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Examiners' report

GEOGRAPHY

H081

For first teaching in 2016

H081/02 Summer 2023 series

Contents

Introduction

Our examiners' reports are produced to offer constructive feedback on candidates' performance in the examinations. They provide useful guidance for future candidates.

The reports will include a general commentary on candidates' performance, identify technical aspects examined in the questions and highlight good performance and where performance could be improved. A selection of candidate responses are also provided. The reports will also explain aspects which caused difficulty and why the difficulties arose, whether through a lack of knowledge, poor examination technique, or any other identifiable and explainable reason.

Where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.

A full copy of the question paper and the mark scheme can be downloaded from OCR.

Paper 2 series overview

Candidate responses from the Summer 2023 series followed previous years' preferences in favour of three topics, Disease Dilemmas, Hazardous Earth, and Climate Change. An increasing number of centres focused on Climate Change. Few candidates offered responses for Exploring Oceans and Future of Food; therefore, it is difficult to draw generalisations and as a result commentary has not been provided for these questions.

Candidates had 1 hour and 30 minutes to complete the examination paper. The total maximum mark for the paper was 68 marks. The examination appeared to differentiate well between students of different aptitudes and levels of preparation. Across the optional units, candidates do perform comparably.

Section B required candidates to apply their knowledge and understanding from relevant topics to answer the synoptic questions. It is important for candidates to use the resource booklet as much as possible. The resource booklet is a valuable source of information which should be used to assist candidates when answering sub-part (a) questions. Candidates who achieved higher levels showed well-developed ideas linking resource evidence (A01) to a particular theme. There was clear evidence of a holistic geographical perspective to stimulus data. Candidates who did not perform well within Section B often missed opportunities to use the data from the resource booklet to prove a particular viewpoint.

Section C offered a choice of two essay questions for each topic and candidates were required to select one. In the 20 mark essay questions candidates tend to focus more time on knowledge and understanding (AO1). Greater focus should be concentrated on the importance of analysis and evaluation (AO2). Candidates should remember that place specific detail, case studies and examples are needed throughout the response, rather than just at the start of the response. Within Section C the essay questions require candidates to demonstrate knowledge and understanding (AO1) alongside analysis and evaluation (AO2). Candidates who achieved Level 3 for their AO2 marks tended to decide whether they felt the statement was true or false. Candidates who performed well with their extended responses considered the statements and then reached a conclusion regarding the success, failure, or impact of the strategies.

OCR support

It is important for candidates to know how important it is to address all Assessment Objectives, particularly when the question asks to "Assess this view" or "To what extent".

OCR website has some definitions for a number of the most common command words used in examinations.

Candidates who did well on this paper generally:	Candidates who did less well on this paper generally:
• satisfied the specific requirements of any given question • wrote well-developed ideas linking resource evidence (A01) to a particular theme • gave clear evidence of a holistic geographical perspective to stimulus data • gave place specific detail, case studies and examples are used throughout the response • focused on the command words within the examination question • used accurate and clear geographical evidence throughout their responses • provided evaluative comments across the response in essays.	• struggled to apply their knowledge and understanding to the examination question • did not use the resources provided to their full ability • did not include exemplar support where it was a pre-requisite of the question • provided generalised discussions rather than place specific detail • did not use geographical evidence to support their conclusions • did not include geographical terms or concepts.

Assessment for learning

A greater focus on AO2 skills would help candidates improve their overall geographical analysis and evaluation across the paper.

Section A overview

Candidates can select one topic within Section A from a choice of five topics. Very few candidates made rubric errors indicating that candidates have a good awareness of the structure of the exam paper. The most popular topic was Hazardous Earth with most candidates answering these questions. A smaller number of candidates responded to the Future of Food and Exploring Oceans topics. Candidates were able to show in-depth knowledge and understanding of their chosen topic.

Question 1 (a)

Climate Change

1 (a) Explain how **two** mitigation strategies can cut global emissions of greenhouse gases. **[4]**

Candidates are required to explain how two mitigation strategies can cut global emissions of greenhouse gases. The question required candidates to use AO1 skills (knowledge and understanding) to 'explain' how mitigation strategies can cut global emissions of greenhouse gases. One mark was provided for a correct factor and a second mark for an explanatory point. Candidates showed a good understanding (AO1) of different mitigation strategies. This question was generally well answered. Candidates provided a range of mitigation strategies such as carbon capture, a shift to renewable energy, energy efficiency and conservation. Several candidates discussed recent technological mitigation techniques such as enhanced weathering and carbon capture trees.

Question 1 (b)

(b) Examine how the public image of climate change can be shaped by different interest groups. **[6]**

This question required candidates to develop what they know and understand about the public image of climate change (AO1) to analyse how the public image of climate change can be shaped by different interest groups (AO2). Within this question there are 3 marks for AO1 (knowledge and understanding) of the public image of climate change and a further 3 marks for analysing (AO2) and examining how climate change can be shaped by different interest groups. The more successful responses to this question included two developed explanations and candidates provided a clear cause and effect relationship.

Most candidates discussed the fact that climate change is a highly debatable topic which sparks a wide range of public interest and scepticism. This was discussed with reference to a range of players such as the media, politicians, and environmental activists. The discussion of climate change tended to be generalised. Candidates who achieved higher levels tended to focus on a specific element of climate change. These included candidates using their (AO1) skills to show how a particular element of climate change is being shaped by interest groups. Candidates discussed the extent to which climate change, such as rising sea levels, results in the public image being one of powerlessness and apathy. Many candidates commented on the fact the changes feel like they are irreversible, as the various interest groups suggest climate change has gone too far.

Many candidates showed a good awareness of the range of different interest groups that shape the public image of climate change. This was often exemplified with specific individuals, newspapers, politicians, and environmental activists.

