

# GEOGRAPHY

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Paper 9696/11  
Core Physical Geography

## General comments

This examination once again produced a wide range of responses in terms of knowledge and understanding. There were some excellent performances, and many candidates approached their work with thoroughness and enthusiasm.

Observation and description remain essential elements of **Section A**. Candidates are increasingly aware of the need for careful reference to the data provided. **Part (b)** questions in **Section A** all required some reference to the information provided on the resource whether that is specific data or general observations of what is portrayed in the resource. This is sometimes lacking in the answers. This was especially true of **Question 1(b)** and **Question 3(b)**. These points will be developed when discussing the response to specific questions. The other point to stress about the resource-based questions is that the **part (c)** questions, although partially related to the resource, do not need reference to the resource in the response. The information and ideas portrayed in the resource will usually be insufficient for answering the question. It must not be assumed that the **part (c)** questions are specifically related to the resource.

Most candidates appear to be familiar with the relevant geographical concepts, and apply them appropriately, although definitions are sometimes imprecise. In most questions there was an opportunity to produce relevant diagrams that could have been used to enhance the answers, especially for answers to **Question 6(c)**.

As stressed in previous reports, examples and case studies do much to support answers. When using specific examples, it is important that sufficient detail is provided, and that the examples are appropriate. It is also important that the information provided is accurate and not speculative. Also, simply referring to a country without the specific location mentioned is often inappropriate.

**Questions 4(c), 5(c), and 6(c)** all required some element of evaluation and a conclusion based on the evidence discussed. Evaluation does not have to appear just at the end of the answer but, in many cases, continuous evaluation throughout the answers might be more logical, especially if there are many threads to the argument. The final evaluation was too often unconvincing and not related to the evidence and discussion in the answer.

There were few rubric errors. Very few candidates attempted all three questions in **Section B** and planning in terms of time allocation was generally effective.

## Comments on specific questions

### **Section A**

#### **Hydrology and fluvial geomorphology**

##### **Question 1**

- (a) (i) The Hjulström curve was recognised by many candidates although occasionally Peltier was noted.
- (ii) There was some confusion over the identification of the size of sediment. This was why a range of 0.11 mm to 0.15 mm was allowable in the mark scheme. It is important to stress that the units are required.

- (b) The question asked for an explanation rather than a simple description based on the information provided in the graph. Most candidates were able to describe the basic relationships between the minimum velocity needed for sediment erosion. The anomaly of clay and silt was noted with suggestions that the reason was related to their cohesive nature, although stickiness was often the preferred description. The increase in velocity needed to erode sediment larger than silt was noted but explanations were far more limited. Many candidates did not support their analysis with specific size and velocity data that could be observed on the graph. There is a problem with the interpretation of this graph, with the term erosion causing confusion. In this instance erosion refers to entrainment and not physical erosion. Many candidates argued that erosion processes such as abrasion and attrition were needed to explain the relationship. This demonstrates a slight misunderstanding of what the graph is portraying.
- (c) This question caused a little confusion and illustrated uncertainty about downstream changes in river hydrology. The biggest uncertainty is over downstream changes in velocity. As there is often more turbulence in the headwaters because of increased friction it is often assumed that velocity is greater upstream when it is not. Because river slope generally decreases in a downstream direction, it is generally supposed that velocity of flow also decreases downstream. This will affect the amount of deposition. Analysis of some of the large number of velocity measurements made at stream gauging stations demonstrates that mean velocity generally tends to increase downstream. There is an increase in hydraulic radius and a decrease in friction. Velocity increases as more water is added to rivers via tributaries. The important point is that these observations of velocity refer to mean velocity and that there are many variations in velocity along the river thus many candidates chose to discuss deposition associated with river landforms such as on the insides of meander bends, over riffles and in deltas at the mouths of rivers which was perfectly appropriate.

## Atmosphere and weather

### Question 2

- (a) Most candidates identified the state of water on the two surfaces correctly.
- (b) Most candidates also recognised that the surface on the left of the picture was darker and therefore had a lower albedo which absorbed more heat. Thus, the water on the surface had not frozen. The grass was correctly identified as having a high albedo and was a greater reflector of solar radiation keeping the surface cooler. Anthropogenic influences, such as trampling on the pavement or slate, were also mentioned.
- (c) This question provided an opportunity to compare the operations of the daytime and night-time energy budgets and their effect on the different potential states of water. Many candidates did so but several candidates simply noted that it was hotter during the day and cooler at night with no reference to incoming shortwave radiation or outgoing longwave radiation. Some explanations were purely in terms of sunlight.

## Rocks and weathering

### Question 3

- (a) (i) Most candidates understood that it was necessary to estimate the area of the landside by using the scale of the map. Some managed the estimation successfully, but many did not.
- (ii) The majority of candidates answered this correctly.
- (b) This question needed to be answered using evidence from the map. There were many clues on the map that suggested that there was potential instability in the area, such as steep slopes as indicated by the contours, lack of vegetation, nearness of water sources and high elevation which might cause high precipitation amounts. The identification of the features then required an explanation as to how these characteristics might indicate potential slope instability. This is the link that was often absent from answers. Thus, statements suggesting that steep slopes were unstable was not sufficient without an explanation as to why steep slopes were unstable. Similarly, an absence of vegetation needed to be used as an explanation as to why instability was more likely.
- (c) There was scope in this question for a variety of suggestions as to how mass movement might affect the slope of an area. There were many excellent answers. It was a question that would have

benefited by diagrams illustrating the potential effect on the shape of slopes but very few candidates took this opportunity. Answers were often vague, such as mass movement increased or decreased slope angle without detail as to how.

## **Section B**

### **Hydrology and fluvial geomorphology**

#### **Question 4**

- (a) (i) Answers to this question were generally sound with the role of vegetation/trees prominent in terms of evapotranspiration. Evaporation in general was often assessed and with occasional reference to human use. The fact that water, that has infiltrated soils, can still reach a river channel by throughflow was not considered by some candidates.
- (ii) It was clear from responses to this question that the nature and formation of braided channels were little understood. Most candidates recognised that eyots, or exposed channel bars, were features of braided channels but there was little understanding as to how they were formed or the factors that were relevant to their formation. Many candidates confused braided channels with meandering channels. Only a very few candidates recognised the importance of variability of discharge rates. The need for high sediment loads was better understood.
- (b) There was a generally good response to this question. Most candidates were able to describe and explain some engineering procedures that can be used to prevent river floods. However, there was often confusion as to which were hard engineering methods, and which were soft engineering methods.
- (c) This question seemed to confuse several candidates. Most candidates recognised that it was an opportunity to describe and explain how urbanisation increased impermeable surfaces and thus increased runoff into river channels. Also, the role of deforestation to create land for urbanisation. However, examples used to explain this were only partially appropriate. To explain urbanisation for the flooding at Boscastle was far from accurate. Even the flooding of Tewkesbury was only marginally affected by the urban character of Tewkesbury. In these cases, high discharges were created in the rivers above the urban areas. Also, the question was not about flooding although it could be part of the assessment. The question was an evaluative one and there needed to be consideration of ways urbanisation might decrease channel flow. Many candidates struggled with this evaluation. Also, many candidates discussed how other factors affected high channel flows, which was not required by the question. One of these factors was intense precipitation such as monsoons. Even so, urbanisation might still add to the increased channel flow from the monsoon. As an aside, it might be stressed that few rivers burst their banks – they merely overtop them.

### **Atmosphere and weather**

#### **Question 5**

- (a) (i) The response to this question was generally sound with most candidates being able to define latent heat transfer and dew.
- (ii) This question was answered well with many candidates being able to explain all the factors involved in the orographic uplift of air that might result in precipitation.
- (b) Most candidates understood what an urban heat island was and were able to outline some of the reasons for its formation. Most of the elements in the mark scheme were covered in answers but explanation varied a great deal in accuracy and thoroughness. Vancouver was a particularly popular specific example. The emphasis of the question was purely on the heat island concept although other urban climatic characteristics were often relevant.
- (c) There was a highly variable response to this question. Many candidates were able to describe the nature and distribution of ocean currents but were unable to use this information in explaining how they influenced energy transfer. Some candidates described land and sea breezes which were inappropriate. The discussion of energy transfers related to the tricellular model and trade winds was often detailed and accurate. Jet streams and Rossby waves are now appearing more regularly

in answers. There is some indication that knowledge and understanding of such processes is increasing and applied in the correct context.

## **Rocks and weathering**

### **Question 6**

- (a) (i) Answers were generally sound with a better understanding of rainsplash than rills.
- (ii) This question was answered well. Both the role of roots in increasing the stability of slopes and absorption of water that reduced the risk posed by water to slope instability were discussed.
- (b) There were many excellent answers to this question with both chemical composition and physical structure of rock being assessed in a balanced way for their effects on weathering. There was sometimes confusion between carbonation and hydrolysis with respect to the rock types and minerals affected but, in general, answers were accurate. The role of joints and bedding planes in influencing the rate and nature of physical weathering processes were also accurately described.
- (c) There were many excellent answers to this question. Understanding of tectonic processes and landforms has been increasing over the years and this was reflected in many answers. It is also pleasing to see concepts such as slab pull and ridge push being combined with convection currents to explain the movement of plates. Accretionary wedges are now becoming more prominent in answers. The relation between landforms and plate boundaries was generally accurate apart from some confusion over the nature of hot spots and Hawaii. Collision plate boundaries are now being explained in greater and more accurate detail.

# GEOGRAPHY

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Paper 9696/12  
Core Physical Geography

## Key messages

Candidates need to fully understand the data provided in **Section A**. Usually data is offered in a variety of formats, and maps, photographs and diagrams may all figure prominently. This data needs to be clearly understood in terms of the demands of the questions. The Hjulström curve, for example, in **Question 1** is quite sophisticated, and some found the detail of the data complex. **Questions 1(b)** and **1(c)** covered all of transport, deposition and erosion, but **Question 1(b)** required only description while **Question 1(c)** involved explanation. Candidates too often continued the theme of description into **Question 1(c)** where explanation was required.

The confusion between ‘description’ and ‘explanation’ is a theme that has been referred to in previous series. This continues to be a problem and is costly in terms of lost marks. Some candidates continue to offer explanations when only description is required, but in **Question 1(c)** sometimes did not offer a relevant explanation.

