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Examiners' report

GEOGRAPHY

H[redacted]81
For first teaching in 2016

H081/02 Summer 2019 series

Version 1

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. 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 can be downloaded from OCR.

Paper 2 series overview

Candidate responses for this component showed a preference in favour of three topics, Hazardous Earth, Disease Dilemmas and Climate Change. Exploring Oceans and Future of Food were completed by very few candidates. Few candidates offered responses in these option's therefore it is difficult to draw generalisations therefore commentary has not been provided for these questions.

Component two has three sections representing a variety of opportunities for candidates to display their knowledge and understanding, application with regard to data and / or a resource, analysis, evaluation and make a judgement.. Section A consists of five sub-parts of short and medium length questions. Sub-part (a) tested candidates' knowledge and understanding of aspects of the option. Part b assessed both A01 and A02. Part b required candidates to apply their knowledge and understanding of different contexts to analyse geographical issues. Sub-part (c) is divided into two. Part (i) required candidates to interpret and use the evidence from the scatter graphs to describe the relationship shown between two data sets. Part (ii) focused on investigating and interpreting the scattergraph as well as analysing the reasons for the relationships shown. Candidates were required to use evidence from the scattergraph. Sub-part (d) was a medium length question asking candidates to demonstrate their knowledge and understanding (AO1) as well as evaluate and make a judgement on how far they agree with a particular geographical statement (AO2).

Section B consists of two questions concentrating on synoptic links between the respective topic and either a landscape System or Changing Spaces; Making Places. In this context, as is made clear in the specification, it is fundamental in all three landscape systems, that candidates know and understand how their chosen landscape can be viewed as a system. Once grasped, this way of organising their knowledge and understanding can allow candidates to investigate various influences and interactions, as asked for in Section B.

Section C offered a choice of two questions in each topic and candidates were required to select one. These were extended response questions demanding full prose responses.

The section of the report that follows is organised by topic so that all three examination paper sections (A-C) for a particular topic are dealt with one after the other.

There were very few rubric errors across the examination and candidates have managed their time well. Candidates should be reminded of the importance of clear and legible handwriting. While examiners recognise that candidates are under pressures of time, it is important that the writing is legible. Please remind the candidates the importance of writing the question numbers beside the answers. It would be helpful if candidates use additional space that they make a reference to the location of the additional text with a simple page reference.

Generally, candidates made good references to place. Those who referred to place where necessary provided relevant and accurate case studies. Candidates also gained credit for showing understanding of how time/temporal issues could be relevant. Candidates should be encouraged to read the questions carefully and break them down into their constituent parts to make sure they answer the question that is being asked and all parts of it. Few candidates planned their essay questions/longer answers which can be useful. Timing did not seem to be a problem for most candidates so this should be possible.

'Candidate performance'

(a) High performing candidates linked correct information and case studies with analysis that extended beyond the obvious. They also drew on information from other parts of the course, making synoptic links. Their answers were structured, giving a clear indication of their argument in the introduction, substance and conclusion. They also made good references to place, including having a global and local vision. They were able to answer all their chosen questions successfully.

(b) Average/middle performing candidates gave appropriate responses with some analysis which would have benefited from more thought and synoptic links. Candidates need to balance providing case study information (impressive in many cases) with analysis. At times, time spent on providing (necessary) supporting information or descriptions left little time for analysis.

Section A overview

There are five topics for candidates to choose from within in the Geographical debates component. Candidates must choose one option out of the five. Topics include Climate Change, Disease Dilemma's, Exploring Ocean's, Future of Food and Hazardous Earth. The candidates are required to answer all parts of the question of their chosen topic.

Climate Change

Question 1 (a)

Topic 2.1 Climate Change

1 (a) Explain how **two** of the Milankovitch cycles influence climate change. **[4]**

Candidates were able to correctly identify two of the Milankovitch cycles. Most candidates discussed the obliquity of the earth and the eccentricity. Candidates showed a good understanding of the relationship between the cycle and climate change.

Question 1 (b)

(b) Suggest how understanding the carbon cycle influences human response to climate change. **[6]**

Candidates generally showed a reasonable level of knowledge and understanding of human influences that can be made to climate change. The understanding of the carbon cycle was often the least developed part of these answers. The strongest answers were those who were able to move past the ideas of human response to climate change to develop answers with a clear link to the carbon cycle.

Question 1 (c) (i)

(c) Study **Fig. 1**, a scattergraph showing the relationship between GDP per capita and the percentage of renewable energy consumption in 2015.

(i) Using evidence from the scattergraph **Fig. 1** describe the relationship between GDP per capita and the percentage of renewable energy consumption. **[4]**

Candidates made good use of Figure 1 in terms of the data provided. Few candidates referred to the line of best fit to describe relationship in terms of strength and direction. Candidates tended to describe the data rather than describe the relationship between GDP per capita and the percentage of renewable energy consumption. Some candidates moved on to provide explanations which was not a requirement of this question.

Question 1 (c) (ii)

(ii) Using evidence from **Fig. 1**, analyse reasons for differences in the percentage of renewable energy consumption. **[6]**

The reasons offered for the differences tended to be appropriate such as cost of introducing renewable schemes, regulations and energy consumption. Responses were particularly successful when these reasons were linked to the differences between countries. Weaker responses did not refer to the variations between countries. Candidates generally used the data provided in Figure 1 to support their answers.

Question 1 (d)

(d) 'Challenges to climate change adaptation are easiest to overcome in Advanced Countries.' How far do you agree with this statement? **[12]**

There were some interesting discussions based around the idea that the Advanced Countries find it the easiest to overcome the climate change adaptations. Examiners were pleased to see candidates presenting higher ability arguments linking the adaptation of Advanced Countries to climate change. While the understanding of the adaptation was secure the ability to discuss the importance of this in solving the challenge caused by climate changes was less developed.

Question 2 (a)

Topic 2.2 Disease Dilemmas

2 **(a)** Explain **two** ways that rainfall can influence the outbreak of disease. **[4]**

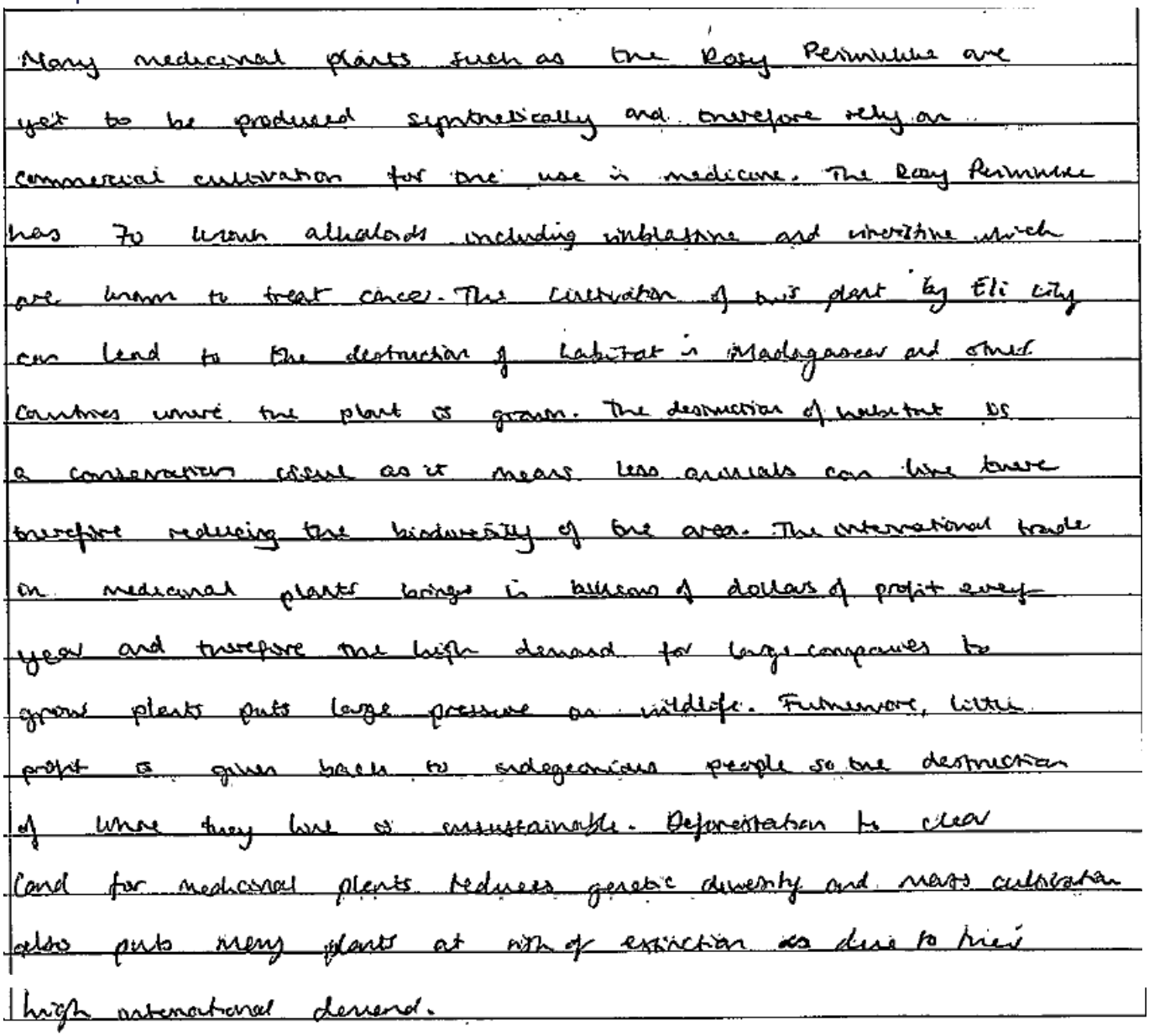
Candidates generally answered this question very well. Candidates were able to identify the various ways rainfall influences the outbreak of the disease. Most candidates made references to seasonal rainfall and Monsoon rains. A few candidates struggled with the knowledge and understanding of the relationship between rainfall and the outbreak of disease. Examples of diseases such as Malaria were often used (although not necessary) to explain the link between rainfall and the outbreak of disease.

