OCR
Oxford Cambridge and RSA

GCE A Level

Geography

H481_01_02_03

OCR Report to Centres June 2018

Oxford Cambridge and RSA Examinations

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- areas where students were more successful

- main areas where students may need additional support and some reflection

- points of advice for future examinations

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- Link to **grade boundaries**

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**General Certificate of Education A Level
Geography
(H481)**

OCR REPORT TO CENTRES

H481/01 Physical Systems

1.   General comments:

This examination, being the first in the new series posed a high level of challenge to the candidates. There was a high spread of marks from 0 to 62 out of the potential 66, and many questions effectively allowed for differentiation across candidate responses. Candidates who scored highly were able to write detailed and well thought out responses, using in depth knowledge of the case studies they had learnt. They were able to not only describe and explain these case studies but were also able to fully apply their knowledge and understanding to analyse how, in the option section, physical factors influenced landscapes and in the Earth's Life Support section the extent to which deforestation and farming affect the water table and carbon cycle in Tropical Rain Forests.

Weaker candidates tended to offer generic responses, without clearly linking them to specific places or examples.

Few candidates were unable to complete the paper, however, those who chose to respond to the longer response questions first tended to be those who did not then get back to answering the earlier questions in a section.

Some of the weakest responses were seen in the statistics/maths responses, particularly Inter-quartile Range and in those questions which discussed geographical skills in particular the choropleth map.

2.   Comments on individual questions:

Q1/2/3 (a) Sediment Cell / Glacier / Polar Dryland as a system
This question was focused on AO1 and the majority of candidates were able to achieve L2 as they could describe the inputs, processes/stores/flows and outputs. The best answers discussed dynamic equilibrium and were able to describe an example in the system where this occurred. However, many mentioned dynamic equilibrium without explaining what it is.

Q1/2/3 (bi) Median
The vast majority of candidates were able to achieve both marks on this question, by re-sorting the data into order and correctly recognising the middle figure.

Q1/2/3 (bii) Inter-quartile Range
The majority of candidates knew the basic formula for finding the IQR (IQR = Upper Quartile – Lower Quartile) and were credited for this. On average about a quarter of all candidates were able to correctly identify the UQ and LQ figures and so to correctly calculate the IQR figure.
However, a much larger number of candidates did not score any marks on this question or only one as mentioned for knowing the formula. The most common mistake seen was to split the data set into two distinct halves and to find the median figure for each half – so giving the 2nd or 3rd placed figures for the LQ and the 7th or 8th placed figures for the UQ, rather than understanding that the correct positions were 2.5 and 7.5, which required the calculation of the mean between the 2nd and 3rd and 7th and 8th placed figures.

Q1/2/3 (c) Flows of material in a Spit / Lateral Moraine / Alluvial Fan
As a whole, many candidates did not understand the requirements of the question – needing to describe the flows within the landform and instead they gave a general description of the landform.

1(c) Spit
Many candidates named this landform as a tombolo rather than a spit – but were credited for correctly identifying flows along the landform as they are created in the same manner.

Most candidates were able to describe longshore drift as the main flow along the landform. The best candidates knew that deposition occurred in lower energy environments and many could explain that the re-curved end formed due to a different wind/wave direction.

2(c) Lateral Moraine
This was not generally well answered with a large number of candidates incorrectly identifying the landform as an arête rather than a lateral moraine. However, even if this was the case all answers were carefully scrutinised to check if any part of the response was credit worthy.

The best answers described the inputs of materials from frost shattering, the movement of this material along the sides of the glacier and its deposition during glacial retreat.

3 (c) Alluvial Fan
This was generally a well answered question. Those who did not score well often attempted to explain the formation of the landform by Aeolian processes rather than fluvial ones. The best responses knew that the materials were carried by fluvial flows from the upland areas, which were often ephemeral, and/or flash floods. That the materials were deposited due to the change in slope angle, which caused a loss of energy, and that the largest material was often deposited first and that finer material would be carried further downslope.

Q1/2/3 (d) Assessing the relative importance of physical factors influencing 1) a high energy coastline, 2) an ice sheet landscape or 3) a mid-latitude desert.
Both AO1 and AO2 were examined through this question. In general, candidates were able to gain more marks for AO1 than AO2 and overall those responding to Q1 did better than those responding to Q2 or 3.

Many candidates struggled to recognise what physical factors are i.e. geology, climate etc. and instead discussed various geomorphological processes rather than the physical factors, which control them.

1 (d) Landscape of a high energy coastline
Many candidates correctly identified geology, fetch and wave energy as correct physical factors – but then only reached L2 for giving generalised answers e.g. discussing hard and soft rock along a discordant coastline without being able to correctly explain the differential erosional processes that have formed landforms such as bays and headlands along a named section of coastline.

North Yorkshire was widely used as an example and the best answers were able to discuss the discordant coastline with chalk headlands and bays formed in softer clays, such as Flamborough Head and Robin Hoods Bay. However, they also discussed the massive chalk deposits and understood that even within these relatively hard rocks there are structures such as faults and bedding planes, which would allow the formation of landforms such as caves, arches, geos and blowholes on a high energy erosional coastline. They discussed where the energy came from i.e.

the 1500km fetch and the destructive nature of the waves that hit the coastline and how these interact with the geology to form the landforms seen along the coast. Tidal range was discussed, with regards to the extent of the concentration of erosion along the more concordant coastline around Flamborough Head, and the subsequent wave cut notch and wave cut/shore platform. They also discussed the lack of fluvial sediment input into the system and the effect this has on the lack of or narrow beaches that occur in the area, and understood that the erosional power of the waves would not be dispersed by running over a wide beach. Previous climates and the changes that have occurred since the last ice age e.g. sea level change were also discussed.

Candidates were often able to describe one or more physical factor and so could reach AO1 L2 or even L3, but then could only give superficial AO2 comments such as 'geology is important' The very best answers understood that these physical factors all interact to give the coastal landforms seen and understood that geology was the guiding factor in influencing the landscape.

2 (d) Landscape shaped by the action of ice sheets.
The majority of candidates discussed Minnesota and the Laurentide Ice Sheet. Some tried to use the Lake District but usually ended up discussing valley glacier landscape features, others tried to use Antarctica as their example, but were unable to discuss landforms.