Identifying a ‘pattern’ is a common requirement, as in **Question 2(b)**. In this instance the pattern was locational, which most candidates correctly identified, although some included the South Pacific Ocean as part of the Key with an annual precipitation of 0–5 mm.

The drawing of sketch maps from photographs (**Question 3(b)**) does not appear to be a popular technique, but it is one with geographical validity. Candidates too frequently reverted to cross-sections, which although not totally invalid, lacked the distributional detail of an open sketch.

In **Question 2(c)** ‘explanation’ was replaced with ‘suggest reasons’ because various factors could be valid. Candidates coped well and offered a variety of relevant geographical ideas. When explanation is required, there needs to be more than a simple identification of a relevant factor. In **Question 3(c)** for example, identifying ‘water’ or ‘earthquake’ or ‘rock structure’ is not in itself sufficient explanation. There needs to be some understanding of how/why these factors cause mass movement.

The use of examples continues to be a key element in **Section B**. A detailed case study may be specified, but in this paper the requirement was for all three **Section B** answers to be supported ‘with the aid of examples’. This does require some detailed knowledge to support the answers. Simply referring to a located example, without the supporting detail, is of limited value. Often detail of located examples can be very effective in clarifying the views of the candidates and impart a reality to the arguments being made. However, not all examples need to be locational. In **Question 4(c)**, candidates were able to offer a variety of different land-use changes, which in themselves were effective in supporting the answer.

Evaluation is an essential element of the answers to **Questions 4(c)**, **5(c)**, and **6(c)**. The most effective answers incorporate the evaluation into the body of the text, so that it is an ongoing theme throughout the answer. Leaving all evaluation comments to a brief final summary can weaken the response. The answer is worth 15 marks, 25 per cent of the total for the paper, and an appropriate evaluation is needed to reach and maintain Levels 3 and 4.

## General comments

The standard of work varied across the ability range, but there was impressive geographical knowledge displayed by many candidates. Candidates proved themselves competent over a wide range of geographical concepts, both in terms of logical discussion and clarity of expression.

There were few rubric errors. Generally, planning in terms of time allocation was effective. Few candidates failed to complete the examination, but as alluded to under **Key messages**, more emphasis could have been focused on evaluation where relevant. Confining such conclusions to the final stages of an answer, can lead to insufficient time being allocated to this important aspect.

It is essential that candidates understand the demands of a question before committing to an answer. There can be a tendency to write all that is known about a topic and ignore the specific requirements of the question. This was certainly true for **Question 5(b)** where the focus of the question was on the 'enhanced greenhouse effect' itself, but some candidates wrote at length on the results of global warming and the environmental consequences. The mark scheme indicates the correct emphasis and approach.

Diagrams and illustrations can do much to enhance an answer, but few consider this to be a priority. Reference was made earlier to the sketches drawn in answer to **Question 3(b)**, but there were other appropriate opportunities where diagrams would have helped to clarify text. **Question 6(c)**, for example, could have used diagrams to illustrate types of plate boundary and the relevant tectonic landforms. Deltas in **Question 4(b)** and wind belts in **Question 5(c)** would also have benefited from diagrammatic illustration.

### Comments on specific questions

#### **Section A**

#### **Hydrology and fluvial geomorphology**

##### **Question 1**

- (a) (i) Most correctly identified 'sand', although the boundary between sand and silt is found at a slightly higher velocity, and so a few suggested 'silt' as the answer.
- (ii) Although candidates seem generally familiar with the Hjulström curve, many were unable to accurately navigate the log/graph components of the x-axis and y-axis.
- (b) Many answers were weak. Only description was required in this question, and although there were some valid comments and data relating to transport, there was much uncertainty about deposition, with many asserting that high velocity was required for deposition to take place, regardless of material size.
- (c) Many candidates took the description theme into **part (c)**, whereas explanation and justification were required. It is important for candidates to understand that simply stating the trend is not sufficient. They must provide logical explanations supported by relevant geographical concepts. Answers needed to be developed by incorporating factors such as particle weight, stickiness/cohesion in clay, stream energy and competence.

#### **Atmosphere and weather**

##### **Question 2**

- (a) Any numerical value within the correct band was acceptable, and so most scored 1 mark.
- (b) Many simply listed the high and low rainfall areas, and so the 'pattern' demanded was only implicit. Nevertheless, most were able to clearly identify areas of high and low rainfall, and many recognised the river valleys of the centre/east as an essential part of the pattern.
- (c) Candidates were not expected to display detailed knowledge of Peru, but to make logical suggestions as to possible reasons for the patterns of high and low rainfall illustrated on the map. The better answers discussed orographic uplift as a major contributor to areas of high rainfall, but references to pollution domes over Lima were more speculative. Several candidates also discussed possible convective activity of the interior, and some were very convincing. Discussion of rain shadow areas and wind patterns were not irrelevant, but less convincing. Better candidates even related the low coastal rainfall to the limited evaporation potential of the cold ocean current and gained credit.

#### **Rocks and weathering**

### Question 3

- (a) Most were able to identify 'landslide' correctly.
- (b) Reference was made to this under **Key messages**. Generally, the quality of sketch maps was unconvincing. Many candidates simply provided a two-dimensional cross-section, which lacks the locational detail of a sketch. A sketch is a valid geographical technique with which candidates should be familiar. Furthermore, the specific features and characteristics of a landscape, including scar, scree slope, slip plane, toe etc. would provide appropriate labelling.
- (c) The crucial requirement here was the need for explanation. Candidates often provided a wide ranging and relevant list of causes but did not go on to explain the causal relationships.

### Section B

#### Hydrology and fluvial geomorphology

##### Question 4

- (a) (i) A wide range of relevant features were available for this question, and they are indicated in the mark scheme. There were some excellent detailed descriptions from many candidates, but simply listing features such as 'pools/riffles' is not in itself sufficient. Descriptive detail is required.
- (ii) Many candidates displayed a clear understanding of a 'water table', and there were some very good answers.
- (b) There is much that could have been relevantly included in the answer to this question and once again there were some excellent answers. The detail available on both the structure and shape of deltas created some uncertainty as to what to include and some answers were very lengthy, but those who persevered scored well.
- (c) Candidates found this question demanding. Most discussed deforestation/afforestation and urbanisation, but there are several farming practice changes which could influence channel flows. Examples used tended to lack detail. Many candidates linked land-use changes to different components of the drainage basin system, such as interception, throughfall, infiltration, and percolation etc., but did not always discuss 'channel flows' as specified in the question. The assessment of the extent to which different land-use changes affect channel flows suggested discussion of other factors such as geology and rainfall intensity. There were some convincing answers incorporating these factors, but in general such comparative discussion was lacking.

#### Atmosphere and weather

##### Question 5

- (a) (i) This was well answered by most candidates, and it was unfortunate that more candidates did not choose this option. Both 'evaporation' and 'sublimation' were clearly understood.
- (ii) Once again answers were convincing. It was encouraging to find that candidates understood hail as being more than just frozen water. The vertical up draughts and down draughts were clearly understood by many, as was the concept of accretion.
- (b) Candidates often drifted into detailed descriptions of the environmental consequences of global warming, whereas the focus should have been on the causes of the 'enhancement' of the greenhouse effect. The consequences were not irrelevant, but it is a question of achieving the correct balance. The candidates needed to demonstrate a comprehensive understanding of the greenhouse effect as a natural process, and the enhancement through human activity.
- (c) The strength of the answers lay in an awareness of factors other than wind belts, such as ocean currents and the great ocean conveyor belt. The weakness lay in a lack of detail about the global wind systems themselves, and the relevant causal factors.

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### Question 6

- (a) (i) Most candidates scored well on this question. Many of the processes are explained through gravity and the presence of water. Once again, the question required a description of the processes, so simply naming a process was not sufficient.
- (ii) Most candidates were familiar with pinning and netting but often were not able to develop the explanations in order to achieve full marks.
- (b) There were some convincing discussions on the influence of temperature on physical weathering, especially freeze–thaw and granular disintegration. Chemical weathering was less convincing. Although candidates were aware that most chemical weathering was accelerated by high temperatures, details of chemical weathering processes were limited. For physical weathering, there was often good detail on the type of weathering, but less on the rate.
- (c) There were some effective answers to this question. Most clearly related landforms to the types of plate boundary. Many were able to identify that some landforms, such as fold mountains, could be associated with more than one type of boundary, but that some features, such as hot spots were not specific to any particular type. Many candidates were aware that conservative boundaries were not linked to any specific tectonic landforms. Generally, the standard of the text was of good quality, but accompanying diagrams were often less convincing.

# GEOGRAPHY

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Paper 9696/13  
Core Physical Geography

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# GEOGRAPHY

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Paper 9696/21  
Core Human Geography

## Key messages

The reading and understanding of the exact wording of questions is very important. Technical terms in the syllabus are frequently used and they should be well known. In this examination the terms 'hierarchy' and 'world cities' were clearly not known by many candidates.

To achieve well in **part (c)** of questions in **Section B** candidates should evaluate and use detailed examples. Detailed but relatively few examples are usually more effective than a large number of 'e.g. London' type examples. Repeating case study material can detract from the answer when it is not fully relevant to the question. In this examination China's one-child policy was often gone into in detailed description whether this was appropriate or not to the actual question.

Candidates need to be reminded that the marks allocated to a question indicate the number of points expected. For example, a 4-mark allocation indicates an expectation of either four basic points or two points well developed with detail and/or relevant examples.

## General comments

Candidates should appreciate that the exact wording of questions indicate both the range and depth required in an answer. In **Question 4(a)** where the term 'outline the concepts' was used and the allocation was 7 marks, there is an expectation that candidates will go further than a simple definition of the terms.

Many candidates struggled with **Section B** questions with often careless or inexact reading of the demands of the question. Candidates still need to appreciate that the last part of **Section B** answers are worth 25 per cent of the total mark and it is often the key discriminator, being an evaluation, so they should leave sufficient time to do themselves justice. It is also key that candidates evaluate throughout their answers in these questions and not just leave it to the introduction or conclusion as an afterthought.