Question 1 (c) (i)

(c) Study **Fig. 1**, which shows the global distribution of carbon dioxide emissions per capita in 2018.

(i) With reference to **Fig. 1**, describe the global distribution of carbon dioxide emissions per capita. **[4]**

This question required candidates to use Figure 1 to describe the global distribution of carbon dioxide emissions per capita. AO3 skills are being assessed with candidates being required to identify evidence from Figure 1. This required the candidates to show an interaction with the resource and use specific evidence to describe the global distribution of carbon dioxide emissions per capita.

The global distribution shown in Figure 2 highlights highest rates of carbon dioxide in the Persian Gulf, Kuwait, and Qatar with over 20t average tonnes per capita. Lowest rates are found in Central Africa with less than 1t per capita. To achieve full marks candidates needed to provide four pieces of evidence from Fig.1. Candidates who did not achieve full marks lacked geographical evidence from Fig. 1 to support their comments about the global distribution of carbon dioxide emissions. Candidates need to look closely at command words to make sure they understand the requirements of the question. Candidates tended to lack focus on the words 'global distribution.'

Assessment for learning

Candidates should have a clear understanding of geographical key words. The term distribution refers to the way in which something is spread out or arranged over a geographical area.

Question 1 (c) (ii)

(ii) Using evidence from **Fig. 1**, analyse possible reasons for the variation in carbon dioxide emissions per capita. **[6]**

This question is assessing both AO2 (application of knowledge and understanding) as well as AO3 (geographical skills) to analyse the reasons for the variation in carbon dioxide emissions per capita. This question requires candidates to use evidence from Figure 1 to analyse reasons for the variation in carbon dioxide emissions per capita. Candidates who picked up on the word 'variation' in the question tended to achieve higher marks. Candidates are required to use their AO3 skills to provide evidence from Figure 1 of the variations. AO3 skills were evident when candidates provided manipulation of the statistics to show and explain variations. Candidates correctly identified variations such as higher prevalence of carbon dioxide emissions per capita in the northern hemisphere compared to the southern hemisphere. Candidates looked at the causes of the variations in an economic context. Many candidates commented on the fact that Advanced countries ((ACs) tend to have a higher carbon dioxide emission per capita, because they have more resources to consume and produce more goods and services that require energy. Candidates did on occasions tend to repeat this point in reverse for low-income developing countries (LIDCs) or Emerging and Developing Countries (EDCs). Candidates do not gain credit for writing the same idea in an opposite manner.

Candidates who achieved Level 3 often provided a clear link to the evidence when explaining the variations. This included candidates identifying a variation with evidence from Figure 1 (AO3) and then providing a reason for the variation. Candidates achieving Level 3 showed a good knowledge of the reasons for variations. Candidates were aware that several complex factors can contribute to variations globally including reference to social, environmental, and economic factors.

Candidates who did not achieve full marks tended to describe the reasons why carbon dioxide emissions per capita are higher with little consideration of Figure 1.

Question 1 (d)

(d) 'The environmental impacts of climate change present greater threats than the socio-economic impacts.'
Discuss in the context of **one** EDC **or** LIDC. **[12]**

Candidates are required to use their AO2 skills to discuss whether they agreed with the statement. This required candidates to decide whether environmental impacts of climate change present a greater threat than the socio-economic impacts. AO1 skills assessed the candidate's ability to discuss their knowledge and understanding of the environmental and socio-economic impacts of climate change in an Emerging and developing country (EDC) or low-income developing country (LIDC). Candidates selected an appropriate country (EDC or LIDC).

Sea levels rising was the most common environmental impact discussed when answering this question, but there was a wide variety of other environmental impacts discussed such as melting of glaciers, habitat loss and increasing temperatures. The question required climate change to be discussed in the context of one EDC or LIDC. Many candidates focused on Bangladesh and the environmental and socio-economic impacts caused by climate change. There were some interesting discussions about whether the environmental factor was more significant than socio-economic impacts. Candidates provided some interesting analysis about the impacts becoming more severe as climate change develops over time. This included reference to an increase in natural hazards (environmental impact) which can affect agriculture, water, and resources and hence levels of income (socio-economic impacts). Candidates had a good knowledge and understanding about changes in regional climates impacting the prevalence and distribution of diseases, e.g., Malaria spreading into new areas due to climate change. Socio-economic impacts often focused on primary industries, particularly agriculture experiencing a decline due to more failed harvests. Candidates tended to discuss the term 'crops' rather than be specific about what the crops were that were being impacted by climate change.

Question 2 (a)

Disease Dilemmas

2 **(a)** Explain how **two** socio-economic barriers can limit the spread of disease. **[4]**

The question required candidates to use AO1 skills (knowledge and understanding) to 'explain' how two socio-economic barriers can limit the spread of disease. One mark was provided for a correct barrier and a second mark for an explanatory point. Candidates showed a good understanding (AO1) of socio-economic barriers that limit the spread of disease. This question was generally well answered. Candidates who achieved full marks explained how two different barriers influenced the spread of the disease. Candidates tended to discuss how quarantines, social distancing and mass vaccination programmes limited the spread of disease.

Question 2 (b)

(b) Examine how zoonotic infectious diseases can be spread from animals to humans. **[6]**

This question required candidates to develop what they know and understand about infectious zoonotic diseases (AO1) and examine how the diseases spread from animals to humans (AO2). Within this question there are 3 marks for the (AO1) knowledge and understanding of zoonotic infectious diseases and a further 3 marks for analysing (AO2) how they spread from animals to humans. The more successful responses to this question included two developed explanations with a specific focus on a zoonotic disease. Candidates who achieved Level 3 showed a thorough understanding of how the zoonotic diseases can be spread from animals to humans. This usually included some place specific detail or exemplification.