The best answers discussed the geology of the area being differentially eroded to give knock and lochan type topography along with the episoidal basins that give rise to Hudson Bay and the Great Lakes. They could also discuss the different geological make up of various moraininc deposits dependant on the geology over which the various ice lobes moved. They discussed climate in terms of allowing an ice sheet to develop and the subsequent retreat at the end of the ice age and the various depositional landforms that this left behind. Proglacial lakes were discussed, showing an understanding of the impact on the drainage of the area and of the high erosional impact of the waters that were released from these lakes as the ice melted. They understood that the other physical factors e.g. altitude, latitude and aspect were very much minor players in the formation of this particular landscape and could explain thoroughly how the over-riding factor was the sheer weight of the ice and its massive erosional power, which pretty much overcame anything in its path, explaining how this influenced the highlands in the area and their erosion to only 500-750masl, and the general levelling of the area covered by ice whereas the areas to the southeast retained their more varied landscape. This understanding allowed many candidates who answered this question to do quite well on the AO2 section if it was mentioned in sufficient detail.

3 (d) Landscape of a mid-latitude desert
Far fewer candidates answered question 3(d) than either of the other two options and overall the candidates who answered this question did less well.

The majority of candidates discussed the mid-west of the USA and in particular the Colorado Plateau. Some discussed other deserts e.g. The Namib or Sahara, but these are formed at different latitudes and under differing climactic conditions and so candidates were rarely able to score well if they did this.

Along with discussing the various physical factors such as differential erosion giving rise to features such as inselbergs, mesas and buttes; the development of microclimates due to aspect and relief and the overall influence of latitude and altitude, which control the geomorphological processes that are able to act on the area, the very best answers were able to discuss the fact that many of the landforms in this area were formed under palaeo-climactic conditions that are different from those occurring today along with long term geological changes such as the uplift of

the plateau and the subsequent fluvial down-cutting which occurred during a wetter climactic phase. By showing this understanding of previous factors acting upon the landscape, the best candidates were able to do well on the AO2 section.

4 (ai) Variation in precipitation totals and their influence on run-off
The majority of candidates were able to gain at least 2 marks on this question. Often though identifying an area where rainfall was high and indicating that run-off would be higher here, and then being to give at least one explanation point regarding saturated soils.

The best answers continued by explaining how a saturated soil would not allow further infiltration and the very best candidates were then able to explain that this would lead to *saturated overland flow*.

4 (aii) Limitations in using a choropleth map
The majority of candidates gaining only one or no marks for this question. Those who did well were able to discuss the difficulties of matching the colours on the map to the sliding scale which only has 3 unit points on it, they often discussed the generalisation of the map as the areal units represented were large and made no reference to variations within these areas and they recognised the sharp changes at the boundaries of the areas shown, would not occur in reality.

4 (b) Feedback loops and the carbon cycle
AO1 and AO2 marks were available for this question, but as an overall mark, rather than separately. The AO1 marks were achieved for correctly explaining the feedback loops that occur within the carbon cycle and the AO2 marks were achieved for explaining how the feedback loops affect the processes and stores within the carbon cycle including how the cycle is disrupted and any changes to the speed of the feedback within the loop.

The best answers gave a balanced response, describing both positive and negative feedback loops within the cycle (often giving more than one example of each), they also explained the triggers to the changes in the loops and the disruptions these cause to the loops. They were able to explain the potential dynamic equilibrium of the cycle and how this balance is being disrupted due to human activity such as the burning of fossil fuels or mass deforestation.

4 (c)
Both AO1 and AO2 were examined through this question. In general, candidates were able to gain more marks for AO1 than AO2. Most candidates concentrated on deforestation and were able to describe changes that this causes to the water and carbon cycle. In many cases, farming was added on with some repetition of effects. Many talked about management strategies, which were largely irrelevant to this question.

The very best answers understood that forests are carbon sinks and that deforestation causes the release of carbon into the atmosphere, particularly if the felled trees are burnt. They also understood that the majority of deforestation is done to enable farming to occur. Candidates explored that even if the ecosystem is just left or if crops replace the forest, it is not able to store or process so much CO_2, and that this along with a change in the albedo of the ground would cause increased temperatures, both locally and globally. They knew that the removal of the trees and their replacement with farm crops would cause a decrease in interception, an increase in soil saturation and would lead to increased and more rapid overland flow and so flooding and, many gave the example of the Madeira river flood of 2014, which resulted from this. A number of candidates explained that deforestation would also lead to lower evaporation rates and cause less

precipitation both in the immediate area and hundreds of kilometres downwind of the degraded sites. The use of the cleared areas for animal grazing was frequently discussed and candidates knew that this caused the release of methane and they knew that methane is an even more potent greenhouse gas than CO_2.They knew that farming would include the use of heavy machinery which would also contribute to the accumulation of greenhouse gases in the area, that this machinery could cause compaction of soils which would negatively impact the ability of the soil to infiltrate water and that this would lead to dryer soils which are easier to erode, particularly by wind, which would also cause the release of organic carbon material into the atmosphere. They also knew that the use of farm machinery could cause water to flow rapidly along the channels created by wheel tracks. They understood also that the prime forest is a store of water within the canopy and that the removal of the trees would also have negative impacts on the water cycle.

Therefore it was those candidates who were able to apply their knowledge and understanding to explain how both deforestation and farming effects both the carbon and the water cycle and were then able to assess the scale of these effects who were best able to achieve the highest marks on this question.

H481/02 Human Interactions

1.   General comments:

This paper elicited a very wide range of responses. There was no significant difference in performance between the two main sections: A, Changing Spaces; Making Places and B, Global Connections - nor was there between the option pairs: Trade in the Contemporary World or Global Migration, and Human Rights or Power and Borders.

Of the option topics a high proportion of candidates chose to answer questions on Global Migration rather than Trade in the Contemporary World; there were more responses on Human Rights than on Power and Borders, but this was a much more evenly balanced choice of topics.

It was pleasing to read the scripts of a number of candidates who clearly had prepared well for this first examination of the reformed Geography A Level. Scripts which were credited higher marks demonstrated many strengths and much good practice. These were characterised by consistently good performance throughout the paper for all or most part questions. There was detailed and accurate analysis of the various resources, especially the two OS map extracts. Responses in the shorter, data-response and medium tariff questions were concise and straight to the point. Essays tended to be well-structured, including an introduction, use of paragraphs for each main point and a conclusion. There was thorough application of place-specific detail in answering essay questions. Performance on the new topics, the geographies of human rights and sovereignty and territorial integrity, was most encouraging and demonstrated considerable interest and authority in the subject matter. For the changing spaces, making places topic, candidates demonstrated thorough knowledge and understanding of the processes of human geography. The better responses included appropriate use of geographical terminology. Many candidates had planned their time management appropriately and weighted their responses according to the marks available to good effect.