Candidates must appreciate that all words in a question are important and so questions should be read carefully. For example, **Questions 3(a)(i)** and **3(a)(ii)** asked for the number of cities so candidates who gave the names of the cities did not correctly answer the question.

Clearly some candidates did not fully appreciate the meaning of some of the technical terms used in the questions. Some candidates did not understand the meaning of 'refugees' in **Question 5**.

Candidates should avoid using blanket terms such as: infrastructure, technology, resources, and quality of life, without any clarification of what they mean. For example: '*Mexicans migrate to improve their quality of life*' indicates very little knowledge and understanding of the exact nature of the pull factors.

## Comments on specific questions

### **Section A**

#### **Population**

##### **Question 1**

- (a) Most candidates correctly calculated the difference and clearly showed their working.

- (b) Weaker responses often did not compare and/or largely ignored the term 'shape' and gave data from the Figures, such as: *'In 1980 there was 12.3 per cent 0–4 years but this had fallen to 8.7 per cent in 2020.'*

Stronger responses had a clear focus on shape: *'Fig. 1.1 shows a triangular shape with a broad base tapering to a narrow top whilst Fig. 1.2 shows a more constant narrower shape.'*

Weaker responses went on to explain the change in shape.

- (c) Generally, this was a well understood topic with a wide range of environmental, economic, social and political factors explained. Weaker responses tended to give lists of factors without linking them to how they led to decreasing birth rates. Typically: *'With increased females educated the birth rate will fall.'* But why? The valid link between education and birth rates was not explained.

Many candidates only gave two or three factors with limited development, so could not achieve full marks.

## Migration

### Question 2

- (a)(i) Nearly all candidates correctly identified Mexico.
- (ii) Nearly all candidates correctly identified Canada.
- (b) The question asked for distribution, but many candidates struggled with this aspect so listed countries or compared Mexico with Canada in terms of number of migrants. Stronger responses used the data to suggest a range of aspects of the distribution, such as: *'7 of the top ten are MICs and 3 are HICs, there are no LICs.'*, *'5 of the sources are in Asia and none are in Europe.'* and *'5 of the sources are near neighbours of the USA.'*

Several candidates focused on describing the difference between the two data sets rather than the distribution in 2013.

- (c) This was clearly understood by most candidates who focused on the short distance involved in migrating and various pull factors, especially employment opportunities, but all too often reasons were not fully developed or explained, such as: *'Mexico is a large source of migrants into the USA for a multitude of reasons: proximity, better education, better healthcare, safety, family and history.'*

A stronger response was: *'The migrant may already have family living in the US who act as a support system and help guide the migrant on their arrival.'*

Candidates need to be more precise when answering such questions. In the following example the candidate was correct, but the response was vague and lacked development: *'A large amount of migrants come from Mexico as they are looking for better employment and a better quality of life.'* What is meant by 'better employment' and 'better quality of life'? The marks allocated indicated the number of reasons expected.

## Settlement dynamics

### Question 3

- (a)(i) Nearly all candidates correctly stated 1.
- (ii) Nearly all candidates correctly stated 5 but many listed names of the cities which was not required.
- (b) Candidates struggled with the concept of 'hierarchy', so gave largely descriptive answers quoting the size and number of cities. Most answers offered a contrast in population numbers but little reference to how this suggested a hierarchy such as: *'Lagos has a population of 14.8 million compared to Kano with a population of only 4.05 million.'*

Some candidates rejected the notion of a hierarchy and suggested that the data in Fig. 3.1 demonstrated primacy. This was an acceptable response provided data was used to justify this decision.

- (c) Candidates struggled with the concept of ‘world cities’, so gave poorly focused answers which tended to explain the growth of urban areas. Many answers were vague such as: *‘The growth of world cities is affected by a multitude of causes such as immigration, birth rates, tourism etc.’*

Few candidates recognised the global aspect of such cities. Those that did related their growth to the location of the headquarters of TNCs, international communication hubs, and international political or cultural hubs such as: *‘Paris and Milan are world cultural hubs being centres for the fashion industry with them setting international trends in high end fashion.’*

## Section B

### Population

#### Question 4

- (a) Both terms were broadly understood as relating population of an area to its resource base, but weaker responses confused the two terms. This was a 7-mark question, so candidates were expected to go beyond the basic definitions to offer some further description or give relevant examples.

Candidates when discussing carrying capacity often missed out that the term means the maximum population size for the given supply of resources. Candidates often made reference to population without discussing the term maximum population size. Candidates tended to understand that the optimum population is the ‘ideal’ population for an area. It was pleasing to see that several candidates were aware that the carrying capacity is likely to change depending on factors over time such as availability of food and resources.

- (b) Candidates identified increased natural increase and positive net migration as the main causes of overpopulation. Many responses ignored the resource side of the concept of overpopulation and tended to explain why birth rates were high such as: *‘Another way that overpopulation could occur is through a lack of education and a lack of contraception.’*

But this was not related to a high natural increase. Stronger responses related high natural increase and high in-migration to the relative level of resources available: *‘On the other hand resources such as food may decline such as caused by the expansion of desertification in the Sahel so the population is greater than the resources available resulting in overpopulation.’*

Many candidates ignored or missed the need to give examples which limited their responses to lower levels in the mark scheme. Weaker candidates used the example of the one-child policy to explain how China responded to overpopulation.

- (c) Many candidates saw this as an opportunity to compare the ideas of Malthus and Boserup which did give a logical structure to their responses.

Weaker responses were often vague and offered little evaluation or examples, such as: *‘People will overeat and buy more food. People eat faster than food is made.’* Such a statement hints at an important point about consumerism but clearly did not develop this sufficiently.

Other candidates seemed to lose focus on the question and suggested other causes of limited food supplies: *‘Food shortages are not due to the growing population but may be a result of climate change.’* This is not the question and suggests candidates have pre-learned answers that they will give regardless of their relevance to the actual question.

Stronger responses considered improvements in food production, anti-natal policies, and the general trend of decreasing birth rates as factors likely to prevent population exceeding food supplies.

### Population/Migration

## Question 5

- (a) Stronger responses focused on comparing characteristics of the two flows such as: *'Economic migrants tend to be chiefly young males whilst refugees consist of a much greater range of ages and are often whole families.'*

Weaker responses offered two separate accounts rather than a direct comparison or tended to explain the relative causes of the two flows, such as: *'Economic migrants are attracted by opportunities to increase incomes whilst refugees are fleeing from a threat such as war or famine.'*

Examples tended to be drawn from recent wars in Syria and Ukraine.

- (b) Weaker responses often demonstrated that the candidate was unclear on the nature of refugees such as: *'For example people throughout South America are moving up through Mexico into the US as they are poor and this produces a lot of refugees.'* and *'Increased refugee flows would be caused by the rise in the cost of living.'* Clearly both statements refer to economic migrants, so the accompanying examples were often not relevant.

Stronger responses examined the increasing impacts of global warming, such as: *'Global warming is resulting in rising sea levels and many island nations are low lying, such as the Maldives, so they may disappear beneath the waves forcing a large flow of refugees to higher areas.'*

But also, the increasing risks of famines, disease outbreaks and civil unrest or war were considered with some thoughtful and detailed examples. It was interesting to read that some candidates felt that developments in technology would increase the flow of refugees. Several candidates discussed the use of technology for refugees to research countries policies and routes.

- (c) Again, weaker responses confused refugees with economic migrants, so overly focused on the relative economic impacts of such flows: *'Whilst the gain of young workers greatly helps the economy of HICs by supplying cheap labour such an influx into a LIC/MIC is likely to increase an already high rate of unemployment.'*

Other weak responses confused the question by missing that both areas were receiving/destination areas, so produced irrelevant answers based on impacts on the source areas. Stronger responses considered both the positives and negatives of a range of environmental, economic, social, and political impacts. Candidates tended to argue that the LICs/MICs experienced economic strain rather than social/political issues. The candidates felt that the HICs experienced greater social/political issues due to the fact that refugees struggled to assimilate into the host nation. Stronger responses also pointed out that the impacts might vary with the type of refugee, their numbers, and the timing of the flow: *'In the case of Jordan it was the sheer number of Syrian refugees arriving in a few weeks that put their already weak economy under intense pressure.'*

Many candidates exemplified with reference to the impact of Syrian refugees comparing their impacts on MICs in the middle east with the impact on European HICs especially Germany.

## Settlement dynamics

### Question 6

- (a) Weaker responses demonstrated a limited understanding of what environmental factors were and varied in their approach as to what constituted 'activities': *'Open spaces are needed for sports fields such as soccer pitches.'*

Stronger responses often based their answers on a single urban area linking detailed knowledge to different land uses/activities: *'Newcastle is based around the Tyne estuary. Such a feature enables the location of port activities including ship building and ferry terminals. More recently the river location has attracted the entertainment sector and expensive residential developments in converted former warehouses.'*

Several candidates incorrectly looked at how human activity impacts the environment. Most candidates looked at pollution and rivers as the main factor affecting the location of activities within an urban area. The question required candidates to focus on urban areas, but several candidates lost focus on the geographical area and discussed rural areas.

Environmental factors usually consist of physical factors such as climate (aspect), relief, drainage, vegetation type/amount, and geology although some would include social environmental factors as well.

- (b) Most candidates saw this as explaining the movement of retailing out to the city fringes. Again, those who exemplified from a single city or large urban area offered more grounded answers: *'Whilst shops in the CBD of Worcester have closed during and after the pandemic e.g. Debenhams department store, new retail parks have been built on the outer fringe such as at Blackpole retail park near the main A44.'*

Stronger responses offered a range of push factors from the centre and pulls to the outer areas: *'Parking in or near the central shops is expensive and often crowded, now not helped by the Ultra Low emission zones in cities such as Birmingham and Bristol. Outer areas often offer free parking on purpose built sites with good access to local main roads such as the Silverlink centre in Tyneside.'*

Weaker responses saw this as a question based on urban to rural movements.

- (c) Having set the scene in **part (b)** candidates were expected to contrast the decline in retailing with changes both positive and negative in the CBDs other functions and so offer an evaluation of its relative decline. Weaker responses went little further than agreeing that the CBD is in decline and repeated much of the content of their **part (b)** response.