Most candidates discussed the spread from animals to humans via animal bites and parasites. The zoonotic infectious disease exemplification discussed most often was Rabies. This discussion of transfer from animals to humans tended to be limited to a couple of lines. Candidates who achieved a higher mark analysed (AO2) how zoonotic infectious disease can be spread from animals to humans such as movement of diseased animals, a lack of vaccination programmes and close proximity to animals that carry the disease.

Candidates provided convincing explanations about the way in which vector bites can lead to Malaria. Candidates showed AO2 skills by commenting on the fact the rainy season is more likely to be the time of the year when the workers in Ethiopia are more at risk of catching Malaria. Candidates showed a good understanding (AO2) of how Malaria spreads from animals to humans. This was often well exemplified with place specific detail. Many candidates showed a very good awareness of the transmission of vector borne diseases spreading from animals to humans in more areas as result of rising temperatures and rainfall often linked to climate change.

Assessment for learning

The question asks for infectious diseases to be discussed. It is expected that the candidates use the command words to identify that more than one zoonotic infectious disease should be discussed within their examination response.

Question 2 (c) (i)

(c) Study **Fig. 2**, which shows the global distribution of cardio-vascular disease (CVD) mortality, 2017.

(i) With reference to **Fig. 2**, describe the global distribution of CVD mortality. **[4]**

This question required candidates to use Figure 2 to describe the global distribution of cardio-vascular disease (CVD) mortality. AO3 skills are being assessed with candidates being required to identify evidence from Figure 2. This required the candidates to show an interaction with the resource and use specific evidence to describe the global distribution of CVD.

Figure 2 presented highest rates of Malaria in Central Asia with more than 600 CVD mortality rate per 100,000 people. The lowest rates were found in northwest Europe and Australasia. To achieve full marks candidates needed to provide four pieces of evidence from Fig.2 that describes the global distribution of CVD mortality. Candidates correctly identified that countries with higher rates are more likely to be in low and middle-income countries. Candidates who did not achieve full marks tended to lack geographical evidence from Fig. 2 to support their comments about the global distribution of CVD mortality. Candidates need to look closely at key words to make sure they understand the requirements of the question. Candidates tended to lack focus on the words 'global distribution.'

Assessment for learning

Candidates should have a clear understanding of geographical command words. The term distribution refers to the way in which something is spread out or arranged over a geographical area.

Question 2 (c) (ii)

(ii) Using evidence from **Fig. 2**, analyse possible reasons for the variation in CVD mortality rates. **[6]**

This question is assessing both AO2 (application of knowledge and understanding) as well as AO3 (geographical skills) to analyse the reasons for the variation in CVD mortality rates. This question requires candidates to use evidence from Figure 2 to analyse reasons for the variation in CVD mortality rates. Candidates who picked up on the word 'variation' in the question tended to achieve higher marks than those that did not. Candidates are required to use their AO3 skills to provide evidence from Figure 2 of the variations. AO3 skills were evident when candidates provided manipulation of the statistics to show variations. Candidates correctly identified variations such as higher prevalence of CVD mortality rates in sub-Saharan Africa and Southeast Asia and lower rates in northwest Europe and Australia. Candidates provided a range of reasons as to why the variations in CVD mortality rates exist. Candidates who achieved Level 3 often provided a clear link to the evidence when explaining the variations, as well as identifying a variation with evidence from Figure 2 (AO3) and then providing a reason for the variation. Candidates were aware that people with lower socio-economic status are more likely to be exposed to a variety of risk factors for CVD. Candidates discussed the limited access to healthcare, and limited educational awareness about CVD. Candidates also referred to the mental health issues caused by stress which are likely to increase the rates of CVD. Candidates who did not achieve full marks tended to describe the reasons why CVD mortality rates are higher with little consideration of Figure 2. This often resulted in candidates focusing on the causes of the disease rather than the variations shown in Figure 2.

Exemplar 1

CVD is a non-communicable disease usually associated with an unhealthy lifestyle. Generally, more advanced countries have higher rates of CVD but they have put several measures in place in order to reduce the number of deaths that occur, compared to LIDCs which do not have the sufficient health facilities to tackle CVD. Therefore, a major reason why mortality rates are higher in LIDCs is due to their lack of wealth. In the UK, a new drug was developed called Inclisiran which is used by 300,000 people to reduce the amount of bad cholesterol in the body. However, a dose of 280mg, costs around £1,990 which is a significant amount. People in LIDCs will not be able to afford this and therefore are less likely to be treated with good drugs to prevent death. Richer countries are also more aware as there is less stigma so they are able to introduce programmes to encourage a healthier lifestyle.

An example of this would be the "couch to 5km" programme, encouraging more exercise. People in LIDCs also have less flexibility to change their lifestyle in order to reduce the risk of death as they will not have the facilities to do so. For example, they may live in an area where exercise is not possible or they may not have the money to have a better diet. Overall, the difference in mortality rates is greatly due to the inequality between ACs and LIDCs.

The exemplar provided is a Level 3 response. The candidate has made a clear reference to the variations in CVD mortality rates. This response may have benefited from a greater use of data from Figure 2 to exemplify the observations and provide geographical evidence about variations in CVD mortality. A range of possible reasons are included which show a good understanding (AO2) of how the distribution is impacted by the government's capacity to control and prevent CVD, for example where lower levels of investment in public health varies. The candidate has provided an explanation as to why more developed countries (UK) experience lower rates of CVD being linked to advances in medical research and public health campaigns.

Misconception

CVD is not caused by a lack of nutrients. It is caused by a variety of factors, including high blood pressure, high cholesterol, smoking, diabetes, obesity, and sedentary lifestyles.