Scripts which achieved marks in the lower or middle mark ranges could have been improved with the understanding that the essay questions have an evaluative requirement, not just the need for knowledge and understanding of the topic. In addition, that the evaluative comments should be substantiated. A brief essay plan might help to improve structure / line of argument. In the essays it could prove much more effective if identified factors were discussed in the context of the question and each factor then reinforced by selected place-specific detail, rather than simply writing out case study knowledge per se without any other commentary. It might be of benefit too if place-specific detail could be provided in greater depth and breadth, especially in this particular Human Interactions paper with respect to place identity, strategies of the UN and other organisations, human rights and areas of conflict. Appropriate time allocation is also an important consideration; some candidates penalised themselves, producing unnecessarily lengthy responses for the data-response, low-tariff questions at the start of the paper, inevitably affecting their performance later on. Some scripts were brief and occasionally part questions had not been attempted.

While examiners make every effort to carefully read and interpret each response, it has been reported that a significant number of scripts were very difficult to read and a surprising number were verging on the illegible.

2.   Comments on individual questions:

Section A – Changing Spaces, Making Places

Question No. 1

Q1(a) was answered well. Many candidates made good use of the resource to identify appropriate evidence and many were able to draw conclusions from this evidence to explain how planners and architects had attempted to create a successful urban place. The most frequently cited piece of evidence was the open space / vegetated area. In this case, candidates often developed their answer in terms of its value for leisure, for residents and employees, and for its various environmental benefits and its attractiveness affecting possible residential and commercial take up. There were also a number of responses, which outlined the advantages of vertical land use zoning, mixed land use or accessibility. Higher marks were achieved where candidates were able to develop their answer by linking evidence to reasons for potential success of the design. Some candidates were able only to provide a piece of evidence from Figure 1 obtaining the AO3 mark but with no further relevant discussion, which was required for the two AO2 marks.

Q1(b) required candidates to suggest the roles of players that may have been involved in driving economic change in the area of the OS map extracts (an area in the rural-urban fringe of Ipswich). Many candidates were able to apply their knowledge and understanding of this topic thoroughly to the novel situation presented by this resource. It was encouraging to read the better responses, which identified very clearly two or three possible players (or stakeholders) and linked the role of each to driving economic change. In this respect there was much good practice in the detailed interpretation of the OS map extracts to identify the changes and the possible players involved in driving those changes. The most frequent references included: the role of national government in development of the main road network, especially the A14, and the school in Sproughton; local tiers of government in developing other road access, housing estates, the industrial estate and other infrastructure; private businesses such as Karting; and local resident associations. Some candidates simply described the changes in land use shown on the OS maps between the two dates and they were not able to identify the players that may have driven the change.

Responses to **Q1(c)** often related social inequality to differing levels of income at household or neighbourhood scale. There was good discussion of the impact of income on access to housing, healthcare and education, as well as the ability to purchase essential items such as food and how these related to social inequality. Although not essential, knowledge and understanding of these elements of social inequality were often suitably reinforced by exemplar material. Examples included, contrasting local intra-urban neighbourhoods such as within London Boroughs or the contrasts globally between urban slums such as Jembatan Besi, Jakarta and the high earning residents of Northwood, Irvine. This approach enabled candidates to produce well-developed ideas about the links between levels of income and social inequality. Responses awarded in the lowest level tended to include only basic knowledge and understanding of ways in which income influences social inequality with simple, brief ideas.

Q1(d)* produced wide ranging and interesting outcomes. Most candidates understood the need for a discursive response and they were able to produce an essay, which assessed the relative importance of other factors as well as natural characteristics on place identity.
The idea of place identity was well understood and the best responses demonstrated very thorough knowledge and understanding of a range of factors that shape place identity at a local

scale. The better responses included accurate place-specific detail in support of the points made. For example, there was often specific factual information of not only the physical geography, but also the built environments and the demographic, socio-economic and cultural features of the chosen places, including statistical evidence.

There was much valid discussion of the contrasting place identities of the rural settlement of Lympstone in Devon and the urban area of Toxteth in Liverpool. It was also refreshing to see many other examples from areas perhaps visited on fieldtrips or in a candidate's local area.

As might be expected, many good responses also included the evaluative comments, which attended to the question 'How far do you agree…'. There was much reference to the way in which place identity may depend on perception, that it might change over time, that it might be shaped by the physical environment and by other past characteristics and that many of the factors interact to influence place identity. Quality of extended response tended to be in Level 3.

Lower level responses in Q1(d)* were characterised by briefer simplistic comments and more limited understanding. Some candidates fell short of a discursive response producing essays, which simply described the factors or the characteristics of a place with no other comment. In these instances, candidates had not used their knowledge and understanding to gain the AO2 marks available for analysis and evaluation when addressing the question except in basic terms. Analysis was frequently simple and evaluation was rarely supported by evidence.

For some candidates a clear understanding of what is meant by natural characteristics was a difficulty.

Section B – Global Connections

Option A – Trade in the Contemporary World

Question No. 2

Q2(a)(i) was answered well. Most candidates were able to identify two advantages of the bar chart presentation technique used in Figure 3 to show variation in percentage share of merchandise imports within the EU. Responses included the placement of percentage figures at the end of each bar, which assist in the accurate interpretation of the graph. Many candidates developed this advantage in terms of enabling clear distinction between bars of similar length and being able to make precise comparisons. Other valid advantages included the rank ordering of the bars from highest to lowest values, which, with the country names provided, enabled geographical patterns within the EU to become more evident. Although not essential for full marks, there was much good practice in supporting or clarifying the ideas by explicit reference to features of the bar chart and specific data.