Stronger responses recognised a decline in retail and increasingly office functions (due to online working) but offset these with an increase in entertainment, educational activities, political functions and often prestige developments: *'In recent years candidate accommodation has been built on former derelict land on the fringe of the CBD in Birmingham. This reflects the growth of the educational/University functions in the CBD but it also injects an increased population into the CBD who have revived the clubs and pubs scene.'*

There were some misconceptions about the geographical accuracy of the CBD. Many candidates focused on inner city decline and inner city regeneration with many candidates seeing the London Docklands as CBD.

Stronger responses did question what is meant by 'decline' – is it population, activities, rental/rateable values, pedestrian footfall etc.

# GEOGRAPHY

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Paper 9696/22  
Core Human Geography

## Key messages

The reading and understanding of the exact wording of questions is very important. Technical terms in the syllabus are frequently used and they should be well known. In this examination the terms 'hierarchy' and 'world cities' were clearly not known by many candidates.

To achieve well in **part (c)** of questions in **Section B** candidates should evaluate and use detailed examples. Good case study knowledge is needed but it must be appropriately applied to the question. Too many candidates give an example in name only, for example: 'e.g. India', which does not add a great deal to an answer. Too many candidates still use 'Africa' as an example of a country; it is not uncommon to see 'In many LICs such as Africa...' in an answer. Candidates must appreciate that where questions ask for examples, they will not be able to access the higher levels of marks without reference to recognisable and relevant detailed examples. Vague references to Japan in **Question 4(c)** did not gain a great deal of credit, whereas candidates who could give specific examples of the impact of an ageing population in Japan were able to achieve higher level marks. Repeating case study material can detract from the answer when it is not fully relevant to the question. In this examination China's one-child policy was used in answers about ageing populations.

Candidates need to be reminded that the marks allocated to a question indicate the number of points expected. For example, a 4-mark allocation indicates an expectation of either four basic points or two points well developed with detail and/or relevant examples.

## General comments

Candidates should appreciate that the exact wording of questions indicate both the range and depth required in an answer. In **Question 4(a)**, the question asked: 'with the aid of examples, describe the meaning...', and there were 7 marks available. In this case there is an expectation that candidates will go further than a simple definition of the terms.

Many candidates struggled with **Section B** questions with often careless or inexact reading of the demands of the question. For example, **Question 5(c)** asked about refugee flows and many candidates discussed the impact of economic migration. Candidates still need to appreciate that the last part of **Section B** answers are worth 25 per cent of the total mark and it is often the key discriminator, being an evaluation, so they should leave sufficient time to do themselves justice. **Part (c)** in questions in **Section B** always require candidates to discuss different aspects of an issue and come to a conclusion. These questions use wording such as: '*With the aid of examples, how far do you agree?*' or '*With the aid of examples, assess the extent to which*'. This means that the candidate should evaluate a variety of arguments and then come to a conclusion. Too often candidates either give no evaluative remarks or conclude with a simple statement such as: '*In conclusion, I agree with this statement*'. Without a reasonable attempt at evaluation candidates are unlikely to achieve more than half marks in these questions.

Candidates should avoid using blanket terms such as: infrastructure, technology, resources, and quality of life, without any clarification of what they mean. For example: '*people migrate to other countries to get a better quality of life*'.

## Comments on specific questions

### **Section A**

## Population

### Question 1

- (a)(i) Nearly all candidates gave the correct answer.
- (ii) Nearly all candidates gave the correct answer.
- (b) Nearly all candidates gave the correct answer, but some did not show their working and so did not get both marks.
- (c) Most candidates were able to give some valid reasons, but few went beyond very simple explanations, such as: *'because males do more dangerous jobs'* or *'because women have a longer life expectancy'*.

Some candidates gave general reasons for people living longer without distinguishing between males and females, for example: *'because health care is good in HICs'*, or gave a reason that equally applies to males, for example: *'HICs have good medical services so females can have access to good health care therefore they live longer.'*

There were also unsubstantiated answers that gained no credit, such as: *'Females have healthier lifestyles.'*

Candidates who gained the highest marks either gave a range of reasons rather than one or two or gave developed reasons, such as: *'more men than women tend to be involved in dangerous jobs with high accident rates such as fishing and heavy manual work or in jobs that have unhealthy conditions such as mining.'*

## Migration

### Question 2

- (a)(i) Nearly all candidates gave a correct answer.
- (ii) Most candidates gave the correct answer.
- (b) Nearly all candidates were able to give at least one valid reason, and many gave two. Some gave answers such as: *'for better living conditions'* or *'for safety'*, but these were too vague to gain credit.
- Some candidates went into lengthy explanations which gained no extra credit as there was only 1 mark for each factor.
- (c) As with **Question 1(c)**, most candidates were able to give some valid reasons, but few went beyond very simple explanations, such as: *'because young people are fitter and more healthy'* without explaining why this made them more likely to migrate.

Answers such as: *'Because young adults need to earn more money'* did not offer any explanation and therefore gained no credit.

Many candidates gave general reasons for migration such as for employment or education without relating this to the age of the migrants, and these responses gained little credit.

## Settlement dynamics

### Question 3

- (a) This question was not answered well by many candidates, as few seemed to understand or were able to describe a pattern of distribution. Some resorted to describing where each city was located, and many did not use the scale and wrote about proximity to rivers that were 200 km away.
- (b) Most candidates gave only basic reasons such as moving to a more central location.

As in **Question 3(a)**, too many did not appreciate the scale of the map and gave: *'being close to a river for water supply and transport'* as a reason.

- (c) Few candidates understood the term 'world city' even though the concept of a world city, the causes of their growth and the idea of a hierarchy are in the syllabus.

Many candidates simply gave general reasons why cities grow or gave population size (as in 10 m+ 'mega cities') the main reason why a city could be classified as a 'world city'.

There were some good responses that discussed the role of cities as being international hubs for business and transport, or being globally influential in politics, education, or culture, but there were not very many.

## Section B

### Population

#### Question 4

- (a) Most candidates were able to give a simple definition of these terms, but a significant number were incomplete or imprecise.

Of the two terms, fertility rate was least well explained, and it was not uncommon to see incorrect responses, such as: *'FR is the number of births per year'*, *'how many babies a woman has in a year'* or *'The number of women who are able to have a child.'*

Many candidates ignored the part of the question that asked for the use of examples, but those that did scored well – for example, comparing vital rates in different countries such as Uganda and Japan.

- (b) Most candidates could give some general reasons for infant mortality rates falling, but very few accessed Level 3 because of the poor use of examples. Many candidates were confused over where infant mortality overlaps with fertility rates and birth rates. For example, *'There is more availability of contraception. This can lead to fewer children born and therefore lower infant mortality'*.

The question asked about infant mortality rates, but many answers gave reasons for death rates decreasing without being specific about infant mortality, such as: *'As the country develops there will be better access to healthcare'* and *'There will be better sanitation and living conditions.'*

Stronger answers did explain the link between development and decreasing infant mortality rates, such as: *'in more developed countries babies are given vaccinations against diseases such as measles, rubella, tetanus and meningitis in the first few months of their life which protects them against these diseases'* and *'as a country becomes wealthier it can afford better pre-and post-natal care e.g. premature babies will be put in incubators'*.

Stronger answers gave examples such as programmes to provide mosquito nets to villages in Nigeria to reduce infant deaths from malaria.

Some candidates did not read the question properly and gave answers comparing LICs to HICs or gave answers about why infant mortality rates are high in LICs.

- (c) Most candidates used Japan as their example, but other countries were also used such as China and European countries. A range of impacts were described but few were able to give detail specific to their examples and simply gave generic descriptions of impacts that could apply to any country, and this limited their access to higher level marks.

Many candidates did not distinguish clearly between social and other impacts (mainly economic), for example giving increased expenditure on pensions as a social impact when primarily it is economic.

Some candidates misunderstood the question and discussed the causes of ageing populations, and these responses gained no marks.

## Population/Migration

### Question 5

- (a) Most candidates were able to give some sort of definition of each term, but the command word in this question was 'compare' and candidates who were able to give several comparative points, sometimes with examples, gained higher marks.
- (b) This question was not answered well by many candidates, largely because they gave very generic answers and exemplification was there in name only or not at all.

Better responses discussed factors such as the family life cycle, changing location of employment and improved transport.

There were some good responses that used examples such as housing improvements and changes in squatter settlements of Rio de Janeiro or Dharavi in Mumbai.

A significant minority of candidates wrote about inter-urban migration despite the wording of the question that gave a clear definition of intra-urban migration.

- (c) This question asked specifically about refugees, and there were some good answers where the candidates recognised that refugees are a distinct group of migrants and did not give a generic economic migrant response.

Good exemplification used Syrian refugee flows or the movement of a lot of people from Afghanistan and many candidates used the topical example of the conflict in Ukraine.

Good case study knowledge distinguished responses from those that referred to a country without any specific details, and this enabled candidates to access the higher-level marks. For example, *'Lebanon has accepted over 1 million Syrian refugees since 2011 and they now make up about 25 per cent of the Lebanon's population. Most are housed in temporary camps and this puts a strain on Lebanon's economy as they have to be provided with accommodation, food and water and medical care.'*

Some candidates clearly did not fully understand the nature of refugee flows and discussed the benefits to the source areas of remittances being sent back, the exchange of new ideas and migrants returning with newly acquired skills.

Too many candidates did not focus on the impact of refugee flows and gave generic descriptions of the impacts of economic migration, the two most common being Mexico to the USA and Poland to the UK. These answers rarely got out of the lowest level marks.

## Population/Migration/Settlement dynamics

### Question 6

- (a)–(c) This was a case study question in three linked parts.

There were few good responses to this question. Most that attempted it simply produced an account of a textbook example of an area with which they had no connection or real knowledge. This shows the importance of having case studies that are relevant to the candidates. In this question, a case study of a rural area from the candidates' home country gives a much better foundation for a good answer as they are more likely to have a 'sense of place' than the repetition of a textbook example. The best example seen described a rural area in Thailand and discussed issues of remoteness and provision of services, and conflicting pressures brought about by resource exploitation and tourist development.