Question 2 (d)

(d) 'Environmental factors are the main cause of communicable disease.'
Discuss in the context of **one** communicable disease in **either** an LIDC **or** EDC. **[12]**

Candidates are required to use their AO2 skills to discuss whether they agreed with the statement. This required candidates to make a judgement as to whether environmental factors are the main cause of one communicable disease in an LIDC or EDC. AO1 skills assessed the candidate's ability to discuss their knowledge and understanding of the environment and other causes of one communicable disease in an LIDC or EDC. Candidates generally had a secure knowledge of their chosen communicable disease. It was pleasing to see that the candidates had paid attention to the key words and referred to **one** communicable disease in an LIDC or EDC.

Malaria was the most common communicable disease discussed when answering this question, a wide variety of other communicable diseases were discussed such as Covid-19, Ebola, and Cholera. The question required one communicable disease to be discussed in either an LIDC or EDC. Many candidates focused on the causes of cholera in Haiti. There were some interesting discussions about whether the environmental factor was more significant than human factors as a cause.

The candidates were aware of a range of environmental factors which contributed to the cause of the communicable disease. This included reference to climate, altitude, climate change and water. Candidates showed a good understanding of the environmental causes of communicable diseases. Candidates were aware of various environmental factors which can increase the risk of transmission of communicable diseases. Malaria based responses discussed the environmental factors such as hot and wet climates providing breeding grounds for mosquitoes that carry the Malaria parasite. It was pleasing to see that candidates named specific mosquitoes such as Anopheles. Candidates tended to have some place specific location references, although many candidates discussed the location in a generalised manner by naming the countries. Candidates would benefit from providing specific place detail about their chosen LIDC or EDC which includes more than the countries' name.

There were some very insightful discussions about the human factors which can be linked to the cause of a communicable disease. Candidates evaluated a range of reasons why the cause changes over time, such as population movements, urbanisation, and access to healthcare. Most candidates concluded that the environment was the main cause of the communicable disease, but human factors can increase the spread of the disease. Many candidates provided responses which stated that the two are so closely connected that they are both equally as important as each other.

The key element in achieving a high-level response was focusing on the extent to which the environment is the main cause of the communicable disease. These candidates often included evidence-based conclusions to consider the extent to which the environment played the most important role in causing communicable diseases. Candidates within Level 3 also provided some convincing evaluation (AO3) of whether the environment is the main cause of one communicable disease in an LIDC or EDC.

Question 5 (a)

Hazardous Earth

5 (a) Explain the formation of **two** features found at convergent (destructive) plate boundaries. **[4]**

Candidates who achieved full marks identified two features and explained the formation with specific reference to convergent plate boundaries, demonstrating their knowledge and understanding (AO1).

Candidates used clear geographical vocabulary which was accurately related to convergent plate boundaries. Many examination responses showed a secure understanding of the processes at convergent boundaries which are responsible for the features found in this location. Candidates tended to discuss the formation of fold mountains. This included an explanation linked to the plates moving towards one another and causing the sedimentary rock to buckle and rise up. Candidates showed a secure knowledge and understanding of ocean trenches. While candidates are not required to include place/plate names there were a few candidates who used specific examples or plate names.

Question 5 (b)

(b) Examine how earthquake activity shapes landforms and landscapes. **[6]**

This question required candidates to develop what they know and understand (AO1) about earthquake activity shaping landforms and landscapes for 3 marks and analyse how earthquakes shape the landscapes and landforms (AO2) for 3 marks. Many candidates were able to access Level 2 for this question.

The candidates often used appropriate exemplification such as Nepal, to explain how recent earthquake activity can shape landforms and landscapes. Candidates talked about the changes to landscapes via processes such as faulting, uplift, and subsidence. Many candidates referred to the 2015 earthquake in Nepal. This included reference to the earthquake activity causing landslides, avalanches and rockfalls to create new landforms that changed the shape of the landscape. Several candidates also commented on the subsidence of the Kathmandu Valley, which resulted in the sinking of the ground which changed the landscape of the area.

Level 3 responses included well-developed ideas which linked back to the question connecting earthquake activity to a change in the shape of the landform and landscape. Several candidates discussed liquefaction, aware it is caused by earthquake activity. Candidates tended to struggle to develop their ideas about how liquefaction can shape a place's landforms and landscapes. Liquefaction can cause the saturated soil to lose its strength and as a result it may act like a liquid. This can cause the ground to sink or rise and create new landforms. These features can be found in earthquake prone areas such as California, New Zealand, and Japan.

Question 5 (c) (i)

(c) Study **Fig. 5**, which shows the global distribution of earthquakes from 1960 to present.

(i) With reference to **Fig. 5**, describe the global distribution of deep focus earthquakes (depth of 300 km or more). **[4]**

This question required candidates to use Figure 5 to show the global distribution of deep focus earthquakes. Geographical skills (AO3) are being assessed with candidates being required to identify evidence from Figure 5. Candidates who achieved full marks provided four different pieces of evidence from Figure 5 that showed how the volcanic explosivity index (VEI) scale measures volcanic activity. Specific use of evidence from the infographic should be mentioned, such as, the cluster of deep ocean earthquakes on the Australian and Eurasian plates. Candidates place knowledge impacted their ability to describe the distribution of deep focus earthquakes. Many candidates were aware that the Pacific Ring of Fire experienced a significant number of deep-sea earthquakes.

Question 5 (c) (ii)

(ii) Using evidence from **Fig. 5**, analyse the reasons for the global distribution of deep focus earthquakes. **[6]**

This question is assessing both AO2 (Application of knowledge and understanding) as well as AO3 (Evidence) to analyse the reasons for the distribution of deep focus earthquakes.

Candidates who did well on this question showed a thorough application of knowledge and understanding (AO2) to analyse the reasons for the distribution of deep focus earthquakes. This included an analysis of the existence of destructive plate boundaries situated near the distribution of the deep focused earthquakes. Candidates were aware that Japan has complex destructive plate boundaries which can result in deep focus earthquakes. Within Level 3 there is an expectation that the response would be well supported with evidence from the resource, such as depth of the deep focus earthquakes.

