GEOGRAPHY

Paper 9696/11
Core Geography

General Comments

The paper proved to be a fair test of candidates' ability, with questions that provided a range of tasks and demands. This resulted in a very satisfactory outcome with a good spread of marks. Excellent marks were achieved by a significant number of candidates from across the geographical range of centres. As noticed in previous reports (June 2014), the improvement in answers to the Physical Geography questions seems to have stalled and the discrepancy in calibre of answers between Physical and Human Geography is still quite large. As in the past, Atmosphere and Weather continues to be the least popular option in ***Section B***, but the question In ***Section A*** was quite popular, with good marks being achieved. The attraction of this question was the need to describe a temporal trend, which most candidates were able to do quite well. However, it was still uncommon for all three Physical Geography questions in ***Section A*** to be answered. The imprecise use of technical terms continues and there seems to be a difficulty among a number of candidates to relate diagrams of physical features to the theory they may have learnt. This was especially true of **Question 1** part **(a)** and **Question 3** Part **(a)**. The misunderstanding of the various plate boundaries and the processes involved continues to be prevalent, as noted in answers to **Question 3** Part **(b)**. The accurate use of local examples continues to impress, especially in answers to the Human Geography questions, although there was a tendency to include examples that were either not relevant or too vague.

Candidates should be encouraged to appreciate command words such as 'compare', 'overall', 'relationships', 'trend' and many more. The analysis of a trend seems to cause problems for some. Description of patterns and distribution appears to cause difficulties, as shown in **Question 4** Part **a (ii)**. Candidates are still explaining when all that is required is description. Also, there were many instances of pure description when explanation was required. Where questions ask for description and explanation, the description component is often overlooked, with candidates attempting to explain before they have described what they are trying to explain. This was true for Part **(b)** of **Question 7**. Previous reports have stressed the need for all the information in the resources to be used. Although there were still many cases of limited analysis such as answers to **Question 5** Part **(a) (ii)**, there are pleasing signs that candidates are making better use of the resources. However, some candidates fail to read the question carefully enough and discuss the wrong table or the wrong data. This was true of **Question 5** Part **(a)**. Comments in previous reports have stressed the importance of being able to evaluate issues with cogent arguments when answering questions in ***Sections B*** and ***C***. There were again encouraging signs of an improvement in this respect, especially in answers to the Human Geography questions. It is worth repeating that it is very difficult to obtain a mark in Level 3 without some form of evaluation or assessment.

Overall, the paper was completed by most candidates and time did not seem to be a major issue. Very few candidates answered all the questions in ***Section A***.

Comments on specific questions

Section A

Question 1

This was the most popular of the ***Section A*** questions

(a) The response to this question was very mixed. Many of the features were mis-identified and there was especial confusion between riffles and point bars. The mark scheme was adjusted to allow sediment bar and river beach for the point bar. However, the question asked for features, thus a simple statement of deposition was not creditable. The pool was sometimes recognised as a river cliff.

(b) Candidates were asked to draw a cross-section across the river from D to E. A few candidates chose to draw the section from E to D and failed to label the respective sides. Thus, it was not clear that they really understood the cross-section. Most candidates realised that the cross-section was asymmetrical, but the quality of the diagrams were generally poor. Many found it difficult to portray the point bar and quite a few drew an asymmetrical section. The pool was often placed in the centre of the channel, rather than towards the river cliff. This reiterates the point mentioned at the start that there seems to be a gap between understanding the theory and relating that theory to the specific landforms. A number of candidates drew a plan rather than a cross-section.

(c) The question asked for an explanation of the processes that had created the features shown in the cross-section. Many were able to do this at a basic level, explaining abrasion and undercutting on the outside of the river bend and deposition on the inner bend, relating the processes to differences in flow velocity. Many mentioned helicoidal flow, but it was clear that the majority had no real understanding of it. Diagrams showing an intense spiral running down the centre of the channel received no credit. However, the better candidates wrote encouragingly about the way that the flow moves from the outside bend and down the channel to the next inner bend. It is to be hoped that that these explanations will increase in the future.

Question 2

(a) As mentioned, most candidates were able to obtain some marks for this part of the question. However, the requirement to describe a trend often results in a point-by-point description of the graph, which is not really describing the trend. As the Mark Scheme mentions, for the full marks there needed to be a general statement of the overall rise, some indication that the rise was characterised by fluctuations, that there was a significant drop in temperatures between 1940 and 1960 and that the trend seemed to have tailed off a little in the last few years. There also needed to be some data reference.

(b) Most candidates were able to relate the trend to global warming and indicated that increased population and industrialisation releasing greenhouse gases were the main factors involved. Some attempted to explain each minor fluctuation with limited success. As usual, there were many references to the hole in the ozone layer, which is not the main factor. The fact that the hole is now closing does not always seem to register with candidates. A few candidates tried to explain the trend by blaming the urban heat island effect, which is marginal in the extreme. However, there were many articulate answers, some even referring to natural processes of global warming such as sun spot cycles.

Question 3

(a) Most candidates identified the features correctly.

(b) The only confusion was over the convection currents, where some candidates referred to sea-floor spreading.

(c) Most candidates knew that fold mountains were associated with converging plates,especially converging continental plates. However, most diagrams showed the two plates colliding and then both being forced upwards. The Himalaya was a frequent example. The idea that sediments, often marine, were caught between the converging plates, were folded and then thrust over the plates to form the mountains escaped all but the best. There seems to be little understanding of the fact that, before the plates collide, there is usually a sea in between with sediments. With respect to the Himalaya this was the Tethys Sea. Marks were awarded for the correct identification of the plates and the direction of movement but, for good marks, there needed to be recognition of the issues just raised.

Question 4

(a) (i) Most candidates answered correctly.

(ii) Most candidates identified the two main groups, but Sierra Leone and Burundi were often missed.

(b) This was probably the best-answered question on the paper. There was a wide interpretation of technology and most aspects mentioned in the Mark Scheme were covered. The Green Revolution and Genetically Modified crops were popular aspects, but irrigation, transport and more efficient machinery were also quite frequently mentioned,. The question asked for explanation, so simply mentioning increases in transport received few marks unless there was a qualified explanation.

Question 5

(a) (i) A relatively large number of candidates misread the question and abstracted the data for 5 years and below and not 10 years and below. The emphasis was on comparison so simply stating the two data values failed to receive full marks.