The better responses to **Q2(a)(ii)** identified two points clearly and succinctly in two short paragraphs. The most frequently stated reasons were variations in demand for merchandise in countries of differing population size or where there is differing wealth as might be expected between countries of the EU depending on level of development. A number of candidates also referred to variation in demand for imports of component parts required for manufacturing industry, which might be expected to vary between countries of differing industrial development within the EU. Encouragingly many candidates made valid and creditworthy reference to variations in merchandise import data from Figure 3 in support of their answers. Lower level

responses demonstrated more limited explanation by giving only one reason or by simply stating factors in a basic undeveloped way.

There were strong responses to **Q2(b)** in which explanation of the current global pattern of exports of one EDC was required. India was the most frequently chosen EDC on which this answer could be based. The best responses demonstrated thorough knowledge of the global pattern with reference to the countries involved as export destinations and the different types of export – merchandise, services and capital. Thorough understanding of the pattern was also demonstrated by reference to a range of valid reasons. For example, in the case of India there was discussion of trade agreements with individual countries and trading blocs, reasons for rapidly growing service exports, the impact of changing government policy, domestic investments in manufacturing industry and infrastructure, and investments abroad, all of which helped to explain the global pattern.

The less strong responses tended to be of a generalised nature, without any detailed knowledge and understanding of the export pattern of a particular named EDC. Explanations tended to be basic with limited place-specific detail. Some candidates selected an inappropriate country, which could not be classified as an EDC.

Option B – Global Migration

Question No. 3

Q3(a)(i) was answered well. Many candidates were able to identify two advantages of the bar chart used in Figure 4 for showing variation in number of intra-regional immigrants within the EU. Most candidates were able to provide an appropriate explanation for of each of their stated advantages. There was much good practice in that responses were typically supported by specific reference to countries and statistics from Figure 4, although this was not essential for full marks. The most frequently given advantages included: the value of stating precise figures at the end of each bar which enhanced the accuracy of the chart and aided more precise comparison; and the structure of the chart in rank order from highest to lowest value with the names of countries, which helped in identification of the geographical patterns of immigration within the EU.

Variation in intra-regional immigration within the EU, as shown by the selected countries in Figure 4 was well explained in response to **Q3(a)(ii)**. The better answers tended to include two short paragraphs with the factor clearly identified in the first sentence of each. The most frequent response was that of employment opportunities, developed in relation to the economic strength and industrial development of the receiving country. Many candidates referred to differences in perceived quality of life with respect to access to services. Also with the prospect of migrant remittances, differentials in the minimum wage and availability of low-skilled employment were frequently cited factors in explaining migration between countries of the eastern and western EU. The impact of migration for retirement to countries such as Spain featured in many answers, as did the possibility of return migration to countries such as Poland. The Schengen Area was often referred to but not all candidates demonstrated awareness of the differential participation of countries in this agreement.

Less strong responses tended to offer only one reason or to provide only very basic statement of reasons without further understanding of the need to explain the variation.

There was a very wide range of responses to **Q3(b)** in which candidates were required to explain social challenges caused by international migration with reference to an AC case study. Most candidates chose the USA as their example and many were able to lift their answer into Level 3 with well-developed explanations and accurate place-specific detail. The better answers included statistical evidence for Mexican and other nationalities having migrated to the USA or place-specific detail regarding the impact of immigrant communities. Some candidates based their answer on migration to the UK with particular reference to Polish communities. Many candidates referred to social challenges such as difficulties of integration, the impact of illegal and legal migrant groups on service provision, human trafficking and border control plus various problems caused by language difficulties and cultural differences. The strongest answers demonstrated clear, developed explanations of the challenges identified in separate paragraphs. Less convincing responses merely described the challenges, or identified only one issue, or discussed the challenges in very simple, general terms without reference to any details of the chosen AC other than by naming it at the start of the answer.

Option C – Human Rights

Question No. 4*

Q4* drew out a wide variety of discursive responses in which the effectiveness of the strategies of the UN and other organisations in protecting human rights in areas of conflict were evaluated.

Many candidates wrote at length demonstrating considerable depth of knowledge and understanding of UN strategies and the roles of NGOs, national governments and other organisations such as NATO or the EU. There was thorough knowledge and understanding of a range of human rights issues such as the rights of women, the right to life, and education. Some candidates based their answer in the context of one country, others referred to two or three. The most frequently cited conflict zones where human rights have been violated included Afghanistan, Mali and South Sudan. The best answers included detailed knowledge of the strategies of the UN and its agencies in these locations as well as details of the work of specific NGOs and national governments.

Higher level responses also demonstrated that candidates had been well-prepared to evaluate the relative effectiveness of the strategies. There was clear understanding that the requirement was to produce a discursive, extended piece of writing and that evaluative comments should be substantiated by evidence. Often this involved discussion of the effectiveness of strategies in the shorter- and longer-term, at differing geographical scales, in achieving Sustainable Development Goals, in the application of various treaties and laws, the importance cooperation and co-ordination, and various negative and unsuccessful impacts.

A well-developed line of reasoning with clear logical structure was a feature of most of the better essays, as stated in Level 3 of the Quality of Extended Response. It was encouraging to see frequent use of essay plans, which led to many well-structured responses. These included introductions which demonstrated some interpretation and understanding of the question, use of paragraphs, each dedicated to a particular point, strategy or organisation, and a conclusion referring back to the question. There was much good practice in this respect.

Lower level responses tended to include only very basic knowledge of UN strategies, human rights and areas of conflict. Understanding of the impact of UN and other strategies in protecting human rights tended to be restricted to broad, generalised statements. At this level, any

evaluative comments, which were offered, tended to be simplistic, unsupported and often presented only at the end of the essay in a brief conclusion.

Option D – Power and Borders

Question No. 5*

Q5* elicited a wide variety of discursive responses in which the roles of the UN and other organisations in areas of conflict were evaluated with supporting evidence.

Many candidates demonstrated detailed knowledge and understanding of intervention by the UN and its agencies, including peacekeeping missions, peacebuilding, and coordination and cooperation in their work with NGOs and national governments.

The best answers demonstrated considerable depth of knowledge and understanding of the involvement of the UN in at least one geographical location in which conflict has a significant impact. Exemplar material tended to include South Sudan, Afghanistan, and Mali or Ukraine although there many other valid examples were cited.

The effectiveness of the strategies was an important element of the essay; the balance of discussion tended to depend on the exemplar material chosen. Responses included examples in which the UN has had positive effects, others where its impact has been limited or ineffective, and where conflict persists despite intervention. In addition, many responses demonstrated thorough knowledge and understanding of the roles of specific NGOs including discussion of their effectiveness within local communities. Reasonable understanding of the roles of regional organisations such as NATO or the EU as well as the effectiveness of the state government was also evident.