# GEOGRAPHY

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Paper 9696/23  
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Good case study knowledge distinguished responses from those that referred to a country without any specific details, and this enabled candidates to access the higher-level marks. For example, *'Lebanon has accepted over 1 million Syrian refugees since 2011 and they now make up about 25 per cent of the Lebanon's population. Most are housed in temporary camps and this puts a strain on Lebanon's economy as they have to be provided with accommodation, food and water and medical care.'*

Some candidates clearly did not fully understand the nature of refugee flows and discussed the benefits to the source areas of remittances being sent back, the exchange of new ideas and migrants returning with newly acquired skills.

Too many candidates did not focus on the impact of refugee flows and gave generic descriptions of the impacts of economic migration, the two most common being Mexico to the USA and Poland to the UK. These answers rarely got out of the lowest level marks.

## Population/Migration/Settlement dynamics

### Question 6

- (a)–(c) This was a case study question in three linked parts.

There were few good responses to this question. Most that attempted it simply produced an account of a textbook example of an area with which they had no connection or real knowledge. This shows the importance of having case studies that are relevant to the candidates. In this question, a case study of a rural area from the candidates' home country gives a much better foundation for a good answer as they are more likely to have a 'sense of place' than the repetition of a textbook example. The best example seen described a rural area in Thailand and discussed issues of remoteness and provision of services, and conflicting pressures brought about by resource exploitation and tourist development.

# GEOGRAPHY

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**Paper 9696/31**  
**Advanced Physical Geography Options**

## General comments

The response of many candidates was creditable but there were many incidences where answers were misdirected and unbalanced. It is important to stress that questions need to be analysed in full rather than concentrating on a few terms as this can lead to responses not fully answering the question. This is especially important in the evaluation essay questions. There were several instances where candidates did not answer the question. General performance was variable but there were many excellent responses. There was only the occasional rubric error but no more than in previous examinations.

It is worth making a few general comments, some of which will be explored in greater detail later. There appears to be a tendency to use concepts and processes in the wrong context, thus demonstrating incomplete understanding. Liquefaction was poorly understood. Specific examples are useful, but simply stating a general location where some issues might occur, such as an entire country, is often not. This was especially true of answers to **Question 8**. Also, as noted in reports before, it is important that discussion of specific events, such as earthquakes or volcanic eruptions, is reasonably accurate.

## Comments on specific questions

### *Tropical environments*

#### **Question 1**

- (a) Candidates had to describe the main features of the tropical landscape shown in the photograph, which showed a bornhardt or inselberg. Most candidates were able to describe the main features of the bornhardt as well as the nature of the scanty vegetation on the flat land in the foreground.
- (b) This question provided an opportunity to explain how the landform labelled A in the photograph had formed. The landform, as noted, was a boulder inselberg or bornhardt. As noted in the mark scheme, they may be formed by the stripping or exhumation of sub-surface weathered rock or regolith. The regolith will have been produced below the surface predominantly by chemical processes such as the hydrolysis of feldspar minerals. The weathering is controlled by the spacing of the joints leading to spheroidal weathering. Thus, unweathered rocks are revealed as upstanding features, such as bornhardts. This is essentially the etchplanation process. Alternatively, they may result from parallel retreat of the exposed rock. Parallel retreat on its own is unlikely to produce the characteristic rounded features. Further surface weathering might lead to more blocky structures. Elements of this explanation were present in many of the answers but were rarely linked together into a rational explanation. Chemical weathering was often discussed but with little reference to the importance of the spacing of the joints. The fact that the weathering tended to occur below the surface was sometimes ignored. Understanding of granite landforms has been generally good in previous years but answers this time were weaker.

#### **Question 2**

This was the least popular question in this option and answers were generally weak. Few answers demonstrated any understanding of the nature of soils in tropical environments and even less of the importance of rock type on the characteristics of the soils. Even if the role of rock type was uncertain, other factors such as climate and vegetation characteristics might have been discussed. However, this was often not the case. There were a few answers which demonstrated some knowledge and understanding of tropical soils but were unable to assess the influence of rock type.

### Question 3

As the mark scheme notes, answers should have been based on a detailed comparative description of the climatic characteristics of both the humid tropical and seasonally humid tropical environments with an assessment as to how any differences might be related to the influence of latitude. Such characteristics could include knowledge of both temperature and precipitation amounts and their seasonal variations. The influence of latitude could be seen in the positioning and seasonal movement of the ITCZ, which largely governs the seasonal variations; wet/dry in seasonally humid and the lack of seasonality in humid tropical environments. There needed to be explanations of the atmospheric workings of the ITCZ such as influence of wind systems and pressure variations. The role of the ITCZ in the wet/dry monsoons could also have been relevant. Assessment also required some consideration of other factors that influence the climatic characteristics such as sub-tropical anticyclones, air masses and possibly altitude. Most candidates were able to describe the nature of the ITCZ and make a few descriptive points about climatic characteristics. Most answers demonstrated some knowledge and understanding of the role of latitude and especially the ITCZ. There were also some excellent detailed answers covering most of the elements just discussed.

### Coastal environments

#### Question 4

- (a) Some answers reflected the same issue with respect to the interpretation of pattern as has been discussed in previous reports. Many answers described the rates of erosion and deposition site by site along the course of the beach. However, this approach was not as frequent as in previous years with similar questions and most candidates were able to identify some patterns.
- (b) Most candidates produced relevant factors that might influence rates of erosion and deposition along a stretch of coastline. However, detailed explanation was often lacking, and answers were sometimes unbalanced between erosion and deposition. Strong and weak waves were often noted without explanation as to how the strength of the waves might influence erosion and deposition. The role of rock type is still poorly understood. Many answers still refer to hard and soft rock without qualifying what that meant. Many still report that limestone is a soft rock. Although limestones vary, some limestones are almost as physically hard as granite, with which it is often compared. It might be susceptible to chemical weathering, but it can be a very resistant rock to marine processes of abrasion as shown by the number of headlands in limestone. Assessment of the influence of rock type must be in terms of what processes are operating on it and the rock would be better described as resistant or less resistant to the processes discussed. Accounts of the influence of human activities, such as installation of sea walls and groynes, on erosion and deposition were more detailed and accurate.

#### Question 5

This was by far the least popular question in this option. Many answers were unbalanced, focusing on erosion and erosional landforms rather than assessing both these and depositional landforms. Depositional landforms were often dismissed as being irrelevant with respect to sub-aerial processes. Many answers focused on caves, stacks and stumps and sometimes cliff form. As in the past, there were a few candidates with little understanding of what sub-aerial meant. In general, there was a weak response to this question.

#### Question 6

The range of threats to coral reefs discussed was often extensive and detailed, but the significance of rising sea temperatures was often ignored. Most of the answers concentrated on human related threats. Occasionally the conditions necessary for efficient coral reef development were lacking which made evaluation of the threats difficult. Evaluation of the significance of sea level rise was often partial and very speculative. It is not possible to evaluate the rise of sea level as a threat if there is no comparison between the rate of sea level rise and the ability of coral to keep up with the rise. Recent estimates suggest that sea level is rising about 3.4 mm a year. The growth of coral is highly variable depending on species. Thus, *Acropora palmata* can grow as much as 9–10 cm per year but *Orbicella* spp, only grows at a rate of 5–10 mm per year. However, these rates of growth are still greater than sea level rise, but it is important to stress that these are average figures. Coral that is stressed by other factors might not be able to grow at these rates. It is also important to stress that many coral reefs are much closer to the surface than the maximum depth at which coral can survive. Thus, it seems that, at the present time, coral is not really threatened by sea level rise. Evaluation of other threats was often in terms of whether they were local or global threats, with the

suggestion that local threats can be managed. Many good examples of coral management from many coral reefs were noted. The general response was good, and some high marks were awarded.

### ***Hazardous environments***

#### **Question 7**

- (a) Most candidates were able to identify at least three elements of the pattern of liquefaction portrayed on the map of Bohol province in The Philippines. Reference to the map was extensive.
- (b) There was a weak response to this question with few candidates demonstrating any knowledge or understanding of soil liquefaction. Many noted that shaking by earthquake tremors agitated water in the sediments, but few knew how this happened or the nature of the sediments that were susceptible to liquefaction. Many confused it with the development of mudflows and lubrication on slopes. Also, the question asked for factors that influenced the hazard rather than a detailed explanation of the process.

#### **Question 8**

This question was extremely popular, and responses were highly variable. Most candidates thought monitoring was important, but few knew anything specific about it. Many answers assessed monitoring in a negative sense by discussing examples where monitoring might have been useful but was not used. This is an indirect evaluation which is difficult to substantiate. Monitoring can be an effective approach to the management of mass movement hazards, and its purpose is largely to aid prediction and preparation. It can involve the monitoring of water content, slope angle, slope material strain and even visual signs of movement such as tree bending and wall bulging. However, analysis of other procedures to manage mass movement was more substantial and this is where candidates gained most marks.

#### **Question 9**

Answers to this question were variable. There were candidates that recognised the main hazards and were able to assess them with the aid of specific, located examples. Other candidates recognised that high winds were significant but were not able to assess their hazardous effects in comparison with other hazards. The other main hazard discussed was flooding, a result of intense precipitation. Some candidates spent too much time in explaining the formation of tornadoes.

### ***Hot arid and semi-arid environments***

#### **Question 10**

- (a) The figure showed a cross-section of a mountain front and an alluvial fan in a semi-arid environment in the Anza-Borrego Desert, California. The question asked for a description of the cross-section for 3 marks. The main points are detailed in the mark scheme and the majority of candidates were able to provide two or three accurate points.
- (b) There was general understanding of the formation of alluvial fans but the relationship between the flow of water and erosion in wadis or ephemeral river channels and the depositional processes on the developing alluvial fan was sometimes not clear. Alluvial fans needed to be understood in terms of both erosion and deposition.

#### **Question 11**

This was the most popular question in this option and most of the answers demonstrated some understanding of the causes of aridity and, in this respect, were able to assess the importance of ocean currents. However, the exact mechanisms by which ocean currents produce aridity was often confused. Evaluation of the significance of the various causes was often speculative and only a few candidates stressed that some arid areas were affected by more than one cause. Most candidates concluded that subtropical high pressure systems were the most important cause of aridity. A few candidates confused aridity with desertification.