Question 2 (b)

(b) Suggest why there are conservation issues relating to the international trade in medicinal plants. **[6]**

The candidates who gave strong responses could integrate references to the medicinal plant/s into their answers but brought their discussion back to conservation issues. Candidates showed a good knowledge and understanding of international trade in medicinal plants. Many provided a discussion of the international trade in the Rosy Periwinkle but didn't always refer to the conservation issues created relating to the international trade of medicinal plants, Conservation issues raised included habitat destruction and sustainability.

Exemplar 1



Many medicinal plants such as the Rosy Periwinkle are yet to be produced synthetically and therefore rely on commercial cultivation for the use in medicine. The Rosy Periwinkle has 70 known alkaloids including vinblastine and vincristine which are known to treat cancer. The cultivation of this plant by Eli Lilly can lead to the destruction of habitat in Madagascar and other countries where the plant is grown. The destruction of habitat is a conservation issue as it means less animals can live there therefore reducing the biodiversity of the area. The international trade on medicinal plants brings in billions of dollars of profit every year and therefore the high demand for large companies to grow plants puts large pressure on wildlife. Furthermore, little profit is given back to indigenous people so the destruction of where they live is unsustainable. Deforestation to clear land for medicinal plants reduces genetic diversity and mass cultivation also puts many plants at risk of extinction as due to their high international demand.

The candidate has provided a thorough knowledge and understanding of the international trade of the Rosy Periwinkle Plant (AO1). The candidate explains the conservation issues creating from trading the Rosy Periwinkle plant. This includes reference to survival of the species, impact on bio diversity as well as other conservation issues such as deforestation (AO2). This response achieved Level 3. Place specific detail is provided with reference to Madagascar.

Question 2 (c) (i)

(c) Study **Fig. 2**, a scattergraph showing the relationship between GDP per capita and the percentage of adults (aged 15–49) living with HIV in 2016.

(i) Using evidence from the scattergraph **Fig. 2** describe the relationship between GDP per capita and the percentage of adults (aged 15–49) living with HIV. **[4]**

Candidates made good attempts to describe the relationship as well as effectively use the data provided from Fig.2. Fewer candidates comment on the strength of the correlation. Most candidates made reference to the correlation / direction shown within Fig 2.

Question 2 (c) (ii)

(ii) Using evidence from **Fig. 2**, analyse reasons for differences in HIV rates between countries. **[6]**

Candidates generally answered this question successfully.as they provided a range of reasons for the differences in HIV between countries. Candidates tended to focus on the development divide as the main reason for the differences. Within the development discussion candidates tended to focus on health and education issues being the reason for the differences in HIV rates. Candidates would benefit from being more specific about the aspects of healthcare which cause the difference in HIV rates. Many candidates commented healthcare / education is not as good in LIDC's. Encourage candidates to think about the element of the healthcare that has a different standard such as availability of medical care. The A03 marks tended to be achieved well as candidates made good use of the graph and focused on the outliers such as Kenya. While there is no requirement to discuss the various transmission methods several candidates did, a number of candidates were confused about the various transmission methods of HIV.

Question 2 (d)

(d) 'Mitigating against non-communicable diseases by government and international agencies is most effective through direct strategies rather than indirect strategies.' How far do you agree with this statement? **[12]**

Candidates generally answered this successfully. Most candidates offered effective discussions with many choosing Cancer within the UK as a supporting case study. Examiners were pleased to read responses which highlighted the different strategies being used. Candidates were able to provide convincing knowledge and understanding of the different strategies both direct and indirect which are used to tackle non-communicable diseases. The discussion of direct compared to indirect included some authoritative responses making use of facts and figures. The spatial settings in which comparisons were placed often focused on UK, India, China and USA. The focus tended to be on strategies introduced by governments rather than international agencies / charities.

Those who were less successful but had some knowledge did not know the difference between direct and indirect strategies. Those who scored highest proved critical analysis and place specific information – including differentiating between effectiveness in different places (locally and globally).

?	**Misconception**	There was some confusion about what candidates considered to be a direct or indirect strategy.

Exemplar 2

Non-communicable(NC)diseases cannot be spread from person to person. One of the most prevalent NC diseases is cancer. In the UK alone, around two million people are living with cancer.

Direct strategies to mitigate against cancer focus on early diagnosis and treatment. Mass screening programmes for breast and cervical cancer are extremely effective in identifying incidences early on so they can be treated more easily. Governments ~~can also~~ and charities such as 'Cancer Research UK' can ~~also~~ invest money into research and development of new treatments such as the Gamma knife. These are direct strategies to remove tumours and lower the abundance of disease. However, direct strategies do not address the root or source of the problem and therefore they can not prevent new cases occurring. Direct strategies are only effective in reducing current cases, not reducing abundance overall.

Indirect Strategies by international agencies such as the world Health organisation and by Governments, can include public health campaigns. These can urge people to reduce high risk behaviours such as smoking, excessive alcohol intake, overnutrition and lack of exercise; which all link to incidences of cancer. In Summer, weather centres can release information on UV-ray intensities and recommend appropriate protection. These indirect Strategies I believe are more effective at mitigating against non-communicable disease as they get to the root of the problem.

I disagree with the statement as indirect Strategies will reduce the number of new cases which can easily be prevented by ~~reduce~~ changing certain lifestyle factors. Although direct strategies are important in case of random occurrence which could not have been prevented, but the main cause of cancer, for example, is Smoking - and only indirect ~~cases~~ strategies will ultimately put an end to these Cancer cases, by raising awareness and changing people's lifestyles.

This response is a Level 4 response. The candidate has a comprehensive understanding of the direct strategies used within the UK to mitigate against Cancer. The candidate discusses a range of organisations involved in the direct migration strategies included governments, charities and international agencies (A01). Reference is made within the response to both direct and indirect strategies. Direct strategies discussed include mass screening programmes for Cervical and Breast Cancer. Indirect strategies discussed include education campaigns and legislation changes such as the sugar tax by the UK government. The evaluation is made stronger by a comprehensive conclusion justifying why the indirect strategies are the most effective in mitigating non-communicable diseases (AO2).

Question 3 (a)

Topic 2.3 Exploring Oceans

3 **(a)** Explain how nuclear waste and plastics **each** pollute the ocean system. **[4]**

Candidates had a good level of knowledge and understanding on the different types of waste found within the ocean system. Candidates made a clear link to how the nuclear waste and plastics pollute the ocean system.

Question 3 (b)

(b) Suggest how climate change alters sea levels. **[6]**

Candidates displayed some convincing arguments about sea levels altering due to climate change. This often included detail regarding changes of geological time such as Eustatic and Isostatic changes to sea levels. Candidates showed a secure knowledge of A02 marks in relation to the idea of climate change altering the sea levels, they linked to thermal expansion of water and the melting of ice sheets.

Question 3 (c) (i)

(c) Study **Fig. 3**, a scattergraph showing the relationship between the amount of crude oil transported globally by sea and the number of oil spills of greater than 7 tonnes and less than 700 tonnes from 2008 to 2015.

(i) Using evidence from the scattergraph **Fig. 3** describe the relationship between the amount of crude oil transported and the number of oil spills. **[4]**

Candidates made good use of Figure 3 in terms of the data provided. Candidates referred to the line of best fit to describe the relationship in terms of strength and direction. Some candidates moved on to provide explanations which was not a requirement of this question.