(ii) Most candidates were able to obtain reasonable marks; how many marks depended on the thoroughness with which the pyramid was analysed and the use of the data. Some candidates wandered into explanations, which received no credit.

(b) Most candidates were able to offer two valid reasons but the level of detail varied considerably. Most impacts discussed were negative, but there was the occasional reference to the possibility of positive impacts. All the points mentioned in the Mark Scheme were mentioned somewhere in the overall answers.

Question 6

This proved to be a very accessible question.

(a) The question asked for evidence from the photograph**.** Most candidates were able to identify a number of problems; overcrowding and the possibility of rockfalls and landslides were frequently mentioned. However, many candidates identified this as a shanty town, although not a particularly typical one, and then described problems, whether they were visible in the photograph or not, or whether they could be inferred from the photograph or not. The Mark Scheme emphasises that this was an improved settlement, thus statements of makeshift dwellings were not relevant.

(b) Most candidates were able to offer sensible points. 'Slums of Hope' were frequently mentioned. Description and explanation were required for good marks.

Section B

Question 7

(a) (i) The definitions of *throughfall* and *percolation* caused few problems, although throughfall was sometimes confused with throughflow and many candidates mentioned interception without then referring to the fall of the water to the ground. Some candidates confused the definition by mentioning stem flow. Percolation was quite well understood but the direction of movement was often omitted. Encouragingly, there was little confusion between percolation and infiltration.

(ii) There were few problems with this question and the majority of candidates achieved at least two out of the three marks. Some candidates even went into great detail about the difference between saturated overland flow and Hortonian overland flow. Although this was not necessary for the three marks it did demonstrate a thorough understanding of the processes.

(b) Good candidates understood the difference between porosity and permeability and explained this clearly. There were, though, many suggestions that porosity influenced the movement of water, rather than permeability. The analysis of flows of water was usually in terms of infiltration and overland flow. Very rarely was the effect of porosity and permeability on throughflow and groundwater flow discussed. Some candidates failed to discuss both soils and rocks, again treating them as a whole rather than individually. Sand and clay soil and limestone and granite were the main chosen samples. Understanding of the characteristics of granite was often limited.

(c) Most candidates were able to provide quite good answers to this question, and the assessment was generally adequate. Most were able to write something about hard engineering, but the various soft engineering procedures were often ignored or were explained simply by the planting of trees on river banks. The role of general catchment management was identified by the better candidates. The most pleasing aspect was the use of specific examples to substantiate the arguments. The River Mississippi was commonly used, but many Centres used the relatively recent Mozambique floods. This was very encouraging.

Question 8

Although not very popular, there were some good answers.There was sometimes confusion concerning many of the concepts surrounding atmosphere and weather, although there were signs of improvement.

(a) (i) Most candidates were able to offer basic definitions, which was very encouraging..

(ii) Most candidates possessed a general idea of the formation of dew, although detail was sometimes lacking. Thus, many achieved two marks and not the full three.

(b) This was the question that caused most problems. Diagrams were mostly ineffective, but the general concepts were well understood. Many candidates still write about the equator being closer to the sun, but most realised that deficit at the poles was created by the greater amount of atmosphere that the radiation has to pass through. The tilt of the earth was often overlooked as a factor. The tri-cellular model was often described and explained, usually quite efficiently, but some candidates were unable to state whether there is low or high pressure at the equator.

(c) The question asked for differences in climate, but many candidates restricted their answers to temperature and sometimes wind. Precipitation differences were rarely mentioned. However, the temperature differences were explained well, although there is still confusion over whether albedo is high or low. Some candidates wrote about high absorption of dark surfaces because of a high albedo. There is a tendency to examine rural areas as simply the reverse of urban areas, forgetting that there are many characteristics of rural areas that affect the climate (it is not just the result of the albedo effect). Some answers failed to achieve marks in Level 3 because of limited assessment of 'the extent to which' component of the question.

Question 9

(a) (i) *Chelation* was defined well, but *hydrolysis* was often confused with hydration.

(ii) The process of pressure release caused few problems.

(b) There were elements in this question that caused problems. Most candidates were able to write accurately about the relationships between vegetation and the intensity of weathering. Most candidates were able to answer this part of the question in a satisfactory manner. However, the influence of gradient and aspect presented a difficulty to most candidates, although aspect was more satisfactorily examined than gradient. The stronger candidates also mentioned the relationship between gradient and the water status of soils and rocks.

(c) This question proved to be more accessible than many of a similar nature, and understanding of mass movement processes seems to have increased. However, many candidates simply described the effect of human and natural processes, without comparing them and discussing 'to what extent'.

Section C

Question 10

(a) (i) Most candidates were able to gain full marks.

(ii) Many candidates failed to gain full marks because they only explained one of the main changes, such as the drop in death rates in the second stage.

(b) There were some excellent responses to this question, with many candidates using specific examples that were familiar to them, such as South Africa and Zimbabwe. The recent Ebola outbreak was often used as an example of how diseases affect one part of a country and not others. Very few candidates misread the question and answered with respect to different countries rather than *within* a country.

(c) There were many very good answers to this question and most of the elements in the Mark Scheme were covered. However, the assessment part of the question was often lacking. The use of specific examples was also thorough and very encouraging.

Question 11

(a) A number of candidates did not address anything beyond basic push and pull factors. Constraints, obstacles and barriers were rarely covered and pull factors were often simply the reverse of push factors.

(b) Most candidates were able to write about rural-urban migration in LEDCs but many struggled with the comparison with MEDCs. Thus, the answers tended to be very unbalanced. Knowledge of MEDCs was very basic.

(c) This was a very accessible question, which received a very satisfactory response and tended to counteract the deficiencies in the answers to Part **(b)**. In contrast to many other answers to Part **(c)** questions, the assessment was often excellent. Candidates did, in general, cover the 'how far do you agree?' with good reasoned arguments.

Question 12

This was the least popular question in ***Section C*****,** with so few answers that it is difficult to generalise. There were few good answers. Some candidates misinterpreted or misunderstood the wording to Part **(b)**. London Docklands was the preferred example for Part **(c)**. On occasion, description was inaccurate. Some candidates simply wrote in very generic terms with little detail and received few marks.

