

Geography - G1

January 2010

	Knowledge and Understanding	Application	Skills	Total	Key Question
Question 1					
(a)		2	3	5	1.4
(b)	8	2		10	1.2
(c)	7	3		10	1.4
	15	7	3	25	
Question 2					
(a)		2	3	5	2.5
(b)	8	2		10	2.5
(c)	7	3		10	2.5
	15	7	3	25	
Question 3					
(a)			7	7	
(b)	4	4		8	
(c)	2		8	10	
	6	4	15	25	

Q.1 (a) Use Figure 1 to describe the influence of climate change on the changing distribution of the Mountain Ringlet butterfly. Theme 1.4 [5]

Award 1 mark for each comment that looks at how climate change has affected the distribution of the Mountain Ringlet. This can refer to:

- the retreat to higher altitudes;
- the influence of higher temperature;
- cooler conditions in the highlands;
- changes in the natural habitat;
- possible extinction;
- in England and Scotland or lowlands;
- competition from other species;
- the impact of land use change;
- the effect on population size.

(b) Describe and explain one example of short term climate change. Theme 1.2 [10]

Accept a flexible definition of short term. Some candidates may approach short term from the view of change that is in the form of 5-7 years and review El Nino whilst others may approach short term from a geological angle and address fluctuations over the last 1000 years. Other approaches may address climate change induced by volcanic activity and recent climate change seen as a result of global warming.

Descriptions of climate change will vary with the example selected. In the case of El Nino comment may be made on changing patterns of rainfall, temperature, storm activity and drought. Be prepared to accept answers that examine climatic change with reference to a limited geographical area. Climatic change over the past 1000 years may examine the characteristics of the Medieval Warm Period and the Little Ice Age. Detail here may look at temperature and precipitation patterns over hundreds of years and thus be more general in character than accounts of more recent change. Some answers may address single events such as droughts associated with El Nino events but these need to be linked to patterns. Another valid approach may see recent increases in temperature as a pattern with no reference to the cyclic nature of change. These answers may provide detail of the changing climate in the form of temperature, precipitation and extreme weather events.

Explanations of climate change will need to be appropriate to the example chosen. In the case of El Nino the role of ocean currents and sea temperature will be the most common explanation. The causes of the Little Ice Age and Medieval warm period there are a variety of explanations that have been put forward that include sun spot activity, volcanic activity, changing surface albedo, Milankovic theory and the changing ocean/atmosphere conveyor in the Atlantic. Explanations for recent increases in temperature will probably focus on human activity.

Level 3 8-10 marks	Description and explanation in detail. Detailed understanding of process and integrated link to short term pattern of climate change. Good use of an example.
Level 2 4-7 marks	There may be an imbalance between description and explanation. Understanding of process has some depth and is well linked to the link to short term pattern of climate change. Example enhances the explanation.
Level 1 0-3 marks	Superficial understanding of processes that link to short term pattern of climate change. Answers may only focus on effects. Little use of an example.

(c) Discuss the potential impacts of rising sea level on people.**Theme 1.4 [10]**

The question enables a wide range of approaches in both content and areal extent. Some candidates may take an approach that has a focus on a single aspect such as economy, society or demography. Others may address the question by giving a composite view. An examination of the economic impacts may look at the impact on agricultural production, tourism, transport, costs of protection, insurance and rebuilding and repair after damage caused by storms. Social impacts can be loss of homeland and culture, political unrest generated by protests and conflicting interest groups, health issues caused by contamination of groundwater and refugees and changing life styles. Demographically, rising sea levels will change population distributions, lead to a large number of refugees, and may give an increase in casualties from events such as flooding. Candidates may examine strategies that have been put in place as a result of sea level change. There may be other valid content which should be given credit. An alternative approach may take a region or small area and give a combination of the above impacts. The most obvious examples that could be used are Bangladesh, tundra regions, Pacific islands and coastal UK.

There may be some element of description but knowledge should be applied so that the impact is explained in the context of rising sea level.

Level 3 8-10 marks	Description and explanation in detail. Detailed understanding of process and integrated link to impacts of rising sea level. Good examples.
Level 2 4-7 marks	Description and understanding of impacts has some depth Examples are evident and enhance the explanation
Level 1 0-3 marks	Superficial understanding of impacts of rising sea level Little use of examples.

- Q.2 (a) Use Figures 2(a) and 2(b) to describe the links between changing land use and surface run off in Long Eagle Creek drainage basin.**
Theme 2.5 [5]

Allow 3 marks for comment on the changes seen in the diagrams. There is an increase in the high density residential and commercial and a decrease in the woodland and pasture. Candidates may also comment on the fluctuation and/or increase in runoff. Allow 2 marks for comment that establishes and develops the link.
1 mark per point made.

- (b) Explain how two of the physical characteristics of a drainage basin can increase the risk of flooding.**
Theme 2.5 [10]

Answers will vary in explanatory comment according to the physical factors that are selected. The focus should be on how physical characteristics act to cause an increase in the amount of, and speed by which, water passes through the drainage basin to the river.

Geology may be identified and explanatory comment made on how impermeability leads to an increase in runoff because of lack of infiltration and increased overland flow. There may be comment on decrease in percolation and therefore waterlogging of soil which links to higher overland flow.