Question 3 (c) (ii)

(ii) Using evidence from **Fig. 3**, analyse reasons for differences in the number of oil spills over the years identified on the scattergraph. **[6]**

Candidates were asked to analyse reasons for the differences in the number of oil spills over the years identified on the scatter graph. This latter instruction in the question was too often ignored although the more convincing responses made good use of variations among the years and quoted figures directly from Figure 3. Most candidates explained the differences in terms of weather, terrorism or technology.

Question 3 (d)

(d) 'Biological resources within oceans can be used in sustainable ways.' How far do you agree with this statement? **[12]**

Candidates provided some convincing arguments about the extent to which biological resources within oceans can be used in a sustainable way, they focused on the use and management of krill as their example.. Responses tended to be reasonable rather than thorough or comprehensive as there were too few details about the extent to which candidate's agreed with the statement.

Question 4 (a)

Topic 2.4 Future of Food

4 **(a)** Explain food security using **two** of the World Food Programme's three pillars. **[4]**

Candidates had a secure knowledge of the pillars of the World Food programme. Candidates tended to focus on the ideas of access and availability.

Question 4 (b)

(b) Suggest how extreme weather events can affect food production. **[6]**

Candidates showed a clear understanding of the various extreme weather events. This included candidates making specific use of case studies such as tropical storms. Candidates did tend to describe the impact of the extreme weather event rather than analysing how it can affect food production. Candidates tended to focus on one extreme weather event rather than discussing / analysing these events more generally.

Question 4 (c) (i)

(c) Study **Fig. 4**, a scattergraph showing the relationship between GDP per capita and calorie supply per capita in 2011.

(i) Using evidence from the scattergraph **Fig. 4** describe the relationship between GDP per capita and calorie supply per capita. **[4]**

Candidates made good use of Figure 4 in terms of the data provided. Candidates referred to the line of best fit to describe relationship in terms of GDP per capita and calorie supply. Some candidates moved on to provide explanations which was not a requirement of this question.

Question 4 (c) (ii)

(ii) Using evidence from **Fig. 4**, analyse reasons for differences in calorie supply per capita. **[6]**

Candidates tended to achieve high marks on A03 by manipulating the evidence from the scatter graph. Candidates tended to look at the Ukraine as an outlier due to the fact it has a higher than expected calorie supply for a relatively low GDP. The explanation for the differences tended to focus on the security of the food and climate.

Question 4 (d)

(d) 'Long term strategies to ensure food security are the most effective.' How far do you agree with this statement? **[12]**

The candidates who attempted this question drew the conclusion that long term strategies to ensure food security are in fact the most effective. Short term strategies discussed tended to relate to emergencies and organisations assisting in disasters. Longer term strategies were well developed and referred to trade agreements, economic development with links made to food security.

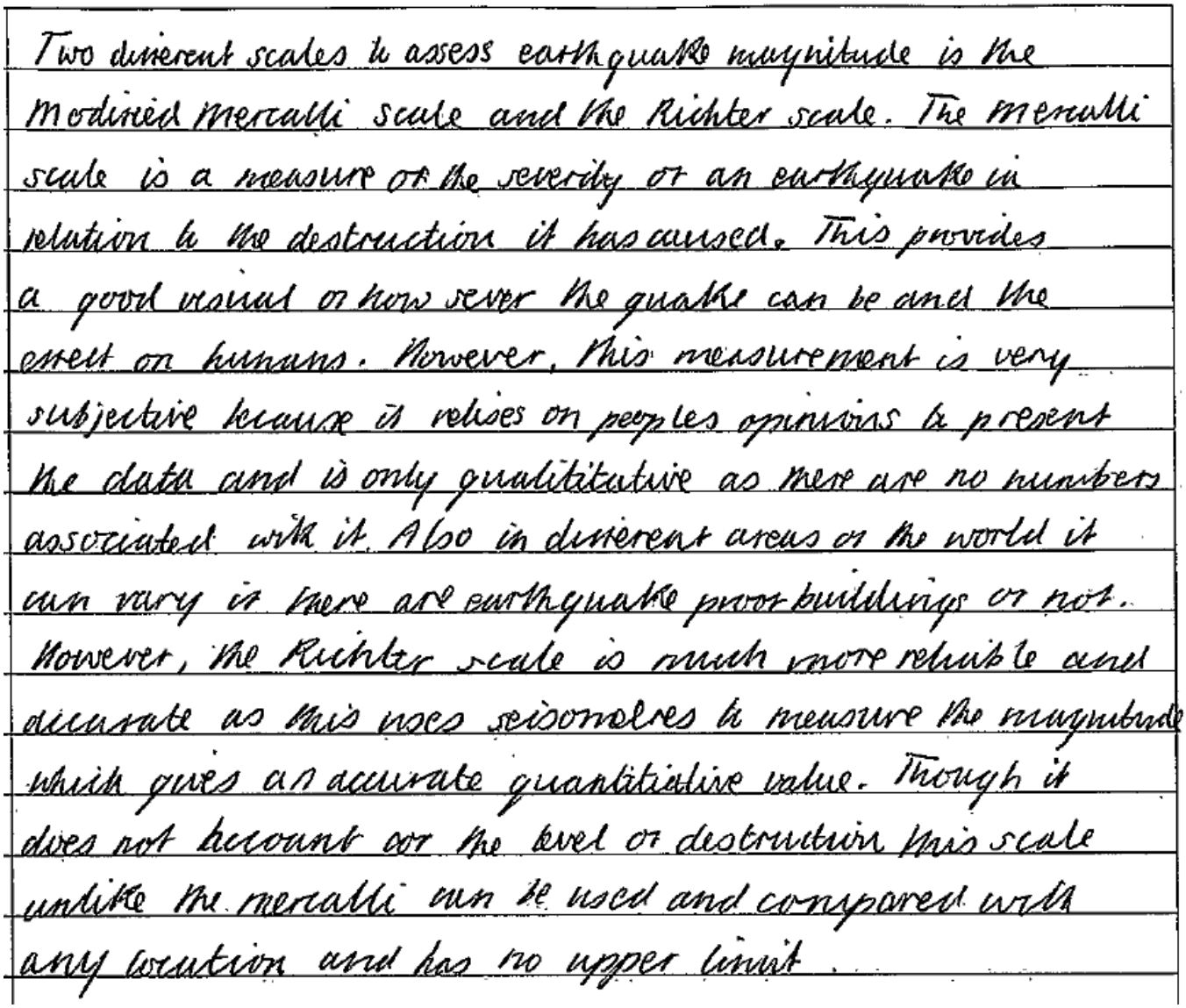
Question 5 (a)

Topic 2.5 Hazardous Earth

5 (a) Explain **two** scales used to assess earthquake magnitude. **[4]**

Candidates generally had a good understanding of the different scales used to assess the earthquake magnitude. With many of the candidates explaining the Richter and Mercalli Scales. There were a good number of candidates who had a high level of knowledge about the moment magnitude scale.

Exemplar 3



Two different scales to assess earthquake magnitude is the Modified Mercalli scale and the Richter scale. The mercalli scale is a measure of the severity of an earthquake in relation to the destruction it has caused. This provides a good visual of how sever the quake can be and the effect on humans. However, this measurement is very subjective because it relies on peoples opinions to present the data and is only qualitative as there are no numbers associated with it. Also in different areas of the world it can vary if there are earthquake proof buildings or not. However, the Richter scale is much more reliable and accurate as this uses seismometres to measure the magnitude which gives an accurate quantitative value. Though it does not account for the level of destruction this scale unlike the mercalli can be used and compared with any location and has no upper limit.

The candidate has chosen to explain the Mercalli and Richter scale which are used to assess the earthquake magnitude. This candidate has produced a well developed response for full marks where they have explained the Mercalli scales by referring to the point that the scale can be seen and that the Richter scale explains how there is no upper limit. This response is worthy of full marks as it has two identified scales and two explanations provided to explain how the scale is used to assess earthquake magnitude.