GEOGRAPHY

Paper 9696/12
Core Geography

General Comments

The paper proved to be a fair test of candidates' ability, with questions that provided a range of tasks and demands. This resulted in a very satisfactory outcome with a good spread of marks. Excellent marks were achieved by a significant number of candidates from across the geographical range of centres. As noticed in previous reports (June 2014), the improvement in answers to the Physical Geography questions seems to have stalled and the discrepancy in calibre of answers between Physical and Human Geography is still quite large. As in the past, Atmosphere and Weather continues to be the least popular option in ***Section B***, but the question In ***Section A*** was quite popular, with good marks being achieved. The attraction of this question was the need to describe a temporal trend, which most candidates were able to do quite well. However, it was still uncommon for all three Physical Geography questions in ***Section A*** to be answered. The imprecise use of technical terms continues and there seems to be a difficulty among a number of candidates to relate diagrams of physical features to the theory they may have learnt. This was especially true of **Question 1** part **(a)** and **Question 3** Part **(a)**. The misunderstanding of the various plate boundaries and the processes involved continues to be prevalent, as noted in answers to **Question 3** Part **(b)**. The accurate use of local examples continues to impress, especially in answers to the Human Geography questions, although there was a tendency to include examples that were either not relevant or too vague.

Candidates should be encouraged to appreciate command words such as 'compare', 'overall', 'relationships', 'trend' and many more. The analysis of a trend seems to cause problems for some. Description of patterns and distribution appears to cause difficulties, as shown in **Question 4** Part **a (ii)**. Candidates are still explaining when all that is required is description. Also, there were many instances of pure description when explanation was required. Where questions ask for description and explanation, the description component is often overlooked, with candidates attempting to explain before they have described what they are trying to explain. This was true for Part **(b)** of **Question 7**. Previous reports have stressed the need for all the information in the resources to be used. Although there were still many cases of limited analysis such as answers to **Question 5** Part **(a) (ii)**, there are pleasing signs that candidates are making better use of the resources. However, some candidates fail to read the question carefully enough and discuss the wrong table or the wrong data. This was true of **Question 5** Part **(a)**. Comments in previous reports have stressed the importance of being able to evaluate issues with cogent arguments when answering questions in ***Sections B*** and ***C***. There were again encouraging signs of an improvement in this respect, especially in answers to the Human Geography questions. It is worth repeating that it is very difficult to obtain a mark in Level 3 without some form of evaluation or assessment.

Overall, the paper was completed by most candidates and time did not seem to be a major issue. Very few candidates answered all the questions in ***Section A***.

Comments on specific questions

Section A

Question 1

This was the most popular of the ***Section A*** questions

(a) The response to this question was very mixed. Many of the features were mis-identified and there was especial confusion between riffles and point bars. The mark scheme was adjusted to allow sediment bar and river beach for the point bar. However, the question asked for features, thus a simple statement of deposition was not creditable. The pool was sometimes recognised as a river cliff.

(b) Candidates were asked to draw a cross-section across the river from D to E. A few candidates chose to draw the section from E to D and failed to label the respective sides. Thus, it was not clear that they really understood the cross-section. Most candidates realised that the cross-section was asymmetrical, but the quality of the diagrams were generally poor. Many found it difficult to portray the point bar and quite a few drew an asymmetrical section. The pool was often placed in the centre of the channel, rather than towards the river cliff. This reiterates the point mentioned at the start that there seems to be a gap between understanding the theory and relating that theory to the specific landforms. A number of candidates drew a plan rather than a cross-section.

(c) The question asked for an explanation of the processes that had created the features shown in the cross-section. Many were able to do this at a basic level, explaining abrasion and undercutting on the outside of the river bend and deposition on the inner bend, relating the processes to differences in flow velocity. Many mentioned helicoidal flow, but it was clear that the majority had no real understanding of it. Diagrams showing an intense spiral running down the centre of the channel received no credit. However, the better candidates wrote encouragingly about the way that the flow moves from the outside bend and down the channel to the next inner bend. It is to be hoped that that these explanations will increase in the future.

Question 2

(a) As mentioned, most candidates were able to obtain some marks for this part of the question. However, the requirement to describe a trend often results in a point-by-point description of the graph, which is not really describing the trend. As the Mark Scheme mentions, for the full marks there needed to be a general statement of the overall rise, some indication that the rise was characterised by fluctuations, that there was a significant drop in temperatures between 1940 and 1960 and that the trend seemed to have tailed off a little in the last few years. There also needed to be some data reference.

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(a) Most candidates identified the features correctly.

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(a) (i) Most candidates answered correctly.

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(b) This was probably the best-answered question on the paper. There was a wide interpretation of technology and most aspects mentioned in the Mark Scheme were covered. The Green Revolution and Genetically Modified crops were popular aspects, but irrigation, transport and more efficient machinery were also quite frequently mentioned,. The question asked for explanation, so simply mentioning increases in transport received few marks unless there was a qualified explanation.

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This proved to be a very accessible question.

(a) The question asked for evidence from the photograph**.** Most candidates were able to identify a number of problems; overcrowding and the possibility of rockfalls and landslides were frequently mentioned. However, many candidates identified this as a shanty town, although not a particularly typical one, and then described problems, whether they were visible in the photograph or not, or whether they could be inferred from the photograph or not. The Mark Scheme emphasises that this was an improved settlement, thus statements of makeshift dwellings were not relevant.

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Section B

Question 7

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(ii) There were few problems with this question and the majority of candidates achieved at least two out of the three marks. Some candidates even went into great detail about the difference between saturated overland flow and Hortonian overland flow. Although this was not necessary for the three marks it did demonstrate a thorough understanding of the processes.

(b) Good candidates understood the difference between porosity and permeability and explained this clearly. There were, though, many suggestions that porosity influenced the movement of water, rather than permeability. The analysis of flows of water was usually in terms of infiltration and overland flow. Very rarely was the effect of porosity and permeability on throughflow and groundwater flow discussed. Some candidates failed to discuss both soils and rocks, again treating them as a whole rather than individually. Sand and clay soil and limestone and granite were the main chosen samples. Understanding of the characteristics of granite was often limited.

(c) Most candidates were able to provide quite good answers to this question, and the assessment was generally adequate. Most were able to write something about hard engineering, but the various soft engineering procedures were often ignored or were explained simply by the planting of trees on river banks. The role of general catchment management was identified by the better candidates. The most pleasing aspect was the use of specific examples to substantiate the arguments. The River Mississippi was commonly used, but many Centres used the relatively recent Mozambique floods. This was very encouraging.

