – in 1960 and 1964 dwarf all subsequent energy releases. This graph suggests that any possible trends shown in Figure P4 are fairly insignificant when compared with the pattern over a longer period.</p> <p>Any other relevant data from Item 1 that is referred to should be given credit.</p> <p>‘More common’ and ‘more serious’ are not the same. Monitoring/building regulations, etc., affect seriousness of events. Population pressure can push people into quake prone areas possibly increasing seriousness.</p> <p>Mark scheme</p> <p>Level 1 (1 – 6 marks) mid-point 4 At least one relevant point is extracted from the data. As more relevant material is extracted and used in a basic way, the mark moves up through the level but the answer remains basic. The answer does not develop a coherent argument and no data is understood clearly or used to support a clear development of ideas. References that go beyond the AIB are general and basic they are not well linked to the AIB data.</p> <p>Level 2 (7 – 12 marks) mid-point 10 At least one figure from Item 1 is understood and explained clearly and used in the development of a logical, relevant argument. As more Figures are used, understood and explained, the mark moves up through the level. There may be some reasonable attempt to discuss different points of view, including perception and factors influencing it. There are no major errors in the interpretations of the Figures.</p> <p>Level 3 (13 – 15 marks) mid-point 14 Data from Item 1 are used in a detailed and coherent way to develop an argument that is convincing and is based on a thorough understanding of the material and its associated concepts. Different points of view should be considered but a clear conclusion should be reached (even if the conclusion is that there is not enough data, collected over a long enough period, to be certain of any final interpretation). Discussion is detailed and relevant. The candidate thinks like a geographer.</p>	<p>(15 marks)</p>
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<p>3</p> <p>AO1 – 1 AO2 – 6 AO3 – 8</p>	<p>Notes for answers</p> <p>Causes include:</p> <ul style="list-style-type: none"> • Movement of the Pacific Plate relative to the Australian Plate • Changes in the direction of the relative movement just north of Christchurch • Subduction to the north • Conservative margin to the west of Christchurch • Triggering caused by the movement in the Darfield Fault in Sept 2010 • The build-up of tension along the fault beneath Christchurch in the decades and centuries before the slip. <p>Reasons for the higher death toll include:</p> <ul style="list-style-type: none"> • Shallow focus • Nature of the faulting led to vertical and horizontal movement • Movement was very rapid causing intense shaking • Sedimentary rocks led to liquefaction • ‘Seismic lensing’ probably increased the intensity of the shock waves • The epicentre was close to the built up area • The quake took place at lunchtime when the town was crowded • Some of the suburbs were built on the edge of hills and this led to rockfalls and landslips. <p>Mark scheme</p> <p>Level 1 (1 – 6 marks) mid-point 4 One or more of the causes or the reasons is described in a basic way. As more basic points are made the answer can rise through the level. The answer does not develop any points clearly enough to show clear understanding of the factors or their implications.</p> <p>Level 2 (7 – 12 marks) mid-point 10 One or more points are explained clearly showing good understanding. Ideas are developed and/or linked and connected rather than just being lifted from the AIB without being thought through and used to answer the question set.</p> <p>As more points are made, clearly the answer can rise through the level. Maximum of 10 marks can be attained if <i>only</i> causes or <i>only</i> reasons are given.</p> <p>Comparisons between Christchurch and Darfield are developed clearly. Comparisons with other areas studied may also be made and should be given credit if they are relevant and clearly used.</p> <p>Level 3 (13 – 15 marks) mid-point 14 The answer is well developed and thorough. A coherent argument is developed throughout the answer. Relevant references are made to places and details of the area and the two quakes are compared in a thorough and logical way. Comparisons with other areas studied may also be made and should be given credit if they are relevant and clearly used. The candidate thinks like a geographer.</p>	<p>(15 marks)</p>
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<p>4</p> <p>AO2 – 4</p> <p>AO3 – 4</p>	<p>Notes for answers</p> <p>Item 3 provides an analysis of some of the reasons for the Christchurch Earthquake. It concludes:</p> <p><i>“The fact that the Greenfield Fault and the fault that moved on the 22 February were not previously known to geologists, and do not seem to be marked by surface features such as scarp slopes and river terraces, suggests the faults have not been active in the recent geological past. Instead, the fact that they have been totally buried beneath the river-borne debris coming off the uplifted Southern Alps to the west tells us that these faults do not rupture very often.This seems to suggest that these faults need a long time to build up enough stress to rupture in an earthquake – probably the high hundreds or low thousands of years. I suspect that these particular faults have done all the damage that they are going to do to Christchurch for the foreseeable future.”</i></p> <p>Candidates need to deal with this advice one way or another.</p> <p>Other evidence shows that the intensity of the aftershocks is declining. It appears that the tension on the fault has been released and so the area is likely to be safe for the foreseeable future.</p> <p>Mark scheme</p> <p>Level 1 (1 – 4 marks) mid-point 3 One or more basic points are made which shows some limited understanding of the geological situation.</p> <p>Level 2 (5 – 8 marks) mid-point 7 One or more point is made clearly to show a good understanding of the geological situation, and to deal with Chris Rowan’s advice, either to agree or disagree. At the top of the level the answer is reasonable and provides credible advice, supported by clear evidence, which would be helpful to Lisa’s mum.</p>	<p>(8 marks)</p>
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<p>5 AO1 – 3 AO2 – 4 AO3 – 3</p>	<p>Notes for answers</p> <p>The answer could be drawn, in part or even completely, from the Christchurch example. Points made by Lisa include:</p> <ul style="list-style-type: none"> • The NZ government seems well organised to minimise the risks • The insurance schemes in the area seem well organised • It may well be difficult to sell their house in that area just now and they have a lot of capital tied up in it • The family is settled in school and work in the area • Doctors, like Lisa, are particularly needed at present • etc. <p>Answers from poorer countries and regions could include:</p> <ul style="list-style-type: none"> • there are no alternatives • increasing population pushes people into ever more marginal areas • lack of knowledge and understanding of tectonic activity • etc. <p>In any areas:</p> <ul style="list-style-type: none"> • passive acceptance of fate or the will of God • calculated risk suggests that activity is unlikely in the near future. <p>The use of relevant examples from any part of the world is to be encouraged and rewarded. Cost benefit analysis is good.</p> <p>Mark scheme</p> <p>Level 1 (1 – 4 marks) (mid-point 3) Basic points are made but these are isolated and do not develop a clear argument. Examples may not be used. When they are, they are superficial. References to Christchurch may be underdeveloped lists from AIB.</p> <p>Level 2 (5 – 8 marks) (mid- point 7) Points are made clearly and the answer starts to develop a structured argument. The answer may make some use of examples and these are clear but not developed fully. The answer may be unbalanced with regards to levels of development. Synoptic links start to be made.</p> <p>Level 3 (9 – 10 marks) (mid-point 9) The answer is thorough and well-argued. Contrasting levels of development are considered, with examples. The answer is synoptic and shows that the candidate is thinking like a geographer.</p>	<p>(10 marks)</p>
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