Question 5 (b)

(b) Explain how movements of the Earth's crust form rift valleys. **[6]**

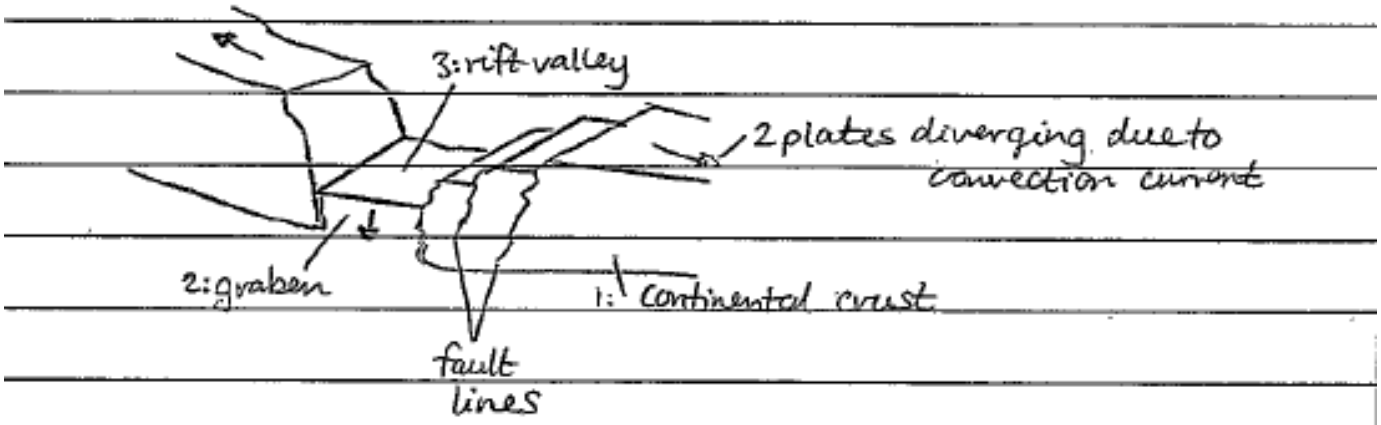
Candidates showed a clear understanding of the impact that plate movements had on the formation of rift valleys. Few candidates referred to parallel / marginal faulting when discussing the formation of rift valleys. Geographical terminology was very well used by candidates within this answer. A number of candidates used diagrams to support their answer as they analysed how the earth's movements can create rift valleys. Candidates referred to located rift valleys. A number of candidates mistakenly discussed submergence and the formation of ocean trenches.

Exemplar 4

The Earth is made of concentric layers: the core, mantle and crust. The lower mantle is a jam-like consistency and very hot, meaning heat rises up through to the asthenosphere (the next layer in the mantle) in convection currents. The rising hot rock makes friction with the lithosphere (the uppermost mantle plus the crust) and causes slabs of the lithosphere known as tectonic plates, to move. Because the lithosphere is less dense than the asthenosphere, it 'floats' ontop and can therefore be subject to movement.

If convection currents within the asthenosphere cause 2 tectonic plates to move apart, this is known as a

divergent or constructive plate boundary. A rift valley forms when these 2 tectonic plates contain continental crust (see diagram 1) and the tensional stress causes faulting and fracturing. A block of the crust called the graben (diagram no. 2) will collapse along faultlines, forming a rift valley, such as the East African Rift Valley.



There is thorough knowledge and understanding of the formation of rift valleys. A diagram has been used which supports the answer showing how the movement of the earth's crust has created a rift valley. The candidate has made reference to a located rift valley within the answer.

Question 5 (c) (i)

(c) Study **Fig. 5**, a scattergraph showing the relationship between the magnitude of an earthquake and the number of deaths caused by that earthquake.

(i) Using evidence from the scattergraph **Fig. 5** describe the relationship between earthquake magnitude (Richter scale) and the number of earthquake deaths. **[4]**

Candidates answered this question well. The candidates made good use of the scatter graph provided to describe the relationship between the magnitude and the number of earthquake deaths.

Question 5 (c) (ii)

(ii) Using evidence from **Fig. 5**, analyse reasons for differences in earthquake deaths. **[6]**

Candidates tended to achieve high marks on A03 by manipulating the evidence from the scatter graph. Candidates tended to look at the extremely high magnitude of Japan resulting in fewer deaths compared to Haiti. The explanation for the differences tended to focus on the preparedness of the country linked to their level of development. Fewer candidates referred to the way in which the plate margins are being monitored and / or evacuation procedures as part of their analysis of the reasons for differences in earthquake deaths.

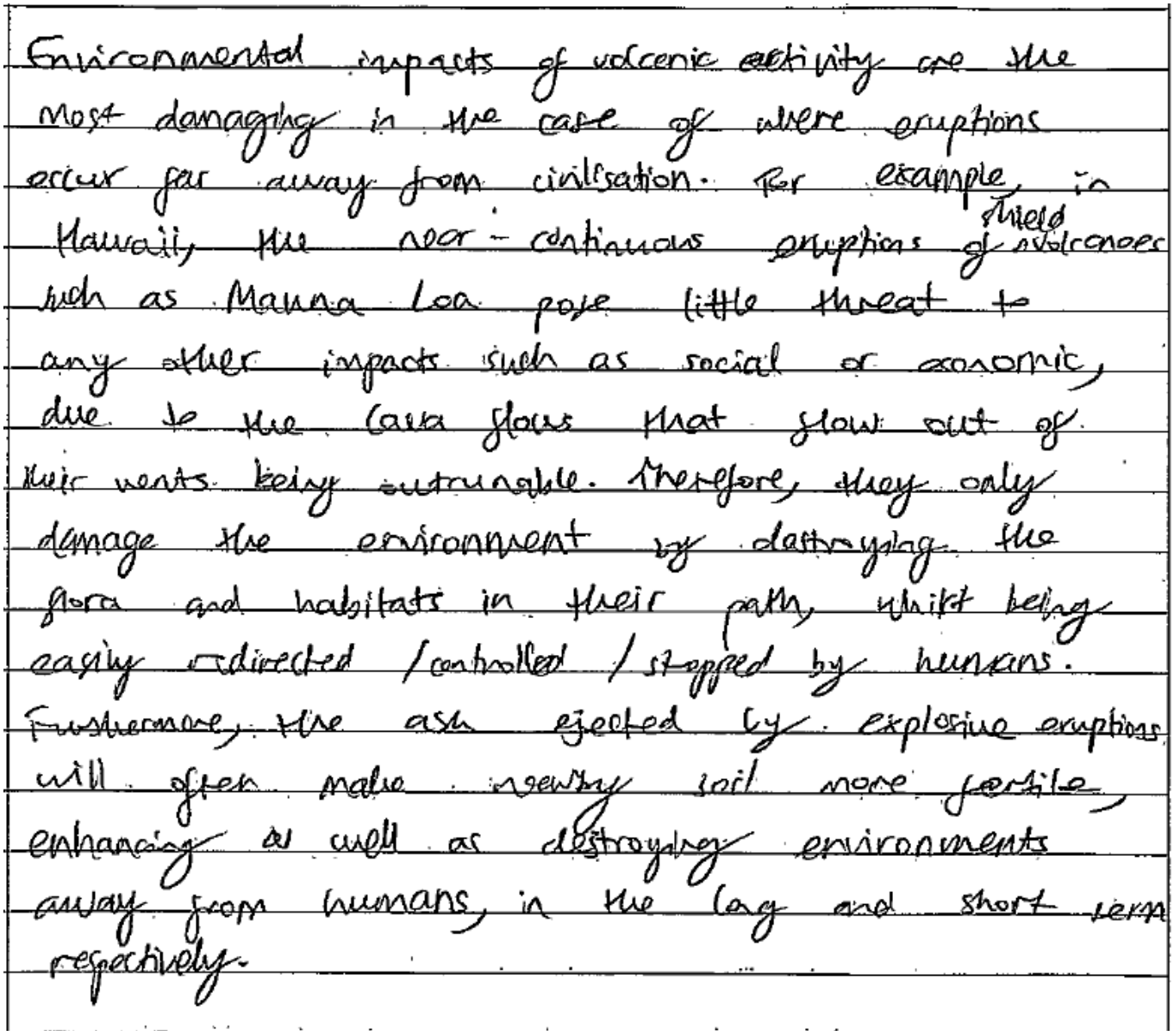
Question 5 (d)

(d) 'Environmental impacts of volcanic activity are the most damaging.' How far do you agree with this statement? **[12]**

Candidates showed a good understanding of the various impacts of volcanic activity. Environmental impacts discussed included damage to habitats, impacts on the water cycle, river systems and global temperature changes. Candidates made effective reference to a range of volcanoes including Mount Pinatubo and Mount Ontake. Candidates who achieved the highest marks were those who provided a detailed evaluation alongside supporting evidence to offer judgements that environmental impacts are the most damaging. Candidates made good reference to a range of other impacts of volcanic activity such as responses to the impact, damage to businesses and infrastructure.