#### **Question 12**

This was a very unpopular question, and these comments are based on only a few answers. Most answers stressed that, because of the aridity, chemical weathering was limited and therefore the effect on the formation of landforms was also limited. It was argued that physical weathering processes were more important, such as salt crystallisation, insolation weathering and freeze–thaw in some high-altitude arid areas. The assessment of the role of such processes in the formation of landforms was more superficial. Few recognised that the weathered products, such as the result of granular disintegration, provided the material for aeolian processes. Some answers concentrated solely on chemical processes and did not answer the full question.

# GEOGRAPHY

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**Paper 9696/32**  
**Advanced Physical Geography Options**

## General comments

The response of many candidates was creditable but there were many incidences where answers were misdirected and unbalanced. It is important to stress that questions need to be analysed in full rather than concentrating on a few terms as this can lead to responses not fully answering the question. This is especially important in the evaluation essay questions. There were several instances where candidates did not answer the question. General performance was variable but there were many excellent responses. There was only the occasional rubric error but no more than in previous examinations.

It is worth making a few general comments, some of which will be explored in greater detail later. There appears to be a tendency to use concepts and processes in the wrong context, thus demonstrating incomplete understanding. Specific examples are useful, but simply stating a general location where some issues might occur, such as an entire country, is often not. This was especially true of answers to **Question 8**. Also, as noted in reports before, it is important that discussion of specific events, such as tropical storms or volcanic eruptions, is reasonably accurate.

## Comments on specific questions

### *Tropical environments*

#### **Question 1**

- (a) Candidates had to compare the precipitation patterns for two tropical locations shown in the climate graphs. Most candidates were able to identify significant differences and the better answers used data to illustrate their ideas.
- (b) This question provided an opportunity to explain the main differences between the rainfall patterns in humid tropical environments and seasonally humid tropical environments. Clearly this required the candidates to give reasons for many of the differences described in **part (a)**. Most noted the significance of the different latitudes but there was some difficulty in relating them to the movement of the ITCZ. The best responses accurately tracked the movement and location of the ICTZ during specific months and linked it to the prevailing winds and their characteristics. Most candidates highlighted the importance of convectional rainfall for Location A but overplayed the significance of altitude.

#### **Question 2**

Some background knowledge of savanna vegetation was clearly lacking in many answers. Many answers generalised the characteristics as being a homogenous area between tropical rainforest and desert ecosystems without considering woodland, parkland, grassland and open savanna. The best responses tied these sub-divisions to the climate and latitude as well as considering the influence of soils, relief and human activity.

#### **Question 3**

As the mark scheme notes, there are several problems and solutions in relation to sustainable management in tropical environment ecosystems. The quality of response was closely related to the candidates' knowledge and understanding of their chosen case study. As previously noted, it was better to choose a specific management scheme within a country rather than use a whole country to illustrate particular ideas.

The understanding of sustainability remains highly variable, but the better responses established a clear criteria for evaluating success which included economic, social and environmental aspects of sustainability.

### **Coastal environments**

#### **Question 4**

- (a) Fig. 4.1 allowed most candidates to identify several changes in the waves as they move towards the shore as noted in the mark scheme. Some found it difficult to articulate the change in the orbit of water molecules from circular to oblate or elliptical.
- (b) Most candidates identified that the waves were entering shallow water and that this would have consequences for the wave characteristics. Friction between the orbital movement and the shore disrupts the previously established pattern of the waves. The better responses established how specific changes were related to the disruption to the original pattern.

#### **Question 5**

Although candidates were given the opportunity to show their full range of knowledge and understanding of coastal landforms this was the least popular question in this option. Unfortunately, many responses focused either on landforms where sea level change was the main factor or landforms where it was not a factor. Consequently, the assessment was simplistic and unbalanced. Many revealed an understanding of isostatic and eustatic changes but did not relate them to specific landforms.

#### **Question 6**

The range of threats to coral reefs discussed was often extensive and detailed, but the significance of rising sea temperatures was often ignored or underplayed. Most of the answers concentrated on human related threats. Occasionally the conditions necessary for efficient coral reef development were lacking which made evaluation of the threats difficult. Evaluation of the significance of sea level rise was often partial and very speculative. It is not possible to evaluate the rise of sea level as a threat if there is no comparison between the rate of sea level rise and the ability of coral to keep up with the rise. Recent estimates suggest that sea level is rising about 3.4 mm a year. The growth of coral is highly variable depending on species. Thus, *Acropora palmata* can grow as much as 9–10 cm per year but *Orbicella* spp, only grows at a rate of 5–10 mm per year. However, these rates of growth are still greater than sea level rise, but it is important to stress that these are average figures. Coral that is stressed by other factors might not be able to grow at these rates. It is also important to stress that many coral reefs are much closer to the surface than the maximum depth at which coral can survive. Thus, it seems that, at the present time, coral is not really threatened by sea level rise. Evaluation of other threats was often in terms of whether they were local or global threats, with the suggestion that local threats can be managed. Many good examples of coral management from many coral reefs were noted. The general response was good, and some high marks were awarded.

### **Hazardous environments**

#### **Question 7**

- (a) Some candidates found it difficult to articulate the different characteristics shown on the diagram. However, as there were many different aspects to this mass movement, several responses achieved maximum marks.
- (b) Many different physical causes were suggested as causes of the mass movement. However, few managed to achieve the highest level of response due to a lack of detail and accuracy when explaining how and why the rotational slumping occurred. A closer linking of statements from the cause through to the final effect would have resulted in a better response.

#### **Question 8**

This question was extremely popular, and responses were highly variable. Most candidates were able to identify some volcanic hazards, but the range varied greatly. There is a comprehensive list in the mark scheme and some of the better answers referred to many of them. Some candidates used examples of specific volcanic eruptions to elaborate on their ideas, but the accuracy and depth of detail varied greatly. Some responses had a very simplistic assessment of the relative impacts on lives and property. However, there was a sizeable minority who pointed out that damage to property had considerable effects on the lives

of individuals who live near to active volcanoes. The best responses included comments on the less obvious impacts of volcanic hazards including migration and psychological issues.

### Question 9

Although relatively few candidates chose this question, most recognised the need to consider both large-scale and small-scale atmospheric disturbances. The significance of latitude was better adapted to ideas concerning hurricanes and cyclones rather than tornadoes. Clearly there was scope to assess other factors affecting the global distribution, as identified in the mark scheme, but the best answers highlighted the relative importance of latitude and scale in the assessment.

### *Hot arid and semi-arid environments*

#### Question 10

- (a) The photograph clearly showed a range of landforms found in a semi-arid environment. The challenge was not to simply name the landform but to describe the main characteristics of each one and many candidates achieved a high mark.
- (b) There was general knowledge of the wadi and the alluvial fan, although the depth of understanding in explaining fluvial erosion and deposition varied considerably. Within each process, links in the sequence were not fully explained or omitted entirely. Candidates who considered the pediment struggled to explain lateral planation successfully.

#### Question 11

This question dealt with the spread of deserts into areas that had previously been semi-desert areas. A small minority focused on the causes of the desert areas and not the expansion of them. A detailed list of the human and natural factors which can cause desertification are detailed in the mark scheme. Pleasingly, many candidates concluded that desertification can be a natural process which is often intensified by human activity.

#### Question 12

This question gave candidates the opportunity to demonstrate their knowledge and understanding of the most fundamental aspects of these environments. A high proportion of the responses considered most of the main causes with particular reference to the subtropical high pressure and continentality. Occasionally the rain shadow effect was slightly confused when using a specific example and a particular wind direction. The exact mechanisms by which ocean currents produce aridity was often confused but a pleasing number of candidates considered human causes through overuse of soils and over-abstraction of water. Assessment of the relative importance of the various causes was often speculative and only a few candidates stressed that some arid areas were affected by more than one cause.

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Paper 9696/33  
Advanced Physical Geography Options

## General comments

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## Comments on specific questions

### *Tropical environments*

There were too few answers to make comment appropriate.

### *Coastal environments*

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the rate of sea level rise and the ability of coral to keep up with the rise. Recent estimates suggest that sea level is rising about 3.4 mm a year. The growth of coral is highly variable depending on species. Thus, *Acropora palmata* can grow as much as 9–10 cm per year but *Orbicella* spp, only grows at a rate of 5–10 mm per year. However, these rates of growth are still greater than sea level rise, but it is important to stress that these are average figures. Coral that is stressed by other factors might not be able to grow at these rates. It is also important to stress that many coral reefs are much closer to the surface than the maximum depth at which coral can survive. Thus, it seems that, at the present time, coral is not really threatened by sea level rise. Evaluation of other threats was often in terms of whether they were local or global threats, with the suggestion that local threats can be managed. Many good examples of coral management from many coral reefs were noted. The general response was good, and some high marks were awarded.

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### ***Hot arid and semi-arid environments***

There were too few answers to make comment appropriate.

# GEOGRAPHY

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**Paper 9696/41**  
**Advanced Human Geography Options**

## Key messages

1. Please update case studies and ensure that case studies offer some balance of positive and negative points along with coverage of all aspects of the syllabus demands. Some centres are doing this well, whilst others are using very dated sources.
2. For resource-based questions **part (a)** in **Questions 1, 4, 7 and 10**, please encourage candidates to read data carefully for each axis on graphs and avoid terms such as 'about', 'nearly' or 'approximately'. Description of trends **Question 7(a)** was a particular example of this.
3. Essays in this paper have a discursive, evaluative element for most of the marks, so the approach of writing all they know about a topic is self-limiting. It is better to consider two or three aspects of the theme of the question and explain and evaluate these in detail than to cover a wide range all at the same basic level. This particularly applied to **Question 6** and **Question 8**. Some conceptually strong responses are relatively short.

## General comments

Most candidates completed the paper and responded well to the varying demands of resource-based questions and essays, in what is a demanding time schedule. There are some very good geographers, which reflects the efforts of themselves and their teachers. It was also good to see candidates writing about locations that they have experienced personally or through school visits and/or through focused research online or from other sources.

## Comments on specific questions

### **Production, location and change**

#### **Question 1**

- (a) Overall, this question was answered very well, with candidates identifying several relevant characteristics of the industrial estate shown in the photograph.
- (b) Key to success in this question was to focus on the local environment, which most candidates did. Many made good use of stimuli from the photograph, though this approach was not essential. They considered evidence such as the planting of bushes/trees and maintenance of the grass areas, separation from residential areas, agglomeration to control pollution, whilst other suggestions included use of clean energy, appropriate disposal of waste products, and devices on chimneys to trap pollutants. Another key to success was the development of how the suggestion might lead to a reduced impact on the local environment.