It was encouraging to see frequent use of essay plans, which led to many well-structured responses. These included introductions which demonstrated some interpretation and understanding of the question, use of paragraphs, each dedicated to a particular point, strategy or organisation, and a conclusion referring back to the question. There was much good practice in this respect.

Nevertheless, a number of responses were limited in terms of knowledge and understanding of the strategies of the UN and other organisations; some candidates referred to these only in basic, general terms. Place-specific detail, if presented at all, was inaccurate or confused. In the less strong responses, evaluation of the relative success of the strategies tended to be simplistic and unsupported by evidence.

H481/03 Geographical debates

1.   General comments:

This was the first session that this unit (H481 / 03 Geographical debates) was available following the substantial reforms at A Level. This experience of assessment, following two years of study for both candidates and assessors, thus offers some valuable evidence for future teaching and learning.

The full range in quality of answers was seen and there were responses to all questions on the paper for the examiners to read, although some questions received far more answers than others. In the upper quartile, answers to all three Sections of the paper were focused, detailed and above all in Section C, analytical and evaluative. The lower quartile were characterised by a reluctance to offer material directly relevant to the question, preferring in many instances to offer too much narrative as opposed to analysis.

The rubric regarding question choice was almost universally followed apart from a small number of candidates in Section A. Candidates should be reminded that the instructions on the front cover of the question paper are clear, 'Section A – choose **two topics** and answer **both parts** of the question from **each** topic.' Some candidates decided that they might be better served by answering either an (a) or (b) question from a different option: they were misguided as no credit was earned by this alternative route.

In terms of popularity amongst the options, Hazardous environments was chosen by about ninety per cent of the entry. Just over half of the candidates selected Disease dilemmas, nearly thirty per cent climate change with the remaining answers split more or less evenly between Exploring oceans and Future of food.

There appeared to be few problems with timing as indicated by the nature of the scripts. Given the length of the paper and the ability of candidates to make full use of the two and a half hours, perhaps more attention could be given to issuing the longer answer booklets for candidates to start writing in. This would help to avoid the necessity for additional booklets and or sheets to be issued with the commensurate increase in organisational demand for the candidate. The practical point is that the script is scanned in whatever order it is received in and in many cases, this was muddled. The absence of clear indications of where answers start, continue and stop makes it very difficult for the assessor to follow the flow of an argument, especially in the Section C essays.

A concern that has been expressed before in the context of legacy papers, is the growing issue of illegible handwriting amongst candidates. Too often, assessors are unable to make sense of a section of prose simply because there are words and or phrases that they simply cannot read. Candidates are thus disadvantaging themselves by this failure to communicate.

2. Comments on individual questions:

Section A

This section consists of two sub-parts in each of the Options. Sub-part (a) assesses skills with candidates asked to identify three limitations of a figure relating to some aspect of the Option's content. Many candidates were able to discern three aspects of the figure that limited its usefulness. However, too many wrote at considerable length which is inappropriate given the marks to be earned and the nature of the task. Many scripts contained prose of over half a page in length, from which it was not always clear exactly what three limitations were being identified. Three, concise sentences can deliver the material required. Disappointingly, few candidates picked up on issues regarding reliability and or accuracy of data, both spatially and temporally. In sub-part (b), the key requirement was to 'explain', this being the command word at the start of the question. Missing this, meant that candidates tended to offer descriptive narratives, which did not fulfil the demands of the question.

Climate change

Q1 (a) - the figure was a scatter graph indicating the relationship between Gross Domestic Product (GDP) per person and total CO_2 emissions for selected countries. Limitations identified by candidates included that CO_2 emissions were for the whole country and not per person so not directly comparable with the GDP data. The dates for the two sets of data were a year apart and the sample of just ten countries may not offer a secure indication of the relationship were two other common limitations. Too many candidates became caught up in the mechanics of the graph with comments about the labelling of the y axis being hard to read and even that the graph should be in colour. Few picked up on possible issues of reliability and accuracy of the data.

Q1 (b) – there some very effective explanations of how natural forcings have driven climate change in the geological past. Detailed and authoritative accounts of the operation and outcome of Milankovitch cycles and continental drift were not uncommon with many also explaining the link between volcanic activity and climate change. The question was explicit in its focus on change '…in the geological past.' While some credit was given for references to major eruptions such as Pinatubo, the more convincing responses quoted major eruptions in the geological past such as the fissure eruptions responsible for lava plateaus such as the Deccan. Less effective responses tended to become caught up with the causes of the forcing rather than its effects.

Disease dilemmas

Q2 (a) – a map illustrating the distribution of deaths due to cholera from the 'worldmapper' series were the focus in this sub-part asking about limitations. Candidates were quick to point out the difficulty in identifying particular countries, in particular in areas such as Europe due to the distortion of shape. The absence of information on actual numbers as well as on regional variations within a country were common suggestions. Rather too many candidates took issue with the range of colours while very few suggested the 'cliff edge' issue with choropleth maps which denies the continuum of cholera deaths across national borders.

Q2 (b) – explanations of how disease diffusion can operate were generally effective. Those who wrote focused, crisp accounts of types of disease diffusion (expansion, relocation, contagious, hierarchical) were particularly effective, all the more so when appropriate examples were given. It was often the presence of detail that gave responses authority, for example stating that in expansion diffusion, as the disease spreads out into new areas, carriers in the source area

remain infected. Comments about Hägerstrand's diffusion model, the S-shaped curve as well as the role of barriers on diffusion, were relevant.

Exploring oceans

Q3 (a) – limitations of a table containing numbers of humpback whales in various ocean regions were the focus in this sub-part. Many candidates picked up the valid point that the numbers were 'estimates' and therefore were subject to margins of error. The limitation that the ocean regions were sampled in different years and so makes comparison difficult was made by many. The definition of the ocean regions, such as 'Off Western Australia' was seen as a limitation given the vague boundaries such definitions involve. A few candidates made the valid point that counting such a mobile species presents difficulties in itself.