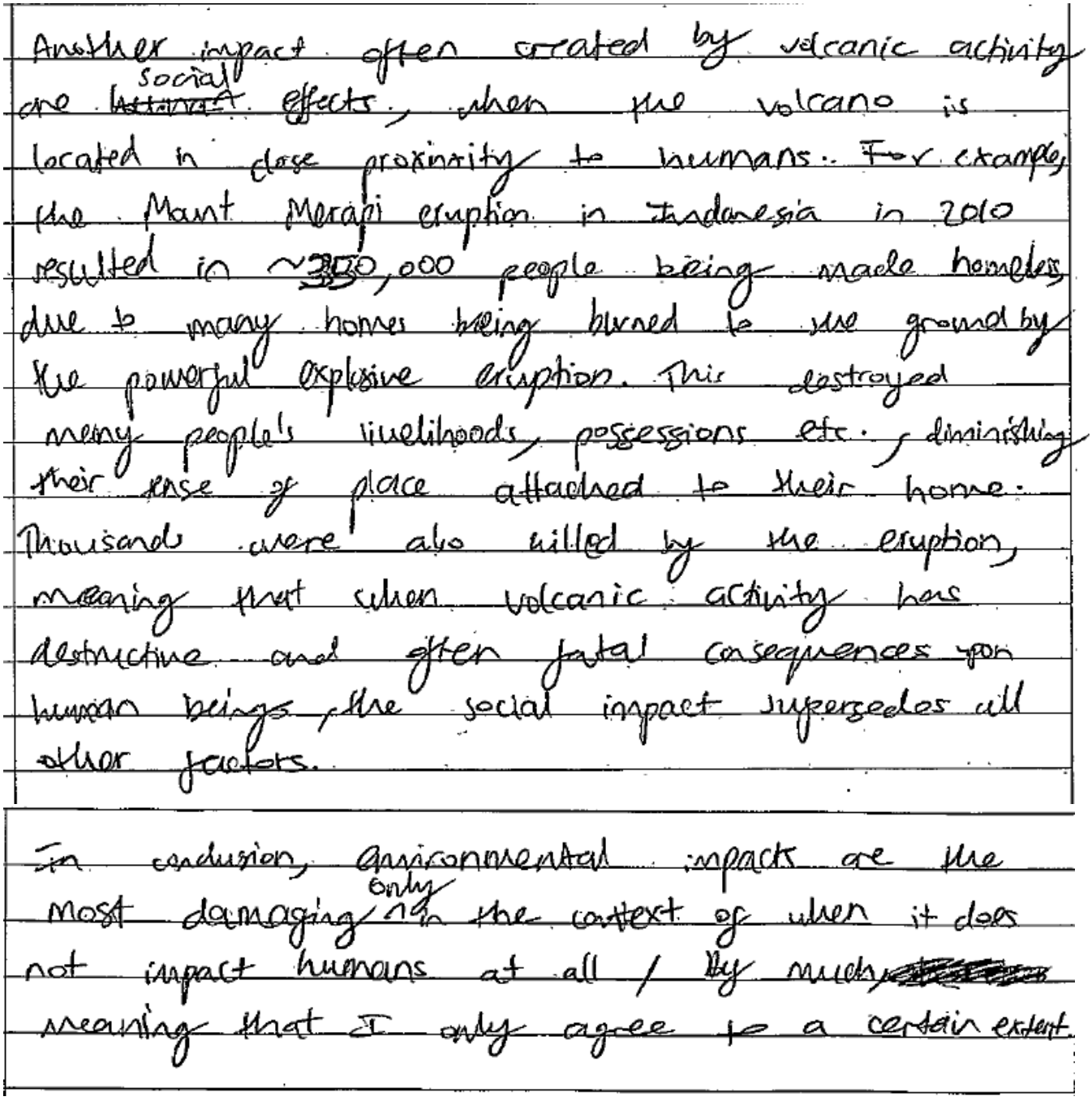
The strongest candidates were able to construct arguments that linked to environmental, economic, social and political impacts and make a detailed evaluation supported by place specific detail

Exemplar 5



Environmental impacts of volcanic activity are the most damaging in the case of where eruptions occur far away from civilisation. For example, in Hawaii, the near-continuous eruptions of shield volcanoes such as Mauna Loa pose little threat to any other impacts such as social or economic, due to the lava flows that flow out of their vents being outrunable. Therefore, they only damage the environment by destroying the flora and habitats in their path, whilst being easily redirected / controlled / stopped by humans. Furthermore, the ash ejected by explosive eruptions will often make nearby soil more fertile, enhancing as well as destroying environments away from humans, in the long and short term respectively.

However, a volcanic activity's damage can is often seen in economic impacts. For example, the 4VEI eruption in April 2010 in Eyjafjallajökull, Iceland led to tens of millions of pounds being lost in the international economy. This is because the vast amount of ash ejected by the eruption of the fissure volcano travelled southeastwards, covering much of Europe from 40 to 55°N. This caused all flights in Europe to be cancelled, resulting in lots of lost revenue for airflight companies, lost productivity due to people returning from holiday being stranded abroad, as well as secondary effects to other economies outside of Europe: for example in Kenya, whose main components of their economy include tourism and tea — which they could not import and export respectively. Therefore, the economic knock-on effects created by volcanoes can often be the most significant effect, a concept typified by Iceland and Eyjafjallajökull.



Another impact often created by volcanic activity are ~~human~~ social effects, when the volcano is located in close proximity to humans. For example, the Mount Merapi eruption in Indonesia in 2010 resulted in ~~350~~ 300,000 people being made homeless due to many homes being buried to the ground by the powerful explosive eruption. This destroyed many people's livelihoods, possessions etc., diminishing their sense of place attached to their home. Thousands were also killed by the eruption, meaning that when volcanic activity has destructive and often fatal consequences upon human beings, the social impact supersedes all other factors.

In conclusion, environmental impacts are the most damaging ~~in~~ only in the context of when it does not impact humans at all / by much, meaning that I only agree to a certain extent.

This response is a Level 4 answer (10 marks). The candidate has a comprehensive understanding of a range of impacts of volcanic activity. This includes economic, social and environmental impacts (A01). Environmental Impacts of Mauna Loa are provided. This includes reference to habitat damage and the impact of falling ash. Economic impacts are discussed in comprehensive manner with detailed reference to damage caused by Eyjafjallajökull to businesses, tourism and farming. Social impacts are comprehensively linked to Mount Merapi. This includes reference to a sense of place changing as a result of the volcanic activity. A more developed evaluation would have allowed this candidate to achieve higher marks within this level.

Section B overview

Candidates are required to choose one topic and answer all parts of the question in the topic. This was more often the same topic that candidates had answered in Section A. Candidates are required to use their knowledge and understanding from across the course to answer these questions as they are synoptic in nature. Part (a) required candidates to make use of the resource provided in the resource booklet.

Question 6 (a)

Topic 2.1 Climate Change

6 (a) With reference to **Fig. 6** suggest how climate change affects social inequality. **[8]**

Candidates used Figure 6 well as a discussion point. There was a good understanding across the candidates about social inequality and how climate change affects social inequality. Best performing candidates were able to make synoptic links to issues around social inequality including spatial variations.

Question 6 (b)

(b) Examine how climate change affects landforms in landscape systems. **[8]**

Convincing responses were able to focus on the way in which climate change affects landforms in landscape systems. Candidates made references to the possible inundation of coastal locations, the destruction of coral reefs or the reduction in sea ice in the Arctic region. These were, however, in the minority with too many candidates unable to link climate change with landscape systems. There are plenty of synoptic links to be made which included reference to coastal, glacial and dryland systems. This included candidates making references to in coastal environments when sea levels fall emergent coastal landforms are created. Synoptic references were made in relation to glaciated environments. This included reference to meltwater being released from glaciers to change landforms in locations such as Iceland. Whilst a location is not required a number of candidates made good use of these to exemplify their point/s.

Exemplar 6

Climate Change affects Coastal landforms through change in sea level. Sea level changes due to eustatic change and thermal expansion. Eustatic change is when sea levels rise or fall dependant on how much water is stored as ice. Thermal expansion is the occurs when as global temperatures increase by 1°C as the oceans expand lifting sea level to by 2 metres. This is the result of climate change as global warming causes ice caps and glaciers to melt and water to expand.

Coastal landscapes are effected by these processes as when sea levels rise, they ~~ca~~ of fjords and rias can form. Fjords are submerged glacial valleys and rias are submerged river vallies. Due to the increase in water depth, the ~~coast~~ environments possess higher energy, which lead to more erosion. This further creates landforms like caves, arches, stacks and stumps.

Coastal landscapes are also effected by the previously mentioned processes brought on by climate change. This time, when sea level falls, this creates raised beaches and derelict cliffs. There can be multiple layers of raised beaches as beaches have formed at different sea levels over time.* This features are called submergent features.

*Cliffs become derelict because coastal processes no longer have an affect on them, as waves can't reach them

This response is awarded Level 3. It correctly identifies climate change and landforms (AO1). The knowledge of climate change is provided with reference to global warming with associated changes e.g. thermal expansion and sea level changes. There are synoptic links provided to coastal landscapes. The candidate has provided a thorough application of knowledge and understanding to provide a detailed analysis to show how climate change has affected landforms within the coastal system (AO2).