Candidates within Level 1 tended to struggle, focusing on the explanation of deep focus earthquakes, and discussion of earthquakes generally. Deep focus earthquakes occur at a depth of 300 – 700km below the earth's surface.. Deep focus earthquakes are distributed in locations where the tectonic plate is being subducted usually at convergent plate boundaries. As a result, deep focus earthquakes are normally found in areas with subduction of the main tectonic plate movement such as the Pacific Ring of Fire.

Question 5 (d)

(d) 'The benefits of living in tectonically active locations outweigh the costs.' Discuss in the context of **one** EDC or LIDC. **[12]**

Candidates are required to use their AO2 skills to discuss whether the benefits of living in tectonically active locations outweighs the costs. AO1 marks assessed the candidate's ability to discuss their knowledge and understanding of the benefits and costs of living in tectonically active locations in an EDC or LIDC. AO2 assessed the candidate's application of knowledge and understanding to evaluate the benefits and costs of living in tectonically active locations for one EDC or LIDC.

Candidates' responses were based around volcanic hazards. This included many candidates discussing Mount Merapi in Indonesia. Candidates had a good understanding of the benefits of living in tectonically active locations. The benefits were often linked to economic activity with reference being made to tourism, geothermal energy, and research opportunities. When candidates discussed the costs, these were generally seen to be related to social factors such as mental health, death, and fear of living in a tectonically active area.

Several candidates discussed the point that land is cheaper in tectonically active areas. Living in tectonically active areas can be cheaper in some ways and hence a benefit, but it can be considered more expensive in other ways. There was limited discussion about why the land may be cheaper in tectonically active areas other than the fact that the land is seen to be dangerous. Candidates could have considered the point that there may be incentives or lower taxes encouraging development within these tectonically active areas. It is important to highlight that tectonically active areas can be expensive to live in due to the need for earthquake resistant construction and safety measures. Homeowners and landowners may need to pay higher insurance premiums to protect against earthquake damage.

Candidates tended to provide clear place specific detail at the start of their responses but did not incorporate the location specific detail throughout the response. This resulted in the responses becoming generic and not specific to their chosen LIDC/EDC. Candidates who achieved Level 3 tended to have a clear focus on the specific LIDC/EDC and how the tectonic activity provides a benefit or cost. The ability of LIDCs/EDCs to cope was seen as limited due to financial constraints.

AO2 comments often focused on the idea that the benefits are long-term while the costs are short-term. The more successful responses included specific geographical evidence to back up their conclusion. Most candidates ensured their responses had an evaluative comment. Candidates should provide evaluative comments across the response rather than just in the conclusion which focused on the elements of both time and scale. Candidates did occasionally refer to a country which was not a LIDC or EDC.

Misconception

Soil after a volcanic eruption does not **immediately** see an increase in fertility. Volcanic eruptions can release large amounts of ash which contain nutrients that are beneficial for crops such as nitrogen, phosphorus, and potassium. However, the ash can also be acidic and harmful to plants. In the short-term the area can become inhospitable to plant growth. Over time, nutrients in the ash can replenish the soil and make it more fertile. The speed at which this happens varies according to the type of eruption, type of ash, local climate, and soil conditions.

OCR support

OCR has produced a document which uses International Monetary Fund (IMF) data to classify the countries according to their developmental status.

AS and A Level Geography, IMF classifications of ACs, EDCs and LIDCs. (ocr.org.uk)

Section B overview

Candidates are expected to use Section B as their opportunity to provide some synoptic geography within their examination responses. Synoptic assessment allows geography candidates to demonstrate their understanding of the connections between different aspects of the subject and topic content. It involves the explicit drawing together of knowledge, skills and understanding within different parts of the AS Level course. The synoptic questions will link each Geographical Debate to another topic within the AS content (Physical Systems or Human Interactions) but not another Geographical Debate

Question 6 (a)

Climate Change

6 (a) With reference to **Fig. 6**, suggest how future homes, offices and cities developed in response to risks from climate change might influence employment opportunities in places.

[8]

Question 6 (a) is assessing both AO1 and AO2 skills. Candidates are required to suggest how future homes, offices and cities could be developed in response to risks from climate change. The candidates need to suggest how these points might influence employment opportunities. There is a requirement that candidates make use of Figure 6, which shows a vertical forest apartment and building in Milan, Italy. There were several missed opportunities for candidates to use the photo to its full potential. The photograph shows potential evidence of short and long-term employment opportunities. Short-term employment opportunities could refer to town planning, architects, and construction. Longer term employment opportunities could include references to gardening and maintenance opportunities.

Candidates achieving Level 3 had a clear focus on how future homes, offices and cities are developed in response to a risk from climate change. Candidates achieving Level 3 usually considered all three environments within the question (homes, offices, and cities). At Level 3 it is expected that the candidate will make good use of the photo and other places they may have studied.

Several candidates moved away from the original question and instead focused on how the design of the building shown in Fig 6 can reduce the impacts of climate change. These candidates tended to overlook the aspect of employment opportunities which resulted in the candidates achieving a lower level for both AO1 and AO2. Candidates who performed lower on this question tended to discuss climate change in general terms without a clear focus on future homes, offices, and cities.

Question 6 (b)

(b) Examine how the enhanced greenhouse effect might influence the flows of energy and material through **one** landscape system you have studied. **[8]**

Question 6 (b) requires (AO1) knowledge and understanding of how the enhanced greenhouse effect and flows of energy and material through ONE landscape system. AO2 is the ability to analyse how the enhanced greenhouse effect might influence the flows of energy through ONE landscape system.