Q3 (b) – candidates explaining variations in nutrient supply within oceans tended either to offer thorough or reasonable knowledge and understanding. The former group focused on vertical and horizontal variations with a key indicator being their confidence in explaining why nutrients can accumulate at depth but then how at some locations, upwelling of water brings nutrients to the surface. Reasonable responses managed comments about photosynthesis at the surface and perhaps noted a point such as the increased level of nutrients where large rivers flow into the sea, but ignored the important process of upwelling.

Future of Food

Q4 (a) – a photograph showing a group of farm workers spraying a crop in India was the resource candidates had to identify three limitations of. Most candidates managed one or two relevant points such as there was no indication as to what was being sprayed or the image showed only a relatively small area. Fewer identified that a photograph can only show a 'snapshot' that portrays a particular time and so to assess impacts of food production on the physical environment would require images taken at different times.

Q4 (b) – few candidates offered only basic knowledge and understanding of the theoretical views of Malthus and Boserup. Most were able to outline both views and it was the level of detail in the explanation that tended to determine whether the response was at Level 2 or 3. Some of the more convincing responses made effective use of graphical representations of the two perspectives and it was possible to gain Level 3 through the use of a well annotated couple of graphs. Key points such as the assumption of the Malthusian view that population increases at a geometric rate while food production at an arithmetic rate and the assumption of Boserup that agricultural production is capable of matching a growing demand were present in most candidates' responses.

Hazardous Earth

Q5 (a) – candidates were asked to identify the limitations of a text extract as a source of impacts of earthquakes on people. The vast majority managed to suggest two or three appropriate limitations, such as the absence of information regarding non-fatal casualties and that the lower energy events were not accompanied by any detail as to their impacts. Many responses also picked up that some of the statistics were estimates or that the two earthquakes highlighted were both in Asia.

Q5(b) – explanations of the features of explosive eruptions tended to be reasonable or contain well-developed ideas. The key discriminator was the extent to which the response 'explained'

the features rather than simply 'described' them, with too many candidates offering only descriptive narrative. For example, comments about the acidic and viscous nature of the magma were appropriate but needed to be linked to the tendency for vents within a volcano to become blocked by solidified magma. This in turn allows great pressure to build up when more material rises up from the magma chamber until the forces became so great that an explosive eruption occurs. It was disappointing when examples of explosive eruptions were allocated to divergent boundaries with many responses referring to Iceland or the well-publicised recent eruptions on Hawaii.

Section B

This section consists of one question in each of the five Geographical Debates Options. Each question links an aspect of the Option content with some element found in one of the compulsory units in the Landscape Systems, Earth's Life Support Systems, Changing Spaces; Making Places or Global Connections units.
The command words deployed, such as examine and assess, invite candidates to consider the links between whatever the two content items are identified in the question. The focus is on how something is impacted, affected or influenced by something else.
The twelve marks are distributed across four levels with the requirement that the response be written in a paragraphed, full prose style.

Climate change

Q6 Candidates were asked to examine how climate change can affect weathering and erosion processes in any one of the landscape systems. For some the distinction between the two groups of processes was muddled which tended to lead to confused links made between climate change and the processes. Many responses were simply too generalised to be convincing with vague assertion about sea level rise leading to increased erosion of cliffs. Those candidates who were authoritative regarding processes and made clear links between for example rising temperatures of both atmosphere and sea surface and weathering processes, or between rising temperatures, increased quantities of water and ice movements, soon had their responses climbing to the top of Level 3 at least. Overall, it was the weakness in knowledge and understanding of landscape processes that held back many candidates.

Disease dilemmas

Q7 The link in this option to be explored was that between disease risks and their impacts on place profiles. While there were a good sample of students who were confident in their knowledge and understanding of what is meant by 'place profile', assessors were surprised by the number who were unsure as to what is meant by this idea, given its compulsory status within the specification. For example, the built environment rarely received the attention it deserved. Another disappointing characteristic of the majority of responses was the lack of references to a student's own local place. Comments about the presence of some of the range of medical care facilities which all students will experience (local health centres through to major hospital complexes) and the levels of disease risk in the UK were noticeable by their absence.
Many relied on comments relating to the risk of malaria in Ethiopia and how it varies regionally with particular regard to the physical environment with others making use of the high levels of air pollution in major cities such as Delhi or Beijing.

Exploring Oceans

Q8 In this question candidates were asked to link ocean processes with the carbon cycle. The majority were able to offer at least thorough knowledge and understanding of the processes and carbon cycle and were able to suggested developed ideas as to the ways in which they are linked. The main pathway between carbon stores mentioned was that of photosynthesis close to the ocean surface by phytoplankton. Candidates were also relatively secure in their knowledge and understanding of the ways by which some marine organisms incorporate carbon into their shells and skeletons and then how this carbon eventually is transferred to ocean bed sediments. The basic distinction in the carbon cycle between the physical (inorganic) pump and the biological pump was noted by a very small minority and should be more widely known and understood.

Future of Food

Q9 Assessments of how food security can be affected by issues of either human rights or territorial integrity was the focus in this question. Candidates tended to employ case study material to deliver their answers, which had much potential, as long as the question was kept in mind and real world exemplification illustrated the generic point being made. Amongst the less convincing responses, candidates tended to rely on descriptive narrative rather than offer analysis of the links between food security and the two Human Interaction topics. Good use was made of situations in locations such as South Sudan, Syria and Yemen with some candidates offering interesting perspectives on poor food security amongst people living in the Bronx, New York.

Hazardous Earth

Q10 The requirement here was to assess how tectonic hazards impact either global trade or global migration. Candidates delivered a wide range in the quality of assessments with the less effective responses relying on an unpacking of one or two case studies, ending with little more than that hazards cause people to migrate and trade to decline. More convincing responses made effective use of the impacts the eruptions on the island of Montserrat, and the Haiti and Nepal earthquakes had on migration flows, in these examples on emigration. In terms of negative impacts on global trade, the ash cloud resulting from the eruption of the Eyjafjallajökull volcano and the Kobe and Tōhoku earthquakes were deployed successfully by many.

It was a minority, albeit a significant one, that assessed the positive impacts of hazards, mostly in the context of volcanic eruptions. These were recognised as yielding fertile soils once weathered, allowing farmers the opportunity to raise agricultural produce, which could then enter trading flows. The slopes of Etna, and the Indonesian and Japanese volcanoes were frequently cited. Trade in terms of services such as tourism was another example of positive impacts, with the recent eruptions on Hawaii offered as a contemporary example, as well as more historic ones such as visitors to Pompeii.