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Although not very popular, there were some good answers.There was sometimes confusion concerning many of the concepts surrounding atmosphere and weather, although there were signs of improvement.

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(ii) Most candidates possessed a general idea of the formation of dew, although detail was sometimes lacking. Thus, many achieved two marks and not the full three.

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(c) The question asked for differences in climate, but many candidates restricted their answers to temperature and sometimes wind. Precipitation differences were rarely mentioned. However, the temperature differences were explained well, although there is still confusion over whether albedo is high or low. Some candidates wrote about high absorption of dark surfaces because of a high albedo. There is a tendency to examine rural areas as simply the reverse of urban areas, forgetting that there are many characteristics of rural areas that affect the climate (it is not just the result of the albedo effect). Some answers failed to achieve marks in Level 3 because of limited assessment of 'the extent to which' component of the question.

Question 9

(a) (i) *Chelation* was defined well, but *hydrolysis* was often confused with hydration.

(ii) The process of pressure release caused few problems.

(b) There were elements in this question that caused problems. Most candidates were able to write accurately about the relationships between vegetation and the intensity of weathering. Most candidates were able to answer this part of the question in a satisfactory manner. However, the influence of gradient and aspect presented a difficulty to most candidates, although aspect was more satisfactorily examined than gradient. The stronger candidates also mentioned the relationship between gradient and the water status of soils and rocks.

(c) This question proved to be more accessible than many of a similar nature, and understanding of mass movement processes seems to have increased. However, many candidates simply described the effect of human and natural processes, without comparing them and discussing 'to what extent'.

Section C

Question 10

(a) (i) Most candidates were able to gain full marks.

(ii) Many candidates failed to gain full marks because they only explained one of the main changes, such as the drop in death rates in the second stage.

(b) There were some excellent responses to this question, with many candidates using specific examples that were familiar to them, such as South Africa and Zimbabwe. The recent Ebola outbreak was often used as an example of how diseases affect one part of a country and not others. Very few candidates misread the question and answered with respect to different countries rather than *within* a country.

(c) There were many very good answers to this question and most of the elements in the Mark Scheme were covered. However, the assessment part of the question was often lacking. The use of specific examples was also thorough and very encouraging.

Question 11

(a) A number of candidates did not address anything beyond basic push and pull factors. Constraints, obstacles and barriers were rarely covered and pull factors were often simply the reverse of push factors.

(b) Most candidates were able to write about rural-urban migration in LEDCs but many struggled with the comparison with MEDCs. Thus, the answers tended to be very unbalanced. Knowledge of MEDCs was very basic.

(c) This was a very accessible question, which received a very satisfactory response and tended to counteract the deficiencies in the answers to Part **(b)**. In contrast to many other answers to Part **(c)** questions, the assessment was often excellent. Candidates did, in general, cover the 'how far do you agree?' with good reasoned arguments.

Question 12

This was the least popular question in ***Section C,*** with so few answers that it is difficult to generalise. There were few good answers. Some candidates misinterpreted or misunderstood the wording to Part **(b)**. London Docklands was the preferred example for Part **(c)**. On occasion, description was inaccurate. Some candidates simply wrote in very generic terms with little detail and received few marks.

GEOGRAPHY

Paper 9696/13
Core Geography

General Comments

It was reassuring to find that most candidates were well prepared for the Examination, and displayed sound knowledge and understanding of most issues. The Paper tested candidates across a wide range of topics, and the outcome was pleasing in terms of identifying real ability, and yet also offering all candidates a framework within which they could succeed.

Most candidates completed the required number of questions, and this again reflected effective planning in terms of time allocation. There were few rubric errors, other than answering all six questions in ***Section A***, and generally candidates understood the need to link mark allocations to the time available.

Excellent marks were achieved by a significant number of candidates, and across a wide range of Questions, although marks achieved were generally higher on the Human topics. Nevertheless, there has been an improvement in recent years in the understanding of Physical processes and issues, and this is again reflected in the improved standard of many answers.

Making effective use of diagrams and photographs in ***Section A*** remains a priority. In this instance, however, the diagrammatic emphasis of the data provided, ensured that most candidates did not drift from relevant specific comments into vague generalisations. This was very encouraging, but the terms 'pattern' and 'description' continue to cause some difficulties. For 'pattern', some candidates simply provide a list of data changes without identifying general trends. Too much explanation continues to accompany 'description'.

However, there seems to be an increasing awareness of the need to 'assess' and 'evaluate' in order to achieve high marks in ***Sections B*** and ***C***. This is very encouraging, and the Examiners hope that this will be reflected in higher quality answers, assuming the trend continues.

The illustration of answers with maps and diagrams is variable. Many made excellent attempts to illustrate **Question 8 (b)**. The diagrams were often complex and of high quality. On the other hand, diagrams illustrating Floodplains in **Question 7 (b)** were less convincing, in terms of both structure and information.

The use of examples can do much to enhance the quality of answers, even when not specifically required. Some candidates draw convincingly upon local knowledge, and others have made the effort to learn relevant case study material. This is an encouraging trend, and one to be supported.

Finally, the clarity of expression and handwriting continue to improve, and are frequently of a high standard, even where English is not the candidate's first language.

COMMENTS ON SPECIFIC QUESTIONS

SECTION A

Question 1

This was the most popular of the Physical questions in ***Section A***.

(a) This was clearly understood by most candidates. The implication of deforestation, and the three differences between the hydrographs caused few problems.

(b) Some candidates went beyond deforestation to explain the differences i.e. gradient, shape of drainage basin etc., but the most impressive answers concentrated on Interception, Infiltration, Throughflow etc. Explanations were sometimes lacking in detail.

Question 2

(a) Many identified three clear and relevant aspects of pattern: the higher temperatures around the harbour in the north, the higher temperatures associated with roads, and the lower temperatures in the south. The fourth mark was more elusive, and too much time was spent in trying to explain the pattern, which was not required.

(b) Most candidates concentrated effectively on heat absorption in urban areas, including valid references to pollution domes, and anthropogenic sources of heat. The understanding of Albedo however, was more limited, and sometimes lacked clarity. Urban/rural contrasts were limited.

Question 3

(a) A number of candidates identified a weathering type such as Physical, rather than a specific weathering process. Exfoliation was the most popular process identified.