Candidates had a good knowledge of the enhanced greenhouse effect. The candidates provided some interesting discussions about how the enhanced greenhouse effect impacts the flows of energy and material through one landscape system. Candidates tended to focus on coastal landscapes. This included a discussion about how the enhanced greenhouse effect is linked to changing sea levels and ocean temperatures. Candidates showed knowledge and understanding of how the rising sea levels can cause coastal erosion, which in turn can affect the amount of material within the system. Candidates showed a good knowledge and understanding (AO1) of how the enhanced greenhouse effect causes changes to material being transported and deposited.

Several candidates made some convincing analysis to discuss the fact that many environments are interconnected and what happens in one environment can impact another environment. This provided an opportunity for candidates to bring in synoptic discussions.

Question 7 (a)

Disease Dilemmas

7 **(a)** With reference to **Fig. 7**, suggest how patterns of disease outbreaks at a global scale might be influenced by social inequality. **[8]**

Question 7 (a) is assessing both AO1 and AO2 skills. Candidates are required to suggest how patterns of disease at a global scale might be influenced by social inequality. AO1 requires candidates to demonstrate knowledge and understanding of how patterns of disease outbreaks at a global scale and social inequality. There is a requirement that candidates make use of Figure 7. There were several missed opportunities for candidates to use the resource to its full potential. Most candidates focused on social inequality factors such as poor-quality housing or sanitation and how this would lead to limited access to clean drinking water. Candidates tended to suggest how disease outbreaks influenced by social inequality tend to be water borne diseases such as Cholera. Candidates struggled expanding these points to explain how the disease outbreak at a local level, as seen in Fig. 7, can cause a global issue.

Greater use of the resource provided would help candidates to achieve a discussion of patterns. Candidates rarely provided a synoptic link within this response. Candidates tended to overlook the term 'pattern.' Less successful responses discussed the outbreaks within the context of Figure 7 and lacked focus on a global scale. Candidates who performed lower on this question tended to discuss disease in general terms without a clear focus on specific diseases.

Question 7 (b)

(b) Examine how the threats to medicinal plants can be linked to processes of globalisation. **[8]**

The question requires (AO1) knowledge and understanding of the threats to medicinal plants. AO2 was assessing the ability of candidates to analyse how the threats to medicinal plants can be linked to the process of globalisation.

Candidates had a good knowledge of the range of threats being presented to medicinal plants. The candidates provided some interesting discussions about how the threats are connected to globalisation, this included candidates discussing deforestation, changing climatic conditions and bio piracy. A few candidates used the term 'medicinal plants' with little discussion of the type of plants. Similarly, when discussing globalisation, the discussion of globalisation tended to be generic. Candidates needed to be specific about the link between globalisation and the threats to medicinal plants. Candidates who achieved Level 3 often talked about specific medicinal plants and how the location of the medicinal plants is changing due to globalisation.

Candidates who did well on this question focused on specific details such as the role of pharmaceutical industries and Transnational Corporations (TNCs) as part of the globalisation process conducting medical research using medicinal plants. This included a discussion of the exploitation of the plants as well as bio piracy. Most candidates discussed medicinal plants such as the Rosy periwinkle. The candidates showed a good awareness that globalisation does not just threaten the plant but habitat destruction within the medicinal plant's environment. Many candidates discussed the idea that the medicinal plants were threatened because the tropical rainforest is also threatened.

Most candidates concluded that globalisation is responsible for the threat to medicinal plants. Several candidates included some convincing analysis to discuss the fact that the environments are often threatened for other reasons such as deforestation for palm oil which causes some medicinal plant species to become extinct. Candidates who discussed these points showed a good awareness that deforestation, makes it harder for people to access natural remedies. This means that the delicate balance of ecosystems can negatively impact the growth and quality of medicinal plants. This provided an opportunity for candidates to bring in synoptic discussions.

Exemplar 2

Medicinal plants treat many diseases, such as childhood cancer. There are currently 4,000 ~~species~~ at on the brink of being endangered ~~and 7 endangered~~ Every. Globalisation has meant we have a need for materials, such as wood, that are used in infastructure. As our population grows, there is more demand for these materials. 325 km^2 of rainforest is being cut down every day for our use and this is then transported across the world to be used in construction and paper, etc. This means that many medicinal plants are also killed and the rapid decline of biodiversity has meant small ecosystems are collapsing, killing the plants

Climate change is also putting medicinal plants at risk. This has been caused by globalisation because we are producing enormous amounts of car CO^2 and other greenhouse gases due to things like transport and manufacturing goods. Many medicinal plants require strict growing conditions, for example, rosy periwinkle needs temperatures of 26-28°C and ~~drained~~ well drained soils. There has already been an increase of 1.25°C since 1850 and this will only increase, meaning medicinal plants won't be able to survive, resulting in mass extinctions.

This candidate was given Level 3. They have referred to the threats presented to medicinal plants. This includes a discussion of the threat presented via habitat loss caused by deforestation. The candidate provided a second threat' based around the issues of climate change. This is well linked to globalisation and provides a specific example of a medicinal plant (rosy periwinkle) that is being threatened by globalisation.

Question 10 (a)

Hazardous Earth

10 (a) With reference to **Fig. 10**, suggest how strategies to manage volcanic hazards can shape place profiles over time. **[8]**

Question 10 (a) is assessing both AO1 and AO2 skills. Candidates are required to suggest how strategies used to manage volcanic hazards can shape place profiles over time. AO1 requires candidates to demonstrate knowledge and understanding of the strategies used to manage volcanic hazards and place profiles over time. AO2 requires candidates to apply their knowledge and understanding to interpret Figure 10 in relation to the question. Candidates within Level 1 tended to ignore the idea of place profiles and tended to focus on volcanic management strategies. Candidates achieving Level 3 effectively engaged with Figure 10. This included reference to land use zoning around volcanoes. They often provided a comprehensive discussion of how the strategies can shape place profiles. This included a clear focus on the place profile changing over time due to the volcanic hazard management strategies discussed within the response. Candidates discussed place profile in terms of perceived safety and how this can change a place's profile. There were some interesting responses that discussed how the physical changes in the environment caused by management can lead to the place profile changing. This included reference to diversion channels which can alter the physical environment and impacts the place profile. Many candidates discussed place profile in terms of the social characteristics of the area, as well as the physical landscape.