Section C

This section consists of two questions in each of the five Geographical Debates Options. The command words and phrases used, such as 'To what extent…', 'Assess the view that…', or 'How far do you agree?' require candidates to analyse and evaluate the geographical issues raised in the questions. Responses are expected to be fully paragraphed and written in extended prose so that when complete, a response communicates clearly a fully discursive approach.

Climate change

Q11 Candidates were asked to assess the extent to which the debate over climate change is influenced by a variety of agendas. A wide range in the quality of discussion was read by assessors. The more convincing essays recognised and were confident in outlining different agendas as exemplified by stakeholders such as supra-national bodies (UN; EU), international organisations (IPCC; WHO), individual nations and the media and a wide variety of groups such as Greenpeace, NASA, university research groups and individuals and local groups such as wildlife trusts.

The different perspectives amongst nation states was recognised by many with the more convincing candidates being familiar with contemporary events such as the Paris accord and the USA's recent withdrawal. The views of countries such as China and India were often cited but not often with sufficient detail to be really authoritative. While generalisations about examples such as the USA have some validity when based on the pronouncements of the current President, only a minority of candidates were able to nuance the discussion with material on the differing attitudes of states such as California and individual businesses.

The role of the media was offered as being significant but too few linked this with important aspects such as the need to consider the perspectives of those owning elements of the media. The nature of scientific research, the independence of academic researchers and the scientific illiteracy of both media and the majority of people were relevant points but too few included them.

Q12 The vast majority of candidates selecting to answer in this Option discussed the influence of economic factors on decisions about mitigation strategies to cope with climate change. One issue assessors found in many discussions was a confusion in the minds of candidates between mitigation and adaptation. The former was only well understood by a minority of candidates who included discussion of strategies such as ratification of protocols (Kyoto, Paris), energy conservation measures and energy shifts, such as from fossil fuels to renewables. Convincing arguments were made as to the need for a strong domestic economy before cheap sources of carbon releasing energy are readily abandoned. That said, both India and China are investing in renewable energy production and afforestation projects can be found amongst EDCs and LIDCs. There was a disappointing absence of assessment of strategies such as carbon capture, tidal power and developments such as electric vehicles.

Much was made in a good number of discussions of the argument that many EDCs and LIDCs perceive the current level of global warming as being directly the responsibility of the ACs. The carbon emissions from ACs of the past couple of hundred years have led to the climate change being experienced today and so it is these countries that must bear most of the costs. It was encouraging to read effective arguments put forward as to the economic rationale of EDCs and LIDCs in focusing on adaptive strategies. In this context, the efforts of Bangladesh in protecting itself from the threats of rising water levels from the ocean and river floods were often highlighted. Some of the most convincing essays went further to point out that carbon production *per capita* in LIDCs such as Bangladesh, was many times lower than even the lowest ranked AC. Fully evaluative essays included consideration of the socio-economic and political factors influencing attitudes towards climate change.

Disease dilemmas

Q13   This first question in the Disease Dilemmas option, the more popular of the two, focused on the assertion that physical factors will determine the future global pattern of disease prevalence. Overall, candidates offered reasonable or thorough levels of knowledge, understanding and application. Candidates clearly knew of the factors influencing the distribution of diseases such as malaria in Ethiopia and also non-communicable diseases in ACs. A key discriminator was the degree to which a discussion dealt with '…the future global pattern…'. In the context of malaria, candidates who were able to write with authority about its migration out from its current core areas to regions such as southern Europe significantly advanced their argument. Likewise, assessors read much convincing material on the projected northwards spread of West Nile Virus and Lyme disease through North America. All three disease distributions are likely to be affected by climate change with its attendant temperature increases. It was only a small minority of candidates who offered the interesting point that increasing temperatures might bring a benefit in the form of restricting a disease. The example most cited in this context was trypanosomiasis in East Africa where the tsetse fly larvae may not survive raised temperatures in the future.

Although most candidates were able to offer evaluation of physical versus human factors, the focus of the question on 'future' meant that essays not picking up on this were unable to climb too far up the levels. There were, however, examples of candidates who identified future global trends in non-communicable diseases, many using the idea of the epidemiological transition. Thus, they saw many EDCs and LIDCs as becoming more affected by diseases such as cancers, diabetes and cardio-vascular disease, the causes of which were not physical. Changes in diets and increasing life expectancy were seen as bringing about a change in patterns of disease.

It was also encouraging to read discussions of the potential increase in diseases transmitted swiftly around the globe by increasing levels of personal mobility via aeroplane travel as well as diseases spread through the global exchange in goods, which may harbour pests, bacteria and viruses.

Q14   A sizeable minority of candidates answering in this Option assessed the view that grass-roots strategies are the most effective ways of dealing with disease risk and eradication. Some candidates were not secure in their knowledge nor understanding of what is meant by grass-root strategies or top-down strategies and thus struggled to construct a convincing discussion. Even amongst those who did have some idea of the two approaches, there existed degrees of muddle when it came to evaluating the two contrasting approaches.

Many candidates made effective use of the guinea worm eradication programme in Ghana to support the point that grass-roots strategies can be very effective. The more convincing essays then displayed their understanding of the role of scale by referring to national and global top-down strategies. The successful elimination of malaria in Mauritius and small pox globally was well known. Many scripts made reference to the Global Polio Eradication Initiative, supported by global players such as WHO and UNICEF and the success this top-down strategy has had. However, few candidates were able to make the nuanced point that within the context of this global success, there have been a few local set-backs, notably parts of Nigeria, Pakistan and Afghanistan. The argument made by just a few candidates was that grass-roots knowledge and understanding is needed in some circumstances if the top-down strategy is to be comprehensively effective.

There was a tendency amongst some candidates to be quick to dismiss top-down strategies and a failure to recognise just how effective many of these at national levels have been. Perhaps current generations of teenagers need to be reminded of the significant achievements of the UK's National Health Service in eliminating diseases such as diphtheria and measles as well as the growing success of various screening programmes operating today.