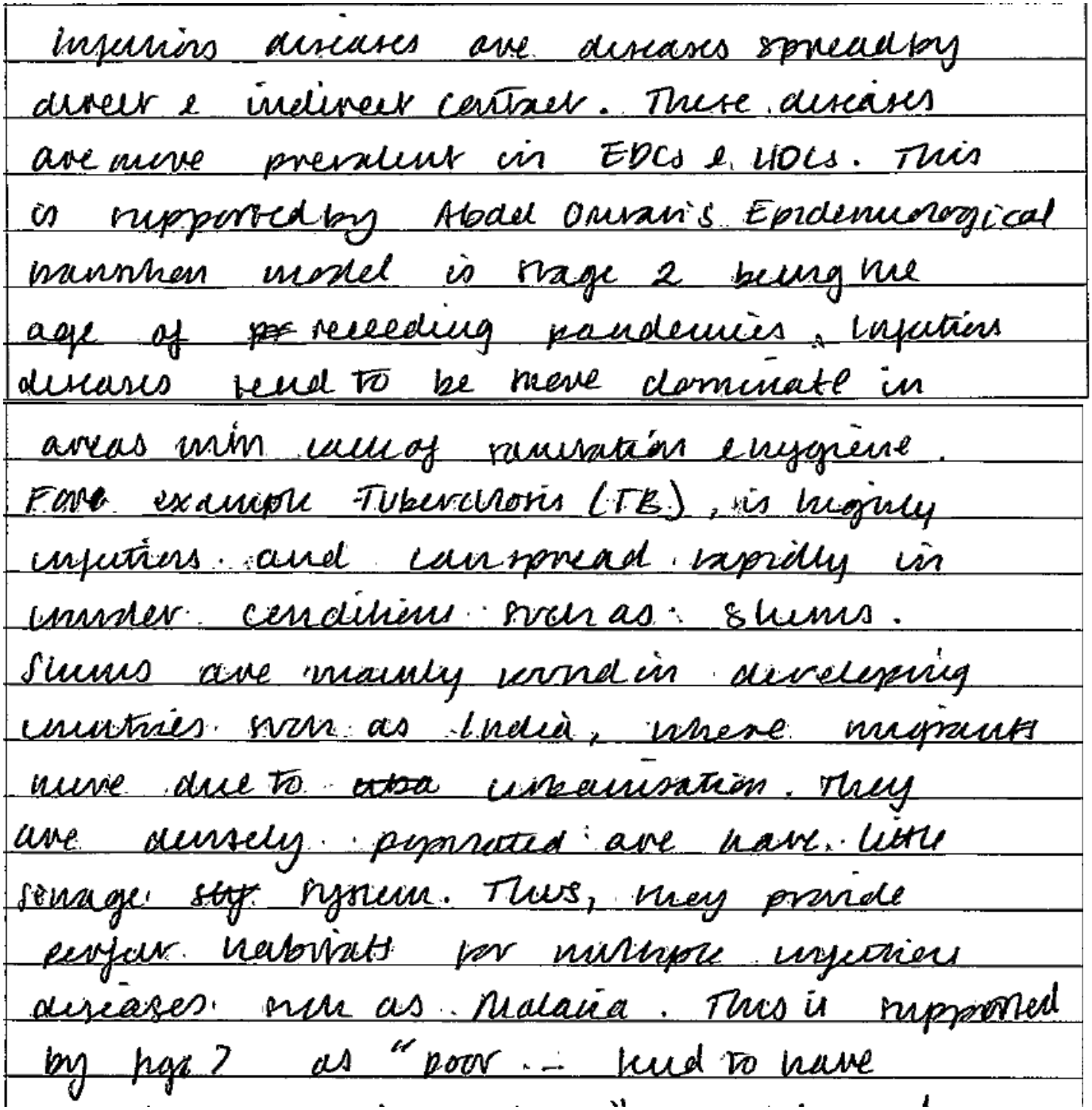
Question 7 (a)

Topic 2.2 Disease Dilemmas

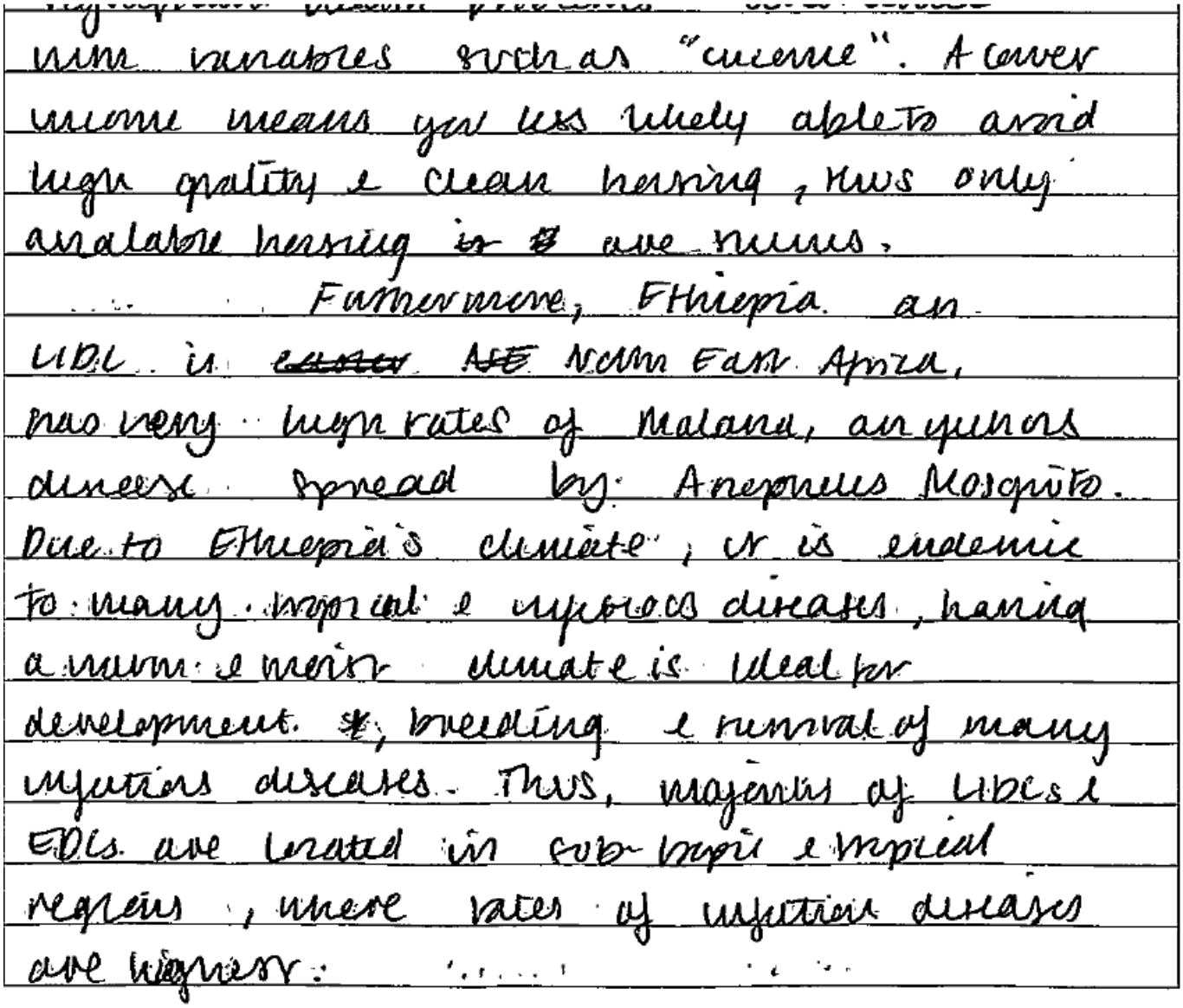
7 (a) With reference to **Fig. 7** suggest how the spread of infectious diseases is linked to social inequality. **[8]**

Candidates used Figure 7 well as a discussion point. There was a good understanding across the candidates about social inequality and how the spread of an infectious disease is linked to social inequality. Best performing candidates were able to make synoptic links to issues around social inequality. This included candidates referring to how natural hazards increase the spread of infectious diseases such as the Haiti earthquake.