Several candidates provided some synoptic discussion referring to climate change and economic activity. Candidates tended to focus on tourism and how the tectonic management could influence the place profile for tourists. There was a general discussion that the place profile would initially be seen as dangerous but over time the place profile could change, which would result in more tourists being attracted to the area, changing the place profile culturally and historically.

Question 10 (b)

(b) Examine how earthquake activity might influence the flows of energy and material through **one** landscape system you have studied. **[8]**

Question 10a is assessing both AO1 and AO2 skills. Candidates are required to demonstrate their knowledge and understanding (AO1) about how earthquake activity and the flows of energy and material through ONE landscape system. The changes caused by earthquake activity can affect the way that the energy and material flow through the landscape system. Within AO1 candidates tended to focus on the flow of energy being linked to tsunamis. Candidates considered the flow of energy within a coastal system as kinetic energy which increases because of the earthquake activity impacting the tidal range, availability, and volume of material in the coastal system. This resulted in a change in the landscape system in terms of erosion and deposition. The candidates within Level 3 showed a clear link between the earthquake activity and the flows of energy and movement in their chosen landscape system. Candidates showed elements of synoptic thinking by drawing together knowledge, skills and understanding within different parts of the AS Level course; for example, references to coastal and glaciated landscapes. Candidates did well naming places within their chosen landscape to provide locational detail.

Exemplar 3

If an earthquake has an offshore, underwater epicentre, ~~ground~~ ground displacement or underwater landslides may cause a tsunami as the water above is also displaced. This creates a large wave with much more energy than ordinary waves powered by the wind. The high-energy nature of this wave means that it has much more erosive power, so will increase processes such as abrasion, hydraulic action, and wave pounding. This will break up sediment on the coastline, which will then be removed as the water retreats again. In addition this wave (or waves) will reach much further inland (the 40.5m tsunami in Japan's 2011 quake reached over 10 km inland), affecting a much larger area than would ordinarily be influenced by wave action.

The candidate has achieved Level 3. The candidate has made an explicit link to how the earthquake activity has influenced a coastal landscape. There is a clear focus on how energy is transferred into the coastal landscape. The energy is linked to increased rates of erosion within the coastal landscape. The candidate has also provided a discussion on the impact of sea levels as a result of earthquake activity.

Section C overview

Two essay questions worth 20 marks are available for each topic in Section C; candidates are required to respond to one. The 20 marks available are divided into, 10 marks for AO1 (Knowledge and Understanding) and 10 marks for AO2 (Analysis and Evaluation). AO1 marks are given for showing knowledge and understanding of content directly from the specification. This includes a case study focus within the question. For AO2 marks candidates need to apply their knowledge and understanding, for the purposes of analysis and evaluation and to come to a rational, well-evidenced conclusion based on their chosen geographical topic. Candidates may benefit from some support working on command words and phrases, such as 'To what extent …,' 'Assess the success of …,' or simply 'Discuss.'

Question 11*

Climate Change

11* 'The success of international directives, such as the Kyoto Protocol, has the greatest influence on reducing current rates of warming on a global scale.'
To what extent do you agree? **[20]**

This was by far the more popular of the two questions in this option. The command words 'To what extent' candidates has to decide if they agreed that the success of international directives, such as the Kyoto Protocol, has the greatest influence on reducing current rates of warming on a global scale. Candidates were secure in their knowledge and understanding of the success of international directives such as the Kyoto Protocol. Kyoto protocol and Paris agreements were frequently mentioned as the international directives which have the greatest influence on reducing current rates of global warming on a global scale.

Candidates were able to evaluate the extent to which the Kyoto protocol has the greatest influence on reducing current rates of warming on a global scale. Many candidates commented on the success of international directives in establishing legally binding targets for reducing greenhouse gas emissions in developed countries. The candidates showed a satisfactory level of knowledge and understanding of the specific targets set by the Kyoto Protocol. This included references to the participating countries who set targets to reduce their greenhouse gas emissions by an average of 5.2% below 1990 levels by the year 2012. A considerable number of candidates went on to analyse their relative effectiveness. Candidates evaluated the fact that while the protocol can be considered a success in reducing greenhouse emissions, it did not require countries such as China and India to cut their emissions. Many candidates evaluated this point (AO2) explaining this was an issue as these countries are seen to be some of the biggest emitters of greenhouse gases. The candidates also discussed the political issues surrounding the Kyoto agreement.

Candidates compared international directives to a smaller scale directive. This included discussions about the EU's emissions trading system (EUETS). Candidates tended to consider these more successful at reducing rates of global warming as smaller groups of countries work together. National policies were most often set in the context of Advanced Countries (ACs) such as Denmark, the UK or Germany.

Question 13*

Disease Dilemmas

13* 'Standards of living have the greatest impact upon susceptibility to disease.' To what extent do you agree? **[20]**

This essay required candidates to consider the extent to which they agreed that standards of living have the greatest impact on susceptibility to disease. Candidates discussed a range of diseases including both communicable and non-communicable diseases, highlighting many ways that standards of living can impact the susceptibility of a disease. This included reference to access to food, water, sanitation, and healthcare. Candidates tended to make comparisons between different countries at different economic levels. This often resulted in candidates concluding that the standard of living does have the greatest impact on susceptibility to a disease. Candidates tended to discuss non-communicable diseases with reference to lung cancer, CVD, and diabetes. There were some interesting comparisons made across a range of countries. Candidates tended to provide general assumptions about all LIDCs being overcrowded.