Exploring oceans

Q15   This was the more popular of the two questions in this Option but only by a relatively small margin. Candidates dealt with the assertion that economic factors account for rising levels of oceanic pollution reasonably well but there was a tendency to offer too generalised a discussion. Discussions were too often heavily reliant on oil spills and in particular, the Deepwater Horizon episode to put forward the argument that the economic factor of energy demand and the reliance on oil for a great number of human activities was responsible for oceanic pollution. The more convincing responses tended to offer a diversity of examples, such as the disposal of nuclear waste, the spillage of heavy metals such as mercury and the outflow of untreated sewage. The accumulation of plastic both in oceanic waters and through oceanic ecosystems was mentioned by many with most displaying knowledge of the role of gyres in concentrating material. It tended to be the more authoritative responses that dealt with the issue of acidification of the oceans. They made the link between economic growth, fossil fuel consumption, emissions of CO_2 and decreasing pH of ocean waters.

Most discussions laid the blame for oceanic pollution clearly and singularly with economic factors. Too few candidates considered the role of political factors, such as the deliberate abandonment of nuclear-powered submarines on the sea bed or the lack of legislation to regulate waste from domestic and industrial sources that currently ends up in the oceans. The role of natural processes such as eutrophication was rarely included, albeit that there are strong links between this process on factors such as agricultural and industrial run-off of nitrates and phosphates.

Q 16   Discussions of the extent to which the successful management of oceanic resources require international cooperation were quite varied in their effectiveness. A minority of candidates offered substantial knowledge and authoritative understanding of management frameworks such as the United Nations Convention on the Law of the Sea (UNCLOS) and or the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). Although a good, number of candidates knew of ideas such as 'global commons' and 'tragedy of the commons' few were able to articulate clearly what this meant in the context of oceanic resources. Greater detailed knowledge of the ocean management zones as outlined by UNCLOS would also have helped many candidates.

Very few discussions included material on Marine Protection Areas such as the Chagos Marine Reserve or the recent proposals for reserves around the British Isles. Issues such as underwater noise pollution were noticeable by their absence.

Future of Food

Q17 Discussions of the extent to which globalisation impacts on the food industry tended to become rather too caught up in an assessment of the positives and negatives of globalisation in general. While such material had potential, too often candidates did not make sure their focus was on impacts of the food industry. Generalised comments about the growth of fast food outlets around the globe and in particular in various EDCs and LIDCs did not carry an answer far.

More convincing points were made about the role of improvements in transport allowing agricultural products to be moved swiftly, reliably and affordably over considerable distances, although more details about real world examples would have added substance to discussions. Issues such as land-grabbing were rarely discussed but neither were some of the positive impacts on producers of demand coming from overseas.

One interesting evaluative point picked up by only a small minority was the link between rising affluence in many EDCs and globalisation through employment in TNCs for example, and changes in diets. In turn, this would have impacts on food production. The role of agri-businesses such as the large- scale chemical and seed companies and their presence around the globe was too rarely discussed, for example the promotion of genetically modified crops. One sector hardly given a mention were the subsistence and semi-subsistence farmers, mostly in LIDCs, who have only limited engagement with the globalisation process.

Q18 Evaluations of the effectiveness and sustainability of techniques used to improve food security were offered by a small minority of candidates answering in this Option. While there were some who had a secure grasp of what might be meant by 'effectiveness' and 'sustainability' too many did not. Some techniques might be effective at improving food security but not in a longer term sustainable way, while others might be environmentally sustainable, but not that effective at improving food security. Most candidates would have added conviction to their essays had they embarked on some evaluation of how sustainability is a contested concept.

A good number of candidates included the example of sack farming in low status housing areas in LIDCS or the *organiponicos* in Cuba as examples of attempts to effectively and sustainably improve food security at a local scale. At the other end of scale, large scale projects were less well known and so their appraisal tended to consist of fairly simple negative environmental assessments, for example dam schemes.

Hazardous Earth

Q19 This Option is the most popular by far and this question was chosen by just under a third of the entry. There was a wide variety in the quality of responses assessing the extent to which the decision to live in tectonically active locations is determined by economic factors. Most candidates were keen to offer support to the assertion quoting jobs and income from farming using the relatively high fertility of weathered volcanic soils as reasons to live close to volcanoes. Real world examples commonly came from Indonesia and Sicily. The same economic reasons were suggested in the context of tourism with Iceland, Japan and Hawaii deployed as exemplification. A minority of candidates discussed the role of geothermal power generation as being a positive factor in peoples' decisions. Some essays made the valid comment that in several EDCs and LIDCs, many low-income families simply do not have the economic resources to move away from tectonically active locations. Examples quoted here in support of the argument included the Democratic Republic of Congo, Indonesia and the Philippines.

While most essays focused on volcanic activity, the more convincing discussions included helpful material on living with earthquakes. As with volcanic activity, inability to move away due to an absence of economic resources was cited but very effective evaluation was offered by the upper quartile of candidates concerning ACs. In these locations, where command of substantial economic resources by both state and individuals is evident, societies and individuals can invest in measures such as aseismic design, warning systems and sophisticated search and rescue

methods and equipment. Thus, millions live in tectonically active regions such as Japan and Southern California.

Amongst the more convincing discussions, the role of perception of tectonic hazards was assessed. Some hazards are very infrequent with long recurrence intervals, which leads to people allocating a low probability to the risk of a major event. Social reasons such as family ties to a particular location such as a plot of farm land were cited in many responses.

Q20 This was the single most popular question in the entire paper. Discussions of the extent to which it is possible to manage hazards arising from earthquakes tended to vary according to how coherent the argument presented was. Less convincing essays tended to offer an approach characterised by too much descriptive narrative that jumped around from one management technique to another. While knowledge of individual techniques is valuable, the emphasis must be on '…to what extent…'. It was not always clear from a candidate's prose, which particular earthquake hazards a management technique was designed to deal with. Linking ground shaking with aseismic design such as counter-weights or rubber absorbers in building foundations for example was effective.

Many candidates used the earthquakes in Japan (2011) and Nepal (2015) to good effect, deploying a range of statistics to support points being made about hazard management. It was good to read in many essays, commentary that avoided the overly simplistic perspective that ACs can manage earthquakes, LIDCs and EDCs cannot. In this context, the immense energy released off the coast of north-east Honshu Island was cited as an example of how even the best prepared of societies can struggle to manage all the hazards arising from earthquakes. Candidates also were aware that countries such as Nepal and Indonesia are trying to adopt strategies to manage earthquake hazards and that these efforts need to be appraised in the context of a particular economic, social and political set of circumstances. Some candidates made very effective use of the disaster-response curve reproducing the diagram and annotating it well.