(b) This question caused problems for a number of candidates. The answer involved the identification of data from Fig. 3, but many simply considered 'deep' weathering, or discussed Temperature and Precipitation as separate entities. Much discussion was generic, and only vaguely related to the data provided.

(c) Although some candidates discussed both Granite and Limestone, there was generally a detailed understanding of the properties of both, and of their differences. Hydrolysis and Carbonation were often clearly explained, but not always applied to the correct rock type.

Question 4

This was the most popular question in ***Section A***, and one for which candidates seemed well prepared.

(a) This was competently answered by most candidates.

(b) Well-argued and detailed answers were forthcoming from many. The only weakness was the lack of specific reference to MEDCs. Implicit differences are not sufficient for a complete answer.

Question 5

(a) This proved challenging for many candidates. Many ignored the fact that 'over 250,000' included the category of 500,000+. Limited geographical knowledge was reflected in weak description, too often identifying incorrect countries such as South Africa.

(b) There were many detailed and pleasing answers, but not always giving sufficient weight to the term 'refugee'. Weaker answers were confined to economic reasons for migration, but most candidates at least showed awareness of the need to emphasise the relevant 'push' factors. The stronger answers were often supported by specific examples, both relevant and detailed.

Question 6

(a) Part **(i)** received almost a 100% success rate. There were few problems in Part **(ii)**, and many candidates scored well. There is now a clearer understanding of the command term 'compare', but occasionally some relapse back into separate descriptions.

(b) Reasons for rural/urban migration dominated many answers, but often in a very general way. The better answers emphasised the changing rural environment, and the important role played by Natural Increase.

SECTION B

Question 7

(a) Many clearly understood the terms involved and scored well. However, 'Floating' continues to be used to explain Suspension, and Solution is too often associated with 'fine particles'. Saltation is generally well understood.

(b) The answers to this were unexpectedly weak. Diagrams were often of indifferent quality, and explanation of features confined to deposition, eliminating 'Bluffs' and only partly explaining 'Floodplains'.

(c) Many knew, and reproduced, the diagram of the Hjulstrom Curve, often with pleasing accuracy. However, discussion of 'the extent to which' was often lacking, limiting the marks that could be achieved.

Question 8

This was not a popular question, and was one where many candidates struggled to score effectively. However, the standard of answers in Atmosphere and Weather has improved considerably in recent years, and candidates deserve every encouragement.

(a) There was generally good understanding of 'heat transfer' and 'stability'.

(b) Answers reflected the whole range of marks. There were some excellent descriptions of global pressure belts, and sometimes clearly illustrated. Seasonal variations were not, however, explained effectively.

(c) The characteristics and increases in Greenhouse Gases were clearly discussed. This is a question for which candidates are well prepared. However, 'changes in global climate' was less secure as a topic, with candidates preferring to concentrate on melting ice and rising sea levels, rather than on climatic change.

Question 9

(a) 'Heave' was often defined as part of the Soil Creep process, which was acceptable. 'Fall' was correctly defined by many candidates.

The 'shape of slopes' was too often ignored in discussions of mud flow, but there were very effective diagrams produced by some candidates.

(b) This was answered well by many candidates, who were aware of both negative and positive effects of human activities, though not always in sufficient detail.

(c) There was a wide range of answers, many of which were very competent. Diagrams were often of good quality, but some did relate 'ocean trenches' to sea floor spreading, and 'ridges' to subduction zones.

Question 10

(a) Most understood the need to balance Population and Resources in defining Optimum Population. The difficulty of achieving optimum population was explained in terms of changes in population, but the changing resource base was often omitted.

(b) This was well answered by the majority of candidates. A wide range of factors was discussed, and many in convincing detail.

(c) Details of population policies provided the basis for many answers, but resource considerations were not as detailed. Nevertheless, there were some pleasing attempts at evaluation.

Question 11

(a) Some neglected the time period when defining Migration, and reasons offered in a**(ii)** tended to concentrate on the positive and neglect the negative.

(b) There was often a clear understanding of the influence of 'age' on economic migration, but ideas about 'gender' were vague and outdated. There was often little recognition that women today are likely to be part of the migration pattern.

(c) Candidates were well prepared for this question. Answers covered both positive and negative aspects, and, where exemplification was forthcoming, answers were often of a high standard.

Question 12

This was not a popular choice.

(a) Many found the term 'counterurbanisation' difficult to define, but stronger candidates were able to suggest a variety of possible impacts.

(b) Answers, which included detail on industrial location changes, were generally unconvincing. However, there were some answers which contained excellent case study material, and were rewarded accordingly.

(c) Weaker answers were unspecific, but some candidates used case study material of Auckland very effectively, particularly in relation to transport problems.

GEOGRAPHY

Paper 9696/21
Advanced Physical Options

General Comments

The overall standard matched that of recent past examinations but, there was a wide range and variability in quality between scripts and often within scripts. A recurring comment from Examiners was the need for candidates to consider carefully the full demand and implication of a question before putting pen to paper. 'Describe' and 'explain' should be recognised as being different commands. Too often the need to 'assess' or 'evaluate' or to consider 'to what extent' in questions was not fully addressed and in some cases ignored. Added to the importance of following the specific demands in questions was the need to achieve a proper balance between parts **(a)** and **(b),** and, often, between the two elements which commonly occurred within most part **(b)** questions. This latter was well illustrated in answers to **Questions 5** and **6**, the most popular questions on the paper. However, in part **(b)** there was considerable imbalance in many answers where the need to meet the demands of two sentences was not met. Failure to meet the specific instruction to select **either or** a specific environment was not uncommon, and Examiners could only give credit to one of such choices. The case in point was **Question 8(b)** as detailed in the comments on individual questions. To a lesser extent were candidates not confining their answers to a specific number stated as **Questions 2(b)** and **3(a)**.

It must be remembered that this paper is of full A Level standard: there were a few cases where responses were more appropriate for an AS paper - this was especially noticeable with respect to plate tectonics issues and, to a lesser extent, about the weathering of granite and limestone. Many of the questions covered different topics of the syllabus and there were some cases of candidates being able to answer one part but not the other. It is important to stress that examination papers are designed to cover the whole syllabus and not just a part of it.

A frequent comment made by Examiners on individual questions was the value of well-documented and detailed examples used to demonstrate appropriate knowledge and clear understanding. The candidates were reminded of this on the cover of the examination paper, as was the need to draw sketch maps and diagrams whenever they served to illustrate an answer. Attention to those aspects was reflected in the work of the better candidates.

