GCE GEOGRAPHY - G1

CHANGING PHYSICAL ENVIRONMENTS

Q.1. (a) Describe the changes in greenhouse gas emissions shown in Figure 1. (1.2) **[5]**

There are a number of patterns that can be identified from the graph/table.

- total increase in GHG ouputs
- energy rises fastest most greatest variability (1)
- agriculture rises after initial decrease
- slow increase in industrial processes
- decline in waste

Allow 1 mark for for identification of each change with extra mark for use of data from resource.

(b) Outline two changes to the physical environment that provide evidence for climate change. (1.3) **[10]**

Question is looking for changes to the physical environment so allow credit for comment that may address the atmosphere, hydrosphere and biosphere. Do not allow credit that refers to impacts on humans or human activity. The command looks for description of change but allow explanation of how climate change leads to the identified modification.

Expect reference to the following:

- modification of atmosphere
- changing frequency of extreme climatic events
- changing distribution of climate belts
- sea level variations
- salinity variations in oceans
- species distribution
- glacier retreat and advances and alterations of the ice caps
- permafrost changes
- changing hydrological character of rivers

Level 3 8-10 marks	Detailed and developed knowledge of changes to physical environment. Good development of examples.
Level 2 4-7 marks	Some knowledge of changes to physical environment. Examples may be evident and enhance knowledge. Max. If no examples given.
Level 1 0-3marks	Superficial knowledge of changes to physical environment. Simplistic use of examples.

(c) Examine how the impacts of climate change differ between regions.
(6.4) **[10]**

Many candidates will approach this question with a comparison of the impacts of climate change on rich and poor countries. Comment may be made on the differences in the scale and type of impact with reference made to the variations in economic, demographic and social impact. This could be done by a comparison of two countries or by a comparison of LEDC and MEDC. The explanation in this case will usually refer to the different financial capabilities of different regions to prepare for, and mitigate against, the impacts of climate change.

Other candidates may take a different basis for comparison such as a coastal and inland regions, upland and lowland regions, populated or unpopulated regions, different climatic regions etc. These approaches are valid in the context of the question as long as they identify valid differences in the impacts and provide a rational explanation that links effectively to the variation of impacts.

Accept answers that approach the question from a physical viewpoint such as variations in rainfall, examination of impacts on biomes.

Level 3 8-10 marks	Detailed and developed knowledge of regional variations in the impacts of climate change. Developed and linked understanding of the nature of variation in the impacts of climate change. Good development of examples.
Level 2 4-7 marks	Some knowledge of regional variations in the impacts of climate change. Some understanding of nature of variation in impacts of climate change. Examples are evident and enhance the explanation. Max. If only one region examined or if straight description.
Level 1 0-3marks	Superficial knowledge of regional variations in the impacts of climate change. Superficial understanding of how the impacts of climate change vary. Little use of examples.

Q.2 (a) Describe the local impacts of earthquake activity shown in Figure 2.
(2.2) **[5]**

Candidates may make reference to a variety of impacts that have been felt in L'Aquila and Onna. The first picture may bring comments associated with the loss of cultural heritage and may also refer to economic loss that may ensue due to loss of tourism. The second picture may examine economic impacts on local people as cars have been damaged and housing has been destroyed. There is also evidence of disruption of transport systems. It is also possible to examine impacts on people in the form of injury and mortality. The question is looking for local impacts and is focused on the photographs. Allow 1 mark for a valid impact with a further mark for evidence from the photographs.
Max 3 if no reference to photographs, or a simplistic list.

(b) Discuss some of the social impacts that are the result of tectonic activity. (2.2) [10]

The answer to this question requires candidates to display knowledge and understanding of the social impacts of tectonic activity. There will need to be reference to at least two impacts for Level 3 and they can be related to earthquakes and/or volcanic activity. The scale used can be local, regional or global or can be a combination of these related to a particular event. It is expected that the impacts dealt with will by candidates will mainly be negative but be prepared to credit comment that is positive in nature such as increased social cohesion. There should be reference to exemplar material and many answers will be formulated using case study materials.

The question has a focus on social impacts rather than economic, demographic and environmental but answers may introduce the social element using these as a starting point. As social is a rather broad category there will need to be some flexibility in the marking of answers.

Common approaches may examine, as social issues impacts on:

- health
- water supplies
- power supplies
- housing
- transport
- sanitation
- social cohesion
- Family (psychological/stress)

Be prepared to credit other valid social impacts. Allow breadth or depth of approach for full marks.