Exemplar 7



Infectious diseases are diseases spread by direct & indirect contact. These diseases are more prevalent in EDCs & LIDCs. This is supported by Abdel Omran's Epidemiological transition model is stage 2 being the age of ~~pe~~ receeding pandemics, infectious diseases tend to be more dominate in areas with lack of sanitation & hygiene. For example Tuberculosis (TB), is highly infectious and can spread rapidly in crowded conditions such as slums. Slums are mainly found in developing countries such as India, where migrants move due to ~~extra~~ urbanisation. They are densely populated are have little sewage ~~sty~~ system. Thus, they provide perfect habitats for multiple infectious diseases such as Malaria. This is supported by pg 7 as "poor ... tend to have


with variables such as "income". A lower income means you less likely able to avoid high quality & clean housing, thus only available housing is ~~#~~ are slums.

Furthermore, Ethiopia an LIDC is ~~easter~~ ~~ASE~~ North East Africa, has very high rates of Malaria, an vectors disease spread by Anopheles Mosquito. Due to Ethiopia's climate, it is endemic to many tropical & infectious diseases, having a warm & moist climate is ideal for development ~~#~~, breeding & survival of many infectious diseases. Thus, majority of LIDCs & EDCs are located in sub-tropic & tropical regions, where rates of infectious diseases are higher.

This response is awarded Level 3. The candidate introduces the idea of Omrans epidemical model to suggest how the spread of infectious diseases is linked to social inequality. The candidate's knowledge and understanding of infectious diseases include a range of communicable diseases such as TB, Malaria and Cholera (A01). The spread of the disease is discussed with reference to migration being a cause for the spread of a disease. The candidate addresses social inequality issues in terms of looking at the idea that LIDC's are dominated by poor living conditions which can increase the spread of an infectious disease (A02).

Question 7 (b)

(b) Examine how non-communicable diseases are affected by the processes of economic change. **[8]**

Some candidates used the epidemiological transition model to structure their answers. The links between health and wealth were well established by many candidates. The candidates tended to make comparisons between the north and south within the UK. Synoptic links were provided which included reference to Changing Spaces; Making Places

Question 8 (a)

Topic 2.3 Exploring Oceans

8 (a) With reference to **Fig. 8** suggest how the use of ocean energy affects sense of place. **[8]**

Candidates made good reference to the resource. Candidates especially made reference to the idea of ocean energy boosting the economy which will impact the sense of place in a positive manner. Candidates showed a good level of understanding about the sense of place and how the development and decline of ocean energy can impact the sense of place. Ocean energy was discussed in terms of environmental and economic issues. The discussion around the economic issues was often in terms of ocean energy generating incomes for individuals which created a multiplier effect which changed the sense of place in an area.

Question 8 (b)

(b) Examine how a change in sea level affects place-making processes. **[8]**

Candidates tended to spend the majority of their response discussing the impacts of sea level change but did not really engage in detail with the idea of place making processes.

Question 9 (a)

Topic 2.4 Future of Food

9 (a) With reference to **Fig. 9** suggest how the globalisation of the food industry is linked to economic change. **[8]**

Candidates discussed the idea of globalisation in relation to the greater interconnectedness of people leading to increased flows of goods. Fewer candidates made a link to economic change which was required for this synoptic question.

Question 9 (b)

(b) Examine how food security can reduce economic inequality in a country. **[8]**

Candidates were required to suggest how food security can reduce economic inequality. Most of these responses offered relevant material but in terms of reducing economic inequality candidate answers were too general but they were able to define food security.

Question 10 (a)

Topic 2.5 Hazardous Earth

10 (a) With reference to **Fig. 10** suggest how risk of mortality from seismic activity is affected by global patterns of social inequality. **[8]**

The strongest candidates answered the question by discussing how the risk of seismic activity and social inequality can be influenced by monitoring, preparedness and available income. A range of locations from Fig 10 were used, this included candidates identifying low and high-risk areas. Most candidates tended to focus on comparing high-risk countries such as Japan to lower risk countries such as Indonesia. . . The resource had a focus on the risk of mortality rather than death rates. This resulted in some candidates discussing death rates rather than focusing on the risk posed by global patterns of social inequality.

Question 10 (b)

(b) Examine how volcanic activity contributes to changes in landscape systems. **[8]**

For some, this was an opportunity to describe the complete destruction of a landscape due to volcanic activity. Generally, candidates were not that convincing in their linking of the landscape system with tectonic activity. Too few mentioned geology such as the influence of resistant igneous rocks on landforms and or processes. Present day volcanic activity can result in 'new' material entering a landscape system such as a lava flow at the coast while eruptions under ice can result in jökulhlaups carrying vast quantities of water and sediment. Candidates would benefit from being explicit about what the change in the landscape was, that was caused by volcanic activity. This could be a change that is immediate or a longer term change. Coastal landscape systems were often discussed with candidates commenting on the immediate change to the landscape such as creating new islands.

Exemplar 8

Volcanic activity can induce vast damage to coastal landscape systems, ~~does~~ when it triggers a tsunami. This can happen when either the volcano that erupts is underwater, or pyroclastic flow / rock fragments (from a Krakatoan-style eruption blowing off the roof of its ~~volcano~~ dome) displace water. These powerful waves can transform landscape systems by destroying stores - components ~~parts~~ of the system that hold material — such as spits, onshore bars, offshore bars, tombolos, cuspate foreland etc.; depositional landforms are particularly at risk due to their loose ~~formation~~ composition. Furthermore, tsunamis can also erode parts of the cliff / beach through wave pounding / hydraulic pressure, altering processes and stores within a system.

Furthermore, the igneous rock ~~-~~ that originates from lava ~~magma~~ in volcanoes - found in many coastal landscapes - contributes to the formation of bays and headlands, and consequently arches / stacks / stumps / reefs. This is because igneous rock has a crystalline structure with no faults or joints, rendering it very resistant to erosion. On discordant coastlines, where strips of hard / soft rock run perpendicular to the shoreline, this can lead to the formation of headlands and bays, as the softer rock will be eroded faster, unlike the slower rocks, forming indentations / protrusions in the land respectively. Over time, the gradual erosion of these resistant igneous rock sometimes create reefs, arches, stacks, stumps, reefs in that order, due to various erosional processes and weathering, creating distinctive landforms (and stores) to the coastal landscape, making the sence of place people attach to it grow stronger and becoming part of the brand of the place.

In conclusion, volcanic activity has the capability to shape and destroy the landforms formed within a coastal landscape, through for example the aforementioned examples as well as often acting as a powerful input that catalyses change within the landscape system & components.

This response was awarded 7 marks. The candidate uses the terms of the question throughout their response, which in general is good practice and helps the answer to remain focused. The examples are appropriate and have some detailed evidence, and there is a clear understanding of how volcanic activity can contribute to changes in the coastal landscape system. The candidate shows a thorough knowledge and understanding of volcanic activity (AO1) with reference to the characteristics of the eruption and material ejected. Volcanic deposits impacting on rates of weathering and erosion creating changes in to both the landscape system and landforms are discussed by the candidate (AO2).

Section C overview

Candidates are required to answer one essay question from the topic area of their choice. Each topic has two essay options available. Very few candidates completed question 16 and question 17 and so commentaries have not been provided for these questions.

Question 11

Topic 2.1 Climate Change

11* To what extent have human activities influenced the balance between incoming and outgoing energy through the atmosphere? **[20]**

This question was answered by a small number of candidates. Candidates made good reference to the idea of global energy balance. Candidates reached a consensus that human activities have had a large influence on the balance between incoming and outgoing energy through the atmosphere. Human activities discussed included reference to land use changes such as deforestation and the increased use of fossil fuels. Candidates used a good range of geographical terms which were well linked to the topic.

Question 12

12* 'International organisations have been more successful in shaping the climate change debate than other interest groups.' How far do you agree with this statement? **[20]**

There were some sensible comments about the influence international organisations have in shaping the climate change debate. This offered good opportunities to evaluate which some candidates took advantage of. The relative success was considered with relation to international organisations such as the EU and various treaties across time. Candidates tended to look at two international organisations and compare this to other interest groups such as governments, scientists, energy industries and the media.

Question 13

Topic 2.2 Disease Dilemmas

13* Examine the extent to which communicable diseases are more prevalent in Low-Income Developing Countries (LIDCs) than in Advanced Countries (ACs). **[20]**

Candidates had a good understanding and knowledge about the communicable diseases which are more prevalent in the LIDC's. Candidates tended to focus on Malaria as their case study. Some interesting discussions were read by examiners regarding the prevalence of the disease across the development spectrum. Strongest answers referred to place and moved beyond references to healthcare and education to include housing, overcrowding and sanitation. Candidates showed a clear understanding of the reasons why the diseases are often more prevalent in LIDC's. This included reference to limited access to education and healthcare. A number of candidates made some strong concluding comments which referred to AC countries having a higher prevalence of non-communicable diseases.