Generally, the Examiners were impressed by the standards of written English, especially where it was probable that it was a candidate's second language. The majority of scripts were well written and diagrams and maps generally well presented. There were very few infringements of the rubric.

Comments on specific questions

Tropical environments

Question 1

(a) The preferred choice was the tropical rainforest ecosystem and there was a wide range of quality in the answers. The best detailed both structure (emergents, canopy and shrub layers etc.) and nature (evergreen deciduous trees with buttress roots, drip tip leaves, epiphytes and so on). Some unnecessarily explained how climax vegetation developed from seres, i.e. a case where understanding of the command 'Describe' was important. 'Explanation' was the command for the second part of the question where it was lacking in weaker answers, i.e. the understanding of how a plagioclimax developed was limited. There were a few good responses for the savanna ecosystem, especially from Centres in or neighbouring such areas.

(b) It was disappointing that basic knowledge of weathering, a fundamental process of physical geography, was so lacking from many answers. Most did appreciate that chemical weathering was dominant in the humid tropics and significant in the seasonally humid, but few could describe the actual weathering processes effectively. In the seasonally humid, the case for physical weathering was often exaggerated, and there were many answers in which freeze thaw weathering was the dominant process and for which no credit could be given. The best answers described hydrolysis and carbonation accurately and many included oxidation and chelation. Those featured principally in responses to the humid tropics, whereas in the seasonally humid, thermal fracturing and salt crystallisation were relevantly described. Responses to the second demand were generally limited by a lack of understanding of the role of rock type, and particularly rock jointing, in facilitating the ingress of solutions. Similarly, the thick vegetative cover and deep soils inhibited surface erosion so that weathering could continue undisturbed to great depth. Good answers included an appreciation of the role of high rainfall and temperatures in accelerating chemical weathering processes, together with the humic acids from decomposing vegetation.

Question 2

(a) As has been noted in previous examinations, tropical karst is not well understood. However, this question should have been more straightforward because of the diagrams to guide candidates. Some candidates did realise this, but simply described what was apparently happening in the diagrams even though their knowledge of limestone weathering was somewhat minimal. Better candidates demonstrated understanding of the fundamental characteristics of limestone, especially the physical characteristics. The role of joints and bedding planes was largely ignored. The chemistry was better known, but there was an inability to relate this knowledge to what was happening in the figures. With the figures provided, there was no real need to understand tropical karst as such, but there was a need to apply knowledge of limestone weathering and processes to explain stages in its development.

(b) In general, soils were poorly understood. The question asked for characteristics of the profiles. Many candidates wrote about the processes, but were unable to relate that knowledge to their effect on the soil profile. Attempts to draw a diagram of the profile often went no further than blank A/B/C/ horizons. However, there were some very good answers which did show accurate knowledge of both the nature and scale of characteristics, such as litter and humus layers, Al and Fe red and yellow horizons etc. Human impact questions are often answered in a very general way and this question was no exception. There were some good answers relating the effects on the nutrient balance and how this would affect the soils. Also, soil erosion was often covered, but with little reference to the fact that it was the most valuable part of the soil that was being removed. Crop rotation was often mentioned as a form of sustainable management, but only the better answers focused on sustainably managing soils. Reforestation, selective logging and ecotourism were common examples, but such accounts of 'sustainable management' generally neglected the demand to focus on soils.

Coastal environments

Question 3

(a) In the question, the term 'cliff profile' was defined in parenthesis as 'cross section form'. Some candidates did not appreciate the demand, and wrote what they knew about cliffs. That was invariably the sequence of 'cave, arch, stack and stump'. However, there were some good answers in which candidates drew 'vertical', 'sloping', 'slope over wall' or 'irregular' profiles, and were able to explain factors of rock types and structures, as well as the interaction of marine and sub-aerial processes. Weaker answers often showed seaward and landward dipping strata in the diagrams but with no apparent difference in the profile.

(b) Many candidates understood what 'fragile' meant and that 'beaches and sand dunes were changeable coastal landforms'. However, answers were often in general terms, and the importance of episodic events such as storms and changing wind velocities and directions were rarely mentioned. Similarly, the nature of the materials of the landforms received scant, if any, consideration. 'Achieving sustainable management' was more successfully answered by the majority of candidates. In the case of beaches, a whole range of hard and soft engineering approaches were detailed, many with relevant examples. Sand dunes were generally less well treated. However, in both cases, what was missing from many answers was 'evaluation'.

Question 4

(a) This question often did not elicit expected responses. Firstly, the causes of sea level change immediately signalled 'global warming' in most cases. Limited credit could be awarded, as candidates had an exaggerated idea of the rise in sea level linked to such warming. Very few showed knowledge of either eustatic changes, linked to glacial episodes, or regionally isostatic changes or local subsidence as in the case of Darwin's theory. Many candidates made no reference to changes in the form of coral reefs, such as from fringing to barrier and to atolls. Credit was given to the many who explained that increased depth would reduce light penetration and affect coral growth, but very few recognised that coral growth might keep pace with the small rise in current sea levels.

(b) There was a very wide range of responses to this question. The first demand was an opportunity for candidates to demonstrate their understanding of a sediment cell with inputs, outputs and interference. The limited good answers did do this effectively; there were those who recognised that the dam in Fig. 2 could have reduced sediment input and that the harbour construction might have interfered with sediment movement requiring measures down coast. Weaker candidates wrote more of coastal processes in general - longshore drift and groynes - and with no specific identification of causes and effects. The input from maintenance dredging could have been developed as a 'soft engineering' input. Many candidates would refer to 'soft engineering' in responding to other questions on this topic, but failed to recognise its significance in this context.

Hazardous environments

As in previous examinations, virtually all candidates selected this as one of their options with **Question 6** the favoured choice attempted.

Question 5

(a) Mass movement is an area of the syllabus that has often yielded disappointing answers, and this was reflected again is this examination. Frequently, candidates failed to show understanding of the mechanisms and only a limited number appreciated that it is a case of a build up of shear pressure overcoming shear strength, i.e. that some critical point is reached when the slope cannot resist gravity. Some of the answers focused on Fig. 3 and explained that undercutting could lead to instability, but often not how the slope failed. Others wrote more generally about landslides and, although knowing that excess rainfall could cause mass movement, failed to explain how. The role of geology was ignored by all but the very best, i.e. permeable and impermeable rocks and structure. Measures were mostly about evacuation, not building on slopes and reducing deforestation. Other candidates did not focus on landslides, but exemplified measures from other forms of mass movement.