#### **Question 2**

Better responses were based on some detailed knowledge of agriculture in one country, supported with accurate specific details about agricultural change including reasons for the changes and responses of management. Most comment on management was at the scale of government intervention but comment about management at a smaller scale would equally have been acceptable and could be used to develop the evaluation of success. Candidates struggled to evaluate the success of management. Centres might wish to consider that success could be assessed through how far the cause or need for change had been removed; or whether the amount, value, profitability, or type of production increased; was there an increase in food security, what were the social and/or environmental impacts of the changes and who benefited or not. Case

studies were seen for Jamaica, Kazakhstan, and Tanzania agriculture but the quality was influenced by accurate learning of specific details and by the relevance of the examples selected.

### Question 3

Knowledge about markets as a factor was very limited, usually focusing upon cost of transport only and to a market which is more akin to the place consumers go to buy everyday goods. Centres might consider that markets vary in size, consumers could be other sectors of manufacturing or linked services which allow products to be sold and are subject to change in demand and consumer behaviour. Candidates did offer a consideration of other factors such as transport, government policies, raw material access, weight gaining versus weight losing processes and inertia. Some responses were improved with reference to specific types and located examples of manufacturing industry and a consideration of factors influencing their location. Better responses considered the complexity of factors involved in the choice of location.

### Environmental management

#### Question 4

- (a) Most candidates achieved two marks for identifying fossil fuels as the most used type of energy resource, noting that Brazil and Canada were exceptions with over 60 per cent HEP. A third mark was achieved by commenting on the rank order of the resources or noting that wind and solar are the least used. Less noted that though HEP and nuclear are the largest alternatives to fossil fuels, each is not found everywhere, whilst wind and solar are found in all the countries or that the amount of renewable energy is inversely proportional to the amount of fossil fuels. In this type of question comment by country or for each individual type of energy resource will not be credited. Candidates are expected to be able to recognise broad variations.
- (b) Some candidates made use of data in Fig. 4.1 but overall, the question was not answered well. Most candidates only have a basic awareness of factors which influence the use of HEP, with simple statements such as areas of high rainfall and steep landscape rather than elaborated reasoning such as on rivers with a high flow all year due to high annual rainfall, with short dry seasons and low evaporation rates or fed by precipitation from high altitude source regions with summer rainfall and snowmelt; or physical factors of relief with steep gradients, large fall in elevation, narrow easily dammed valleys such as gorges, which lead to fast flowing rivers. A large proportion of candidates attempted to develop a simple statement by offering the opposite, for example high rainfall encourages HEP such as in Norway whilst low rainfall in desert locations such as Saudi Arabia means HEP is less likely or only focused upon negative reasoning. Finance or capital cost was often used as a reason but there are a lot of candidates who think that LICs do not have HEP because of capital issues. With close to 60 000 large dams in the world this is not the case, and it could have been argued that capital costs may be overcome through aid agreements and/or through smaller scale schemes.

#### Question 5

Candidates seemed well prepared for this question and there were some very complete answers although the Three Gorges Dam still dominated, despite there being many other interesting and varied projects that could have been considered. Other located schemes to produce electricity included Ulla-Forre (Norway), Drax (UK), Hinkley Point C (UK), Hellisheidi (Iceland), Grand Ethiopian Renaissance Dam (Ethiopia), micro-HEP in Nepal, waste incinerators producing electricity in Coventry and/or Shrewsbury (UK). Better responses offered a balanced argument to aid their evaluation with supporting details, including a statement of where the scheme is within the chosen country. It is commendable that some centres using two case studies which have been commonly used in the past – the Three Gorges Dam and Ulla-Forre – had updated the details. Centres should ensure that the case studies used allow for a balanced view to be presented. This sometimes means that published sources, especially those from the schemes themselves, may not always present the more negative aspects. It is also important to note that case studies where the scheme is still in the construction phase may not offer a balanced view as might be seen through a more established scheme. Hinkley Point C was seen and whilst some candidates were able to develop very good responses with lots of supporting details, it is arguable that the focus on planning, finance and construction phases is as valid as an example such as Hellisheidi or Ulla-Forre, where candidates can offer evidence of the success in terms of electricity produced and reasons for why this may vary or not. Some balance here could be added by considering Hinkley Point as a three-phase operation with some reference to Hinkley Point A and B such as their life of operation, productivity, and production issues along with the ongoing decommissioning phases. A few candidates misunderstand the difference between one located scheme to produce electricity and the

overall electrical energy strategy of a country. However, it is possible to consider the part played by a located scheme within the overall electrical energy strategy of a country.

### Question 6

The key to success in this question was the extent to which candidates could elaborate on what a global view is. One successful way to do this was to consider problems of pollution with a global and/or transborder element in comparison to problems and actions taken at national or local level. Some candidates had details about a case study such as the Pearl River Delta region in China or Delhi in India, but success came when they could consider the nature of the causes and of the problems in the location and whether these contribute to global problems such as global warming. Some candidates offered a commendable discussion of factors which might influence the application and success of a global view, with comment on the responsibilities of HICs regarding the disproportionate impacts of climate change on LICs, and where the moral as well as economic imperative lies.

### Global interdependence

### Question 7

- (a) Addressing the command 'describe the trends' was key to a successful response. In the past, candidates have struggled with this skill, but it would be expected that they can use the graph to accurately identify dates and amounts where trends start, change or end. Frequently candidates offered inaccurate statements about the date and/or the amount. At this level, accurate reading from both axes is a required skill – the peak for example is 1994 and not 1995. In terms of trends, these simply are: a rise from 1970 to 1994 and a fall from 1994 to 2012, with a (small) rise from 2013 to 2017 or a fluctuating trend from 2008 to 2018. A further mark was awarded for development of a trend. Step by step descriptions of the trends were awarded a maximum of 2 marks.
- (b) Most candidates could suggest two causes of debt and offer suitable examples. Few were able to develop their answers sufficiently to reach into Level 3. On some occasions candidates were not clear about how many causes they were using. One example which is very difficult to understand for candidates is the period of international borrowing in the 1970s. A whole series of events happened here, and this probably does not fit well with this type of **part (b)** question. Better and more relevant examples were seen, such as the response of governments to sudden and unpredicted events such as covid-19 and other emergency situations.

### Question 8

Better responses displayed clear knowledge of global inequalities in trade flows and based their response on an introduction where some of these were outlined. These global inequalities in trade flow included dominance of HICs, difficulties of accessing trade for LICs/MICs, primary product dependency issues, regionalisation of trade within trade blocs, dominance of some countries over essential resources and price fixing. Other aspects were sometimes seen such as most of the trade by HICs is with other HICs, and a comparison of the nature and value of HICs exports in comparison to other countries. With this type of starting point, the assessment might have argued that the causes of these inequalities are complex. However, the approach of many candidates was to describe how the ability to trade or not is linked to factors such as resource endowment, locational advantage, historical factors, trade agreements, free trade and the role of the World Trade Organization. Comment on global inequalities in trade flows in these cases was often a simple comment at the end of each section or was missing.

### Question 9

Successful responses displayed knowledge and understanding of what sustainable management is, usually expressed through social, economic, and environmental criteria. Any viewpoint was acceptable, so if they did disagree, candidates should realise a balanced response would involve a discussion of what learning from the past might entail. Approaches to learning from the past included reference to models such as the life cycle model of tourism or Doxey's irritation index, lessons learnt in a single tourist resort or area over a period and lessons learnt from other places over a period. Disagreement or alternative viewpoints often considered ecotourism as a route to sustainable management from the start, or more generalised points such as the uniqueness of areas, other developments in types of tourism and the contrast between scale of tourism such as mass tourism compared to niche tourism. Less successful responses focused on describing

the life cycle model though its various stages and attempting to fit a destination to the model with little reference to the discussion element of the question.

## Economic Transition

### Question 10

- (a) This question was done well by most candidates, where changes in sectoral employment were clearly compared between LICs and HICs. Only a small number of candidates did not compare, treating LICs and HICs as separate entities.
- (b) The key to a successful response was to explain the 'role' and not to move onto a description of the stages of economic development. This role, however, does change as development takes place, so such comment was valid. Most candidates understand that the primary sector provides food and employment along with raw materials for other sectors. Less, however, understand how initially the primary sector provides capital for economic development, the wages and profits can lead to a multiplier effect on the economy, and it is also a market for both secondary goods and services. Very few candidates considered how the role may differ spatially, such as in some economies the primary sector is dominated by mineral extraction, and in oil-rich countries this has directly led to rapid economic development.

### Question 11

Better responses were well founded on detailed knowledge of one TNC, whilst some (commendably) also used examples from other TNCs, which developed the discussion beyond the norm of a large manufacturing/retail company to others based on either the primary production of resources and/or service sector giants. These better responses also considered factors which influenced both growth and spatial structure. One differentiating factor was the consideration of labour, with better responses considering more than labour cost, numbers, and skills. Growth was less well understood in comparison to spatial structure, with comment on growth largely focused on profits. Some candidates did display knowledge about growth via the ability to acquire or merge with other firms, economies of scale, control over all aspects of production, resource acquisition, marketing, research and development. Most candidates have a clear understanding about the spatial structure of TNCs (with units in at least one country in addition to the original company and breakdown into roles such as: headquarters, regional headquarters, production and branch plants and research and development). The differentiating factor here is whether they could link this to aspects of labour such as cost, numbers, skills, level of education and to other factors. Other factors considered more frequently were government policies which attract firms, developments in transport and ICT, emergence of new markets and the role of free trade.