The nature of the slopes in the drainage basin may be examined with comments that address subsequent increase in overland flow. Some may look at low angle slope and explain flooding in the form of surface water.

The character of precipitation may be examined to include the type of precipitation, the amount of precipitation, and the intensity of precipitation. These factors can be linked with the passage of water through the basin to explain the amount of, and speed by which, water reaches the river.

The nature of vegetation may be examined in the form of type – scarcity of vegetation leading to more water reaching the river. Some candidates may also address the season as a derivative of vegetation and explore the increase of flooding in the winter.

The natural characteristics of the soil may be examined in terms of depth, texture, state such as baked, frozen.

Shape may also be examined with reference to the speed of transfer through the basin.
Credit good illustrative material.

Level 3 8-10 marks	Description and explanation of both characteristics in detail. Detailed understanding of process and integrated link to floods.
Level 2 4-7 marks	There may be an imbalance of two characteristics. Understanding of process has some depth and is linked to the production of floods.
Level 1 0-3 marks	Superficial understanding of processes that link to the production of floods.

(c) Discuss the effectiveness of management strategies used to overcome the impacts of flooding. Theme 2.5 [10]

The question consists of a number of elements that the candidate may comment on:

- a description of the strategies;
- an analysis of how the strategies operate to overcome the impacts of flooding;
- a discussion of the effectiveness of the strategies.

The strategies used to overcome the impacts of flooding will vary greatly with the examples that are chosen but expect candidates to refer to methods of preparation (warning systems, changing internal organisation of dwellings, education and training), protection (embankments, washlands, sand bags), adaptation (forestation, land use planning) and mitigation (aid). Candidates need to show knowledge of at least two strategies – not groups of strategies – and an understanding of how they operate to overcome the impacts of flooding. This element may take the form of description rather than analysis, and there must be a discussion of the effectiveness of the measures in order to access Level 3. The discussion of effectiveness may involve a variety of threads to the analysis which can be given credit in the form of breadth or depth. Effectiveness can be seen to be associated with overcoming frequency of flood, amount of economic damage, protection or preparation of community or any other valid analysis. Another approach may be to compare the effectiveness of two or more strategies which opens up the LEDC v MEDC line of attack. This is valid as long as strategy is discussed rather than an undirected comparison of wealth.

Allow coastal as well as river flooding.

Level 3 8-10 marks	Description, knowledge and explanation of strategies to address flooding in detail. Integrated analysis of effectiveness. Good knowledge of example of strategies to address flooding.
Level 2 4-7 marks	Description, understanding and knowledge of strategies to address flooding have some depth. Some discussion of effectiveness. Examples are evident and enhance strategies to address impacts of flooding.
Level 1 0-3 marks	Superficial understanding and knowledge of strategies to address flooding. No discussion of effectiveness. Little knowledge of example.

- Q.3 (a) Describe the changes resulting from the 2004 tsunami on the area shown in Figure 3.

[7]



Also accept widening of river mouth/rivers; discolouration of sea; beaches gone; destruction of roads/footpaths; land covered in sediment; fragmentation of land.

Level 3 6-7 marks	Shows clear and detailed identification and description of changes. Extensive use of the resource.
Level 2 3-5 marks	Shows some ability to identify and describe changes. Uses some information from the resource.
Level 1 0-2 marks	Limited ability to identify and describe changes.

(b) Examine the value of photographs and field sketches in the investigation of changing physical environments. [8]

Candidates may comment that photographs and field sketches:

- provide a visual image;
- provide evidence;
- enable information to be recorded in the field and analysed back in class;
- enable the reality of a site to be recorded rather than an impression by the researcher in the field;
- video records may enable analysis of process to be done in class;
- can identify change over time by comparison of photographs and sketches;
- can identify change over space by comparison of photographs – impacts of floods in different areas;
- enable the main points of a site to be recorded;
- increase powers of observation

Accept any other valid comments e.g. Google Earth.

Level 3 6-8 marks	Good understanding of strengths. May examine weaknesses. Clear ability to express ideas in a logical and directed manner.
Level 2 3-5 marks	Some understanding of strengths and/or weaknesses that is displayed in either breadth or depth.
Level 1 0-2 marks	Limited breadth and depth of understanding of value of visual displays.

(c) Discuss the strengths and weaknesses of the methods of presenting data used in your own investigation into a changing physical environment. [10]

You should state clearly the question that you have investigated

Answers show knowledge of the presentation methods used. Allow credit for description of the method. The methods of presentation will be broad and markers should be prepared to accept a range of methods – maps, graphs, tabulation and diagrams (sketches and photographs may also be credited as long as directed to the investigation identified). Comment on strengths and weaknesses may address clarity, accuracy and applicability.

Level 3 8-10 marks	Good understanding of strengths AND weaknesses. Clear ability to express ideas in a logical and directed manner.
Level 2 4-7 marks	Some understanding that is displayed in either breadth or depth. Good understanding of strengths OR weaknesses.
Level 1 0-3 marks	Limited breadth and depth of understanding of the strengths and weaknesses of the methods.