(b) Weaker candidates failed to describe the hazards associated with tropical storms, but instead wrote about their impact. For example; 'tropical storms cause flooding, deaths and destroy buildings' but whole answers were written with no, or virtually no, mention of rainfall, winds or storm surges let alone any data of amounts or strengths. There were a few cases in which tropical storms were confused with tornadoes. The best answers used examples effectively, with accurate detailing of both the hazards as such and their impact on their selected examples, such as New Orleans and Bangladesh. Many of the weaker answers were dominated by the second demand to 'Explain which measures have proved effective in reducing the hazardous impact of tropical storms'. However, although dominating many answers, there were limited cases where the question was fully addressed. Evacuation, education, rescue services, food and shelter provision filled most such answers with little or no evaluation as to their effectiveness. The critical role of prediction, tracking and forecasting tropical storms from satellite observations was a major omission from many answers, i.e. the physical aspects of the subject.

Question 6

Although this was the more popular choice, there were some disappointing answers, where fundamental knowledge of physical geography appeared to be lacking in both parts of the question. Many answers were dominated by the second demand of part **(b)**, 'measures taken to reduce the hazardous impact', and often answered without clear reference to earthquakes.

(a) There was a widespread lack of understanding as to how volcanoes occur in both parts. Most candidates drew diagrams of converging plates for **(i)**, but such diagrams rarely showed an accurate location, or occurrence, of a volcano. Many candidates were more concerned to show island arcs, trenches and fold mountains. Similarly, only the strongest candidates gave accurate details of characteristics such as form and products. In answers to part **(ii)**, few showed any accurate knowledge of the occurrence of hot spots, even though volcanoes such as in Hawaii were commonly cited. Magma plumes were explained by very few and, as in **(i)**, characteristics of form and products were either ignored or confused. Only in the best answers were there relevant and accurate details of types of lava, whether andesitic, acid or basic and whether viscous or mobile. Similarly, too few contrasted explosive with effusive events, or referred to ash, pyroclastic flows and tephra.

(b) Magnitude and location should have been the first two essential factors, followed, perhaps, by depth of focus and location of epicentre with respect to populations. Other factors could have been the nature of the geology and relief (liquefaction and landslides) and ocean floor disruption (tsunami). However, many candidates gave scant regard to the essential physical factors but instead focused on time of day, nature of buildings and infrastructure and whether occurring in MEDCS or LEDCs. These were valid, but not at the expense of the physical factors. There were exceptions and those candidates were appropriately rewarded with full credit. Evaluation of measures followed a predictable detailing of education, aseismic design, land use zoning and prediction. Differentiation came from realistic understanding and whether measures were evaluated, particularly relevant in prediction. As usual, those who used examples effectively often focused more fully on the specific demands of the question.

Arid and semi-arid environments

Question 7

This was the least favoured choice of option, with a roughly equal split in choice of question.

(a) There were some very good responses to this, with many candidates showing both wide and detailed knowledge of adaptations. The best were able to draw on examples to cover root characteristics, deciduous nature, succulence and dormancy etc. The weaker answers were dominated by reference to cacti, as illustrated, but often with misunderstanding of the nature of their roots and other characteristics.

(b) There were a few excellent answers, but a number did not appreciate that the question referred to long-term climatic change and not recent global warming. Evidence often focused on cave paintings and surviving crocodiles, more than the geomorphological evidence of wadis, vast sand seas and former lake shorelines etc. The second demand was about evaluating the extent to which desert landforms are a result of past processes. Some candidates demonstrated that effectively with reference to the limited effect of wind and the occasional rain storm and flash floods. Weaker answers were accounts of the processes of wind erosion with dunes, yardangs and zeugens as exemplars of desert landforms, and ignoring major ones, such as wadis and pediments and so on.

Question 8

(a) This was well attempted by many, with some accurate detail of both the processes of wind erosion, transport and deposition and appropriate landforms. Less satisfactory answers were those where there was no reference to the size of particles which could be deflated or carried in suspension or by saltation. Similarly, such answers were lacking wind direction in the development of dunes, or that abrasion was restricted by height in its effectiveness.

(b) The first demand was frequently answered in far too general terms, such as sandy and loose soils, lack of rainfall. In better answers, rainfall data were provided; they stated that rainfall was unreliable, that there was a wide range of diurnal temperatures and that high winds were a problem. Similarly, in the better and good answers there was genuine knowledge and understanding of the nature of soils in their chosen environment. In many cases, it was not clear to Examiners which environment had been selected, as characteristics were not ascribed or were inappropriately ascribed. This lack of defining whether a candidate was selecting **either** a semi-arid **or** an arid environment was continued in many cases to the second demand, and often solutions to the problems were drawn from both. Many solutions were very generalised, as was evaluation if offered. Irrigation was a common solution, but too frequently with no understanding of its feasibility or evaluating its contribution. There were some better answers where specific projects had been researched, and were well detailed and occasionally evaluated. For arid areas, tourism, oil drilling and car rallies often featured, but with little or no development to address the question.

GEOGRAPHY

Paper 9696/22
Advanced Physical Options

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(a) This was well attempted by many, with some accurate detail of both the processes of wind erosion, transport and deposition and appropriate landforms. Less satisfactory answers were those where there was no reference to the size of particles which could be deflated or carried in suspension or by saltation. Similarly, such answers were lacking wind direction in the development of dunes, or that abrasion was restricted by height in its effectiveness.

(b) The first demand was frequently answered in far too general terms, such as sandy and loose soils, lack of rainfall. In better answers, rainfall data were provided; they stated that rainfall was unreliable, that there was a wide range of diurnal temperatures and that high winds were a problem. Similarly, in the better and good answers there was genuine knowledge and understanding of the nature of soils in their chosen environment. In many cases, it was not clear to Examiners which environment had been selected, as characteristics were not ascribed or were inappropriately ascribed. This lack of defining whether a candidate was selecting **either** a semi-arid **or** an arid environment was continued in many cases to the second demand, and often solutions to the problems were drawn from both. Many solutions were very generalised, as was evaluation if offered. Irrigation was a common solution, but too frequently with no understanding of its feasibility or evaluating its contribution. There were some better answers where specific projects had been researched, and were well detailed and occasionally evaluated. For arid areas, tourism, oil drilling and car rallies often featured, but with little or no development to address the question.