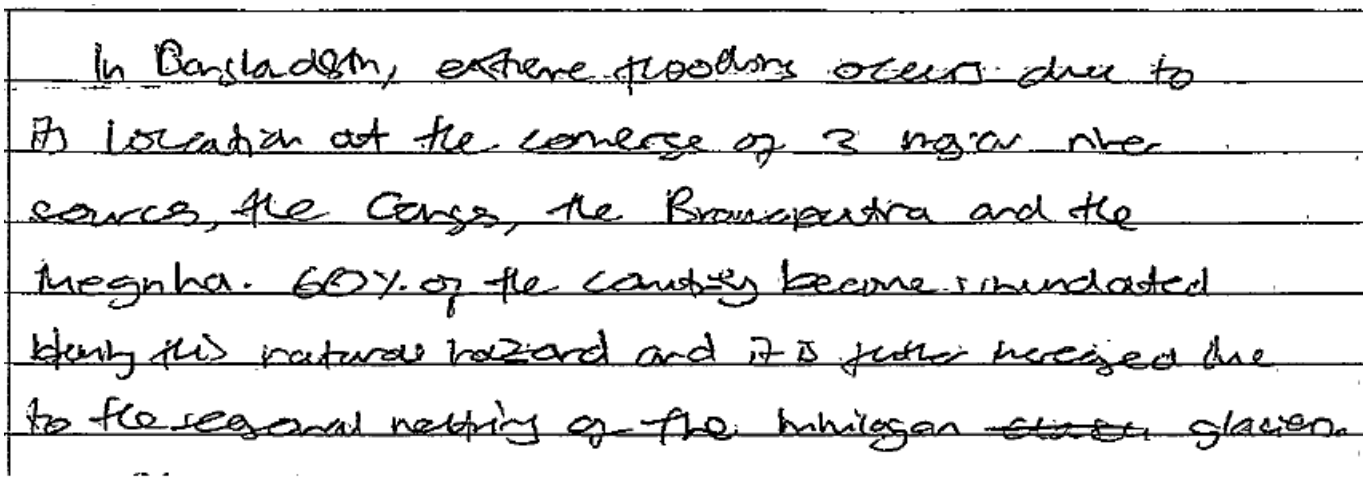
Question 14

14* Assess the effectiveness of strategies used to minimise impacts of a named disease in a country that has experienced a natural hazard. **[20]**

Candidates showed a good knowledge and understanding of a named disease in a country that had experienced a natural hazard. Candidates tended to focus on earthquakes with a significant number of candidates discussing the impact of the earthquake in Haiti (2010) on the cholera outbreak. Candidates generally showed a very high level of knowledge and understanding of the impact of the cholera outbreak on Haiti. For A02 candidates included some interesting discussions about the effectiveness of different strategies used to minimise the impacts of a named disease. This included the effectiveness in terms of the strategies short and long term aims as well as social, economic and political issues.

Those who scored highest had good knowledge and understanding of the natural hazard and its impacts and were able to evaluate and provide analysis of the strategies used to minimise its impact including both long and short term. They (where relevant) also assessed the effectiveness of different factors through the strategies they had applied.

Exemplar 9


In Bangladesh, extreme floodings occurs due to its location at the confluence of 3 major rivers sources, the Ganga, the Brahmaputra and the Meghna. 60% of the country became inundated by this natural hazard and it is further increased due to the seasonal melting of the Himalayan glaciers.

+ Strategies to minise the effect of Diarrhoea Diarrhea and typhoid and ~~hepatitis the building of~~ hepatitis are adopted by government and agencies, however, 70, 000 people did suffer from diarrhea and acute dehydration.

the government Met office in India tracked Agehe sidr trough the Bay of bengal and distributed alerted emergency services evacuated 2 million people that helped in the lowered death toll.

Diarrhea and typhoid and hepatitis occure due to the effe presence of floodwater contaminated with pathogens. ~~Hse~~ the flooding leads to water supply from wells being contaminated (like & wells) as well of contamination of food.

Strategies wee adopted by the Bangladeshi government that appeared air force Bangladeshi Air force helicopter and 3 naval ships to distr immediately distribute rewel and medicals and clean water, to people population and not have to rely of the contaminated sea water and food, reducing diarrheal infections.

The to Bangladeshi ministry of foo food, and disaster

alocated 4000 tonns of rice to be distributed to the population, 7,500 tents and 18,000 blankets in order to protect people that were

~~[illegible]~~ food and nutrition.

Unicef contributed greatly to the efforts in reducing diarrhoeal deaths due to acute dehydration by distributing vital bags of saline solution to combat dehydration.

All these strategies effectively reduced the impacts of the disease however, more could have been done. For example, immunisation programs were not widespread before the flooding which could have reduced death toll as herd immunity could have possibly been adopted.

In the long term, 93000 wells were repaired and chlorked to remove the pathogens and many raw wells in clean water were introduced. £3 million in taken were given as relief grants.

Although the death toll ~~was high~~ appears rather high, the effectiveness of the strategies was actually extremely successful as for a city that has in some regions 10000 people per square km, so pathogens could have easily spread from human faeces into water sources, ~~and~~ that has 60% flooded, in great success. However, due to the increasing effect of climate change, the strategies may need to be modified to allow for a greater preparation

of people to be helped more of a river river flood event. This is because increased global temperate will accelerate and increase the amount of ice melting in the himalayan glaciers. In addition, sea levels will be raised by global warming will warming will of future exacerbate resources and leading to greater inundation of the low lying land. Other strategies such as hard flood defences may need to be adapted to restrict the movement of increased dense and effect water and housing.

Overall the effectiveness of strategies was extremely successful in mid-long terms due to collaboration between government and agencies as well as the large aid and immediate distribution of saline solution to directly combate the effect of diarrhoea. However, in the future this effective strategy will be tested due to more frequent and larger extent and increased flooding due to global warming. Also spatial variation between areas of rural + communities may have received less relief supplies. Also the via Diarrhea is a communicable disease that spread one individual through contact with human faeces.

This responses is a Level 4 response for both A01 and A02. The candidate shows a comprehensive knowledge and understanding the impact diarrhoea has due to the extensive flooding in Bangladesh (A01). The candidate has discussed various impacts such as death, disruption to water supplies, sanitation and health of the population in a comprehensive manner with place specific detail (A01). The candidate has a comprehensive understanding of the different strategies used in Bangladesh to limit the impacts of diarrhoea. This includes short and long term strategies such as emergency relief, food distribution, drilling new tube wells and the distribution of saline to rehydrate people who are suffering with diarrhoea. The candidate has made comprehensive links to show how the strategies will help minimise the impacts of diarrhoea within Bangladesh (A02).

The candidate has made various comprehensive comments about the effectiveness of the strategies at minimising the impacts of Diarrhoea in Bangladesh. The answer contains comprehensive conclusions about the impact of the effectiveness being affected by factors such as access to aid (urban v rural), global climate issues and the collaboration of different governmental agencies working together (A02).

Question 15

Topic 2.3 Exploring Oceans

15* Examine the extent to which an oil spill can pose a threat for the physical environment and marine ecosystems. **[20]**

The few candidates that answered the question showed a good level of understanding of the extent to which an oil spill can pose a threat to the physical environment. This included an understanding of the short and long term impacts on the environment and the marine ecosystem.

Question 16

16* Examine the extent to which light and temperature explain ocean biodiversity. **[20]**

Very few candidates attempted this question.

Question 18

18* Assess the extent to which the theories of Malthus and Boserup are relevant to food security today. **[20]**

The few candidates that completed this answer showed a clear level of understanding of the theories provided by Malthus and Boserup. The link to food security today was less secure although appropriate examples were used.

Question 19

Topic 2.5 Hazardous Earth

19* To what extent do other physical factors contribute to hazards caused by volcanic eruptions? **[20]**

Candidates knew in some detail the range of hazards posed by volcanic eruptions and it was encouraging to read descriptions of the different types of hazards caused such as the eruption of volcanic materials. Candidates showed a good level of knowledge and understanding about specific volcanic eruptions. The eruption in Iceland created much debate about the other physical factors which also contributed to the hazards caused by volcanic eruptions. Several convincing conclusions were stated which made reference to the idea that hazards caused by volcanic eruptions can produce a higher risk to humans when combined with other physical factors such as lahars and volcanic materials.

Question 20

20* To what extent do other physical factors contribute to hazards caused by earthquakes? **[20]**

This was the most popular question of the two. The candidates made good use of their case studies to support their explanations. This included detailed descriptions of the Nepal earthquake (2015). The candidate's knowledge and understanding of the hazards and other physical factors caused by the earthquakes was convincing. Candidates included effective discussions about hazards caused by earthquakes which produce a higher risk to humans when combined with other physical factors such as liquefaction, landslides, avalanches and tsunamis. It was also encouraging to read thoughtful evaluations of whether the hazards caused by earthquakes produce a higher risk to humans when combined with other factors.

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