### Question 12

Knowledge was expected of a range of physical factors such as climate, soils, vegetation, geology, relief, water resources, other resources, accessibility/remoteness (as influenced by physical factors), endemic disease along with some detailed knowledge of at least two regions within the chosen country and at least one other factor such as historical, locational advantage, government policies, economic and social. The question allowed a discussion of theoretical concepts, for example: core and periphery and cumulative causation, spread and backwash effects along with other factors. This theoretical aspect was generally well understood, and the quality of response varied according to an explanation of how this links to the question. In general, knowledge of physical factors was limited in both range and particularly with respect to details about regions or exemplars from differing regions within the chosen country. In some cases, these regions were weakly identified. Popular choices were Brazil, UK, and Italy, with responses using Brazil displaying more specific knowledge about the Southeast-core region but with less convincing details about at least one other region. Knowledge of physical factors in the Amazon rainforest (part of the North region) is weak. Some candidates had better knowledge about the Northeast region. Responses using the UK were frequently poorly founded on knowledge about specific physical factors and lacked specificity about regions other than the Southeast. Better responses did comment on the advantages of the Southeast such as position and growth of ports, access to European markets, centre of government and in-migration into the Southeast. Responses using Italy displayed more knowledge about the problems of the 'south' but lacked specifics about the 'north'.

# GEOGRAPHY

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Paper 9696/42  
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## Key messages

Overall candidates engaged well with the **part (a)** questions with many using their geographical skills, data from the key or Figure and applying place and scale when appropriate to do so. In **part (b)** more candidates included place examples to back up their explanations which allows for simple points to become more developed and reach Level 2 or 3. It would be good to see more candidates giving more time to the **part (b)** questions as some continue to be short statements and a few lines overall. The command word 'explain' requires the candidate to show an understanding of the processes involved and/or the links to other aspects within the demands of the question to secure a Level 3 mark.

Essays were once again mixed. Some candidates continue to misread questions and give a much simpler answer than is required. Others are too enthusiastic in describing what they know about a topic or place to consider the command word 'assess' and limit themselves to Level 1 for a descriptive response. It was pleasing to see more essays begin with an assessment of where the argument was likely to head within the introduction.

It was pleasing to see the use of local examples in some responses, which had not been learned from textbooks. When teacher's direct candidates towards learning local examples, this often gives more context to the candidate's understanding and allows them to demonstrate this deeper understanding in a familiar context. This could form part of a research task with candidates.

Some candidates continue to use 'for example, Africa' which shows a lack of understanding of the diversity of this vast continent. When examples are taught, there should be a clear locational focus; the name of the country is enough, but if the country is large (for example, Brazil) more locational direction should be given. For the example to be credited, details of the case study should distinguish it from every other location where a similar event or strategy may have been used.

## Comments on specific questions

### **Production, location and change**

#### **Question 1**

- (a) The use of lines of latitude can be a good starting point for describing distribution. Most candidates identified the African continent as the place with the most countries, with southern Asia also having a significant number of countries in this category. Within these continents, identification of regions or areas is important, naming countries is not necessary. There are no marks awarded for describing where they are not present or explained reasons.
- (b) The majority of candidates were able to identify one or two simple advantages, often not having to pay tax and more flexibility in working hours. There were some excellent answers which developed the idea of providing work for unskilled people who would then be able to improve their outcomes over time. A few candidates misread the question to either explain the advantages for the employers/country or explained the disadvantages. Use of context, for example rural farm labourers or informal housing migrants, was helpful along with the types of employment available to workers.

#### **Question 2**

It was clear that most candidates would have preferred to answer a reworded question about intensive agricultural production. Many of the essays gave a brief explanation of extensive production methods and then focused on the many methods within intensive agriculture which increase agricultural productivity. So, the first message is to ensure that candidates are aware of ways and examples where extensive production increases productivity and where it does not. Including intensive agriculture to a question such as this is not wrong but should not become the focus of the question.

### Question 3

There were some excellent answers to this question which remained focused on transport and its different elements, such as weight loss and gain, speed/perishable goods, distance from raw materials and market involving cost of transport, bulk transport/containerisation, type – air, train, road etc. There were some weaker essays which gave one paragraph to transport, then one to capital, one to labour and then finished with a conclusion. When the question asks specifically for an assessment of the role of transport, transport needs to remain the focus throughout the essay. Any other factors that are included should be linked back to transport if possible, or their relevance in relation to transport. The best responses considered the other factors (land, labour, capital, markets etc.) in relation to transport.

### Environmental management

#### Question 4

- (a) Some candidates compared the concentrations without including the pattern in their answers. It is always helpful to begin with identifying if there is a pattern shown on the Figure. Then compare to what extent has it changed, if at all, and in what ways. The changes in this case could be both across Norway and the amount of change in concentration. If there is an anomaly to the pattern, has it changed or is it the same.
- (b) The majority of candidates were able to identify two methods used to improve air quality. Many of them went for the global scale of reducing greenhouse gas emissions and these answers need to have a clear link to air quality to get full credit. Afforestation was probably the least understood method, and the benefits were often kept to the idea of removing CO<sub>2</sub> without more development. The question is about improving air quality, so the benefit of the method should be clearly explained. Many candidates knew about attempts to reduce the numbers of vehicles on the roads in urban areas to reduce particulate matter and where examples were used, these gained better marks.

#### Question 5

Many candidates were able to use a range of place examples to illustrate the importance of sustainability in the supply of electricity. Better answers were able to integrate other factors, such as affordability, affluence, resource endowment etc. into their essays while keeping the focus on sustainability. There were some weaker essays which gave one paragraph to sustainability and then wrote about other factors in the remaining paragraphs. These essays missed the opportunity to be evaluative throughout as they did not consider the importance of sustainability relative to the other factors. The best essays had up to date knowledge of countries which had attempted to be more sustainable with their choice of electrical supply but then had been forced to continue pursuing less sustainable sources for various reasons.

#### Question 6

Candidates could use similar attempts that had been explained in **Question 4(b)** if their chosen environment suffered from issues with air quality. However, better answers needed to address the entire environment, not just the air, and issues with land and water quality should be included too. Some centres have been teaching the regeneration of the London Docklands as the case study in this topic. The environment chosen can be an urban one, but the reasons for the degradation of the London Docklands is more to do with being abandoned rather than issues with improper or inadequate management of the environment. The knowledge that had been given focussed on the built and social environmental improvements, therefore not many candidates scored highly. If centres wish to continue using this case study they must include improvements to the water quality of the docks, and the urban greening (or lack of) and ongoing issues with its management, not just the new buildings and repurposed warehouses. Likewise, candidates that used China struggled to effectively evaluate the success of schemes. Whereas candidates that used the Pearl River Delta (smaller scale) were far more effective. Namibia was a popular choice, but case studies taught tended to be overly positive in terms of success which then limited candidates' ability to evaluate this success.

Higher scoring responses used examples that had a balance of success and challenges, enabling them to show sustained evaluation.

## Global interdependence

### Question 7

- (a) There was a variety of features shown in the photograph; construction machines, the hotel itself, roads, vegetation, boats, water, houses. Candidates needed to identify these features and then explain how they may impact the environment negatively. There were many different ways that marks could be achieved, and candidates should be able to identify these by close study of the image.
- (b) Some candidates explained that there would be more tourists without explaining how this can be an economic benefit. Other candidates were repetitive, explaining there would be jobs in the hotel itself and then jobs in linked industries. For these points to be seen as separate impacts there needed to be a clear distinction between them. It is better if candidates consider a broader view of economic impacts than just 'more jobs'.

### Question 8

This was a very popular question and was mostly answered clearly with a good choice of examples. The impact of international aid very much depends on the type of aid being given. The geopolitics of giving aid is an interesting way to view impacts and it can be said that both sending and receiving countries are impacted, but at different scales and in different ways. Some candidates were quick to explain the negative impacts without much consideration that the same aid could also bring benefits. Candidates need to be aware not to focus on the negatives only, despite their desire to expose the issues with aid. Higher scoring responses were able to talk about short-term and long-term benefit/consequences of aid. However, there were a lot of generic examples. Many candidates talked about aid to 'Africa' and gave generalised points about different types of aid. Also, a few candidates used examples which dated from the 1980s. Some candidates wrote about the positive impacts of aid in Afghanistan but missed the opportunity to evaluate this in relation to the present-day situation.

### Question 9

This question allowed candidates to apply their knowledge of the stages of the life cycle model to the different types of tourism than they know about, clearly something which many of them had not been prepared for. Most candidates were able to apply the life cycle model to Blackpool and then often attempted to apply it to ecotourism in the Galapagos Islands without much success. Some candidates tried to explain how it was useful to managers, which gained some credit. Some candidates knew about tourist destinations which have skipped stages, but most were unable to really address the demands of the question.

## Economic transition

### Question 10

- (a) Most candidates chose to describe the main changes for each of the three categories from the key, which was a good way to approach this question. Most candidates who did this well, then went on to describe the change in the general trend which occurs in 2015/16. Some candidates misread the graph, not understanding that the shares are proportions, not totals from zero.
- (b) Where candidates missed marks was for explaining the reasons for a pattern on the graph instead of the changes shown to the proportions over time. Most candidates were able to identify at least one reason for the changes shown and better answers used examples to illustrate LICs, MICs or HICs where these reasons had occurred.

### Question 11

This was a popular question and there were many excellent answers. Candidates were able to showcase their knowledge and understanding of the impacts of TNCs in their host and source countries. Candidates were able to effectively use case study examples to give balance to the advantages and disadvantages. Better essays often used more than one example of a TNC to show that not all TNCs have the same impacts, although this was not necessary if the one case study was well known. Candidates need to be

careful not to focus on the disadvantages in their desire to expose the issues with TNCs. There should be an attempt to balance the advantages and disadvantages and a critical evaluation of each one. Some advantages may turn in to disadvantages over time for example.

### Question 12

Most candidates who chose this question were able to apply their knowledge of their case study to the demands of this question. The question required candidates to consider whether attempts to reduce regional disparity will ever really make a country equal across its regions. Therefore, candidates had a range of options to consider, such as whether the causes of the disparity can be fixed or whether they will always remain, whether attempts to reduce disparity have worked and for how long, or whether the effects of divergence ever fully solve the issue of cumulative causation. Some excellent scripts were seen using China as an example, where a critical approach can be taken due to the vast scale and diversity of the country. China provided candidates with a clearer range of human and physical factors and so evaluation was more effective. Candidates choosing the UK tended to write an essay on the schemes used to reduce inequalities, so could not fully answer the question. Rather they wrote an essay on the success of methods to reduce regional inequalities. Another good example used was India.

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