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Advanced Physical Options

General Comments

The overall standard of response was in line with that of recent previous examinations, but with a wide range in the quality of answers within it. In the better scripts, candidates not only displayed a sound knowledge and understanding of geography at A Level but also used appropriate terminology effectively and were more precise in their descriptions and explanations. The limited credit awarded to some answers could often be attributed to a weak, or very basic, knowledge and understanding of physical factors and processes. This is highlighted in the comments below with respect to individual questions. Additionally, the better answers were those that addressed the specific demands of the question, whereas many candidates do not pay sufficient attention to the command words such as 'describe', 'explain', 'evaluate' and 'explain the extent to which'. A number of candidates wrote introductory paragraphs in their answers which, although demonstrating appropriate knowledge, were not apposite to the specific question posed. The division of questions into two parts posed a problem for many candidates. Parts **(a)** tested basic knowledge, requiring candidates to offer identification, descriptions and/or explanations of some part of the syllabus content. For what was a straightforward demand, some candidates expanded their answers beyond the requirement of the questions. This often led, in such cases, to limited responses to parts **(b)**. Part **(b)** questions demanded an evaluative element in answers or extended explanation; too often this aspect of the questions was not considered, or not considered sufficiently, with the inevitable loss of any credit available. The choice of 'Hazardous environments' continued to be the most popular option and was selected by almost all the candidates. Although answers to that option's questions were generally better than those from the other chosen environments, there were often weaknesses in addressing the specific physical aspects of the question. This often led to unbalanced answers, with limited accurate input of the physical element against protracted and very generalised human aspects. The use of appropriate and well-documented examples, or case studies, was again a feature of many of the more successful answers. Examiners commented upon what they felt was a deterioration in the quality of well executed and accurate diagrams. This was evident in answers to **Questions 2(b)**, **3(b)** and **4(a)**. A relevant and well-executed diagram or sketch map, appropriately annotated, should be an important skill in a candidate's geographical 'locker'. Their use in answers would often reinforce or clarify the written text and may, in some cases, replace the need for extended writing.

Examiners continue to be impressed by the general standard of written English achieved by so many of the candidates for whom it is a second language. They were also impressed by the generally clear legibility of their writing and presentation. There were very few infringements of the rubric, the most common being that of answering more than the required two questions

Comments on specific questions

Tropical environments

This was an option selected by a relatively small number of candidates.

Question 1

(a) With one or two exceptions, thorough knowledge of soils appeared to be lacking. In many cases, candidates did no more than repeat the given characteristics provided in Fig. 1 and revealed no knowledge of the factors and processes that determined them. The processes of leaching, illuviation, laterisation and calcification, related to the factors of climate and vegetation, were absent from the majority of answers. Similarly absent from most were the rapid decomposition of a thick litter layer in tropical rainforests by soil biota, or the processes of chemical weathering. For the savannah ecosystem, the seasonal movement of water in the soil with its related processes could have been discussed more.

(b) From the relatively small response to this question, the majority were unable to provide a specific example of attempts at sustainable management. Typically, candidates gave accounts of slash and burn, or wholesale exploitation from forest clearance to mining and quarrying. There were one or two exceptions which made reference to the cultivation of a combination of tree crops and legumes to maintain soil fertility but were lacking in specific detail. Others suggested that legislation to limit exploitation or developing ecotourism were sustainable management strategies. More evaluation was necessary to access higher marks.

Question 2

(a) As with soils in **Question 1(a)**, knowledge of tropical monsoons was slightly disappointing. There was confusion between heating of land and atmospheric pressure and how wind movement was affected. The best gave accurate climatic characteristics related to the seasonal changes and related their answers to SE Asia and the movement of the ITCZ. They did accurately state the development of low pressure related to summer heating but did not back it up with climatic characteristics.

(b) As with other answers to the tropical environment questions, the limited number and paucity of attempts make generalisation problematic. There were a few who gave a modest description of appropriate landforms but accompanying diagrams were not always successful in demonstrating knowledge. In response to the second demand, there was almost total lack of any accurate knowledge or understanding of either processes and no attempt to evaluate their role as demanded by the question.

Coastal environments

This was the second most popular choice of option and taken by over three quarters of candidates, with a majority opting for **Question 4**.

Question 3

(a) The majority of answers were lacking in understanding of how salt marshes, as such, developed. Candidates wrote mostly of the development of spits in great detail, explaining the role of longshore drift, prevailing and secondary winds in their morphology. Diagrams were helpful and the location of salt marsh was shown in the shelter of a spit. However only a small minority were able to explain the role of flocculation from river silt and mud mixing with salt water and then the stages of vegetation succession becoming established. Threats and management were couched in very general terms, rather than revealing any specific knowledge of the vulnerability of salt marshes.

(b) The development of cliffs and wave cut platforms was generally understood but there was a wide range of accurate knowledge in the processes and factors involved. This was reflected in the quality of diagrams which accompanied the answers. Weaknesses included no understanding of scale, such as with the basal notch or how important was structure and lithology and the role of sub aerial processes. In response to the second demand, most candidates got no further than the sequence of cave, arch, stack and stump development, with limited explanation in terms of the vital role of structure and lithology. ‘Hard’ and ‘soft’ rocks were often the only differences in geology and terms such as ‘joints’, ‘faults’ and ‘bedding planes’ very rarely occurred. In good answers, candidates related well the angle of dipping beds to the profile of cliffs and the importance of the balance between active marine erosion and the rate of sub aerial processes in determining morphology.

Question 4

(a) There were many competent descriptions of the characteristics which were related appropriately to differences between high energy, destructive, and lower energy, constructive, waves. The best answers included periodicity, wavelength and the differences between plunging and surging breakers. Those answers were frequently accompanied by clear and accurate diagrams. The role of swash and backwash was recognised in most cases, but their effect on beach profile was often misunderstood. Candidates frequently wrote of the strong swash of constructive waves building up a beach, often mentioning a berm, but then stated that such waves led to a gentle profile. Similarly, there were contradictions in destructive waves with strong backwash steepening profiles. In such answers, diagrams often conflicted with statements in the text. Only the best candidates made reference to the role of the nature of different types of beach sediments.

(b) Too many candidates wrote lengthy introductions setting out the conditions necessary for coral formation and growth. Much of such knowledge was appropriate in