Analysis of the susceptibility to disease followed a simplistic argument based on an increasing gradient of severity from AC to LIDC, often with no reference to EDCs. Many candidates provided unsupported statements that in general people and governments in ACs had more resources to cope with disease compared to the situation in most LIDCs and hence the susceptibility variance. A few candidates made some interesting (AO2) points that the susceptibility is always worse for those living in poverty wherever they live, regardless of the country's economic development. Access to health care is a significant factor that was discussed in terms of standard of living.

Candidates who did evaluate compared standard of living against another factor. This included reference to climate change, pollution, and time. There were some interesting responses which considered the fact that the susceptibility to a disease varies over time. This included a discussion of the epidemiological transition model to show changing rates of communicable and non-communicable diseases. The candidates tended to link a high standard of living to non-communicable diseases and ACs, and communicable diseases to LIDCs/EDCs. AO2 discussions included some insightful comments about how the standard of living varies nationally and locally and this can affect the susceptibility to a disease. This was often discussed with reference to the UK.

Question 14*

14* Evaluate the success of strategies used by government and international agencies to mitigate against communicable disease. **[20]**

Candidates were required to use their knowledge and understanding (AO1) of strategies used by government and international agencies to mitigate against communicable disease. The candidates were required to consider a range of strategies.

A variety of different approaches were valid and creditworthy, but the key was to provide a link between the success of the strategy and the mitigation.. The most effective responses integrated relevant examples , but there were still too many that simply added 'e.g., Haiti.' The more effective responses were those using two (or more) places with a different emphasis placed by the government or international agencies on mitigation strategies. Alternatively, the selection of one place could be evaluated. A few candidates discussed how the strategies used by the government and international agencies varied over time and within a country. A few candidates concluded that mitigation strategies from both governments and international agencies have become refined over time and hence more successful.

Many candidates were able to engage with the question and use place detail to support as evidence in their discussions. Candidates discussed strategies to control Malaria in Ethiopia, Cholera in Haiti, and Smallpox in India. Candidates should be reminded of the importance of an evaluative conclusion to their analysis and discussion which draws their arguments together and summarises a clear view.

Question 19*

Hazardous Earth

19* 'Attempts to mitigate against vulnerability are more successful than attempts to mitigate against losses.'
With reference to earthquakes, to what extent do you agree? **[20]**

AO1 marks are based on candidates showing their knowledge and understanding of various earthquake mitigation attempts. Within an extended response it is expected that this will include case study detail to provide geographical knowledge and understanding in a contextualised manner.

Candidates were very well prepared to discuss specific case studies where there had been significant risks from tectonic hazards. Case studies were often comparative in terms of the development spectrum. For AO2, candidates were required to analyse and evaluate the relative success of various earthquake mitigation attempts. Level 3 candidates provided an evidence-based argument. Candidates argued that the attempts to mitigate against vulnerability can be more successful than attempts to mitigate loss. These arguments (AO2) included the fact that vulnerability reduction focuses more on addressing the underlying cause of the risk rather than the symptoms. Candidates provided some clear discussion about how by reducing the vulnerability it is possible to reduce the likelihood and severity of losses from natural disasters. Candidates discussed a range of strategies (AO1) to mitigate against vulnerability. This included improving buildings, mapping high risk areas via Geographic information systems (GIS), monitoring earthquakes and educating the local population. In contrast, attempts to mitigate against loss often focuses on reducing the direct impacts of the disaster via emergency aid, field hospitals and international support.

There were some excellent examples of candidates discussing the viewpoint that the success is often based on economic development of a country. The development of the country can impact the scale and success of both mitigation against vulnerability and loss.

Assessment for learning

Candidates may find it interesting to know that there is an assessment which considers vulnerability. The Vulnerability and Capacity Assessment (VCA) uses several factors to assess people's exposure to and capacity to resist natural hazards. It considers preparedness and contributes to the creation of community-based disaster preparedness programmes at the rural and urban grass-roots level.

VCA enables local priorities to be identified and appropriate action taken to reduce disaster risk and assists in the design and development of programmes that are mutually supportive and responsive to the needs of the people most closely concerned.

Question 20*

20* 'The environmental impacts of a volcanic eruption are always more significant than the economic impacts.'
Discuss. **[20]**

This was the most popular question of the two Hazardous Earth essays. AO1 marks are based on candidates showing their knowledge and understanding of the environmental and economic impacts of volcanic eruptions. Within an extended response it is expected that this will include case study detail to provide geographical knowledge and understanding in a contextualised manner. The environmental impacts discussed by candidates included reference to ash, tsunamis, release of gases and the impact on ecosystems and biodiversity. Candidates were able to discuss specific case studies where there had been significant environmental impacts from volcanic eruptions. Economic impacts focused on volcanic activity causing a loss to industry, income, buildings, and tourism. For AO2, candidates were required to analyse and evaluate whether the environmental impacts of a volcanic eruption are always more significant than the economic impacts.

Candidates achieving Level 1 gave broad evaluative comments about whether the risks of the volcanic eruption are always more significant than the economic impacts. For Level 3, candidates needed to provide an evidence-based argument. More sophisticated responses suggested that it was not a matter of environment versus economy but more an issue of where the event strikes. Links were then made to development and how different countries can respond according to economic factors. It was also important to note that students needed to form a view in relation to the context of the question. Some candidates forgot to do this.

The most successful responses went further, and thought about the nature of the hazards, and whether the impacts are greater to the environment or the economy as a result of the type of volcanic eruption. Within AO2, discussions focused on the fact the frequency and the magnitude of the volcanic hazard does tend to be a considerable factor that impacts whether the volcanic eruptions are always more significant than the economic impacts.

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