Level 3 8-10 marks	Detailed and developed understanding of social impacts produced by tectonic activity. Good development of examples.
Level 2 4-7 marks	Some understanding of social impacts produced by tectonic activity. Examples are evident and enhance the explanation. Lacks balance. Max. If no examples or lacks balance.
Level 1 0-3marks	Superficial understanding of social impacts produced by tectonic activity. Little use of examples.

(c) Outline two different stategies used to manage tectonic hazards.

(2.3) **[10]**

There will be a great variety of strategies used depending on the hazard(s) selected and the examples that have been studied. Credit strategies that address prediction, prevention, preparation, adaptation and land use planning. The focus of the question is outline so expect to see answers that describe the identified strategy and how it manages the hazard. The management may refer to how the strategy allows people to avoid the hazard, to absorb the impacts the impacts of the hazard or to alleviate the impacts of the hazard after it has occured.

Popular strategies that may be used are:

Earthquakes: building engineering, earthquake preparedness, household seismic safety, seismic retrofit, education for citizens, emergency service training, evacuation for tsunamis, land use plans, aid and earthquake prediction.

Volcanoes: early warning systems, evacuation, emergency plans, education for citizens, emergency service training, building engineering, land use plans and aid.

Accept approaches that have a case study structure.

Level 3 8-10 marks	Knowledge of strategies and mitigation are detailed and developed. Good use of examples.
Level 2 4-7 marks	Some depth to knowledge of strategies and mitigation. Examples are evident.
Level 1 0-3marks	Superficial knowledge of strategies and mitigation. Little use of examples.

Q.3 (a) Use information from Figure 3 to suggest how effective the flood prevention scheme may be. [7]

The resource provides a number of comments that can be used to come to a view on the effectiveness of the scheme. Effectiveness could refer to costs, time for completion, benefits of the scheme.

Positives that result from the scheme can be seen as economic – less money lost as risk of flooding reduced, social – peace of mind to residents and businesses, recreation in new wetland and physical – protects against the 1 in a 100 year flood, increases size of culvert, less risk of blockage, cope with heavy rainfall, new area for wildlife.

There may also be negative comments that look at the cost of the scheme and the amount of time it took to build.

6-7 marks	Shows clear and detailed identification and description of aspects of the scheme. Developed comments on the effectiveness. Extensive use of data.
Level 2 3-5 marks	Shows some ability to identify and describe aspects of the scheme. Uses some information from resource. Limited comments on effectiveness. Max for pure descriptions of scheme
Level 1 0-2marks	Limited ability to identify and describe positives and negatives of scheme.

(b) Outline how you could collect information on people's views about the Afon Adda flood prevention scheme. [8]

The majority of candidates will refer to the collection of information via the use of a questionnaire. In these circumstances there may be reference to the structure of the questionnaire in the form of content and type of question. Candidates may also refer to the type of sample with the idea of a structured sample as the ideal. The number of people surveyed may be commented on as will the time, location and format of delivery (street based, house based, personal or postal etc). There may be some candidates who examine extended interviews of key selected members of the population to gain views and comment on what questions should be asked to whom. Some candidates may look for other sources of information such as local government or opinion firms' websites, blogs, newspapers etc. Be prepared to accept valid methods as long as they contain a description of the method and an explanation of how it can be used to gain people's views.

Level 3 6-8 marks	Good knowledge of data collection methods. Developed explanation.
Level 2 3-5 marks	Some knowledge of data collection methods Some explanation.
Level 1 0-2 marks	Limited knowledge of data collection methods Superficial explanation.

(c) Describe and assess one or more ways used to represent data for an investigation into a changing physical environment that you have completed. [10]

You should state clearly the question you have investigated.

Expect a great variety of responses according to the investigation that has taken place. Many will describe tabulation, different graphs that have been produced such as pie, bar, line scatter etc. Other answers may refer to maps that have been drawn to show information such as located symbols, flow line, choropleth, isoline etc. Some candidates may look at the data in the form of visual representation as annotated photographs, sketches or video materials. The actual valid method is less important than the description and evaluation of the method – which again will take a variety of formats according to the investigation completed.

(Markers must be flexible in their application of the mark scheme)

Level 3 8-10 marks	Developed description of one or more ways used in the investigation. Clear comment on why used in the investigation. Good assessment of the methods of representation.
Level 2 4-7 marks	Some description of one or more ways used in the investigation. Some comment on why used in the investigation. Some assessment of the methods of representation. Lacks balance.
Level 1 0-3marks	Superficial description of data representation in the investigation. Superficial comment on why used in the investigation. Little or superficial assessment of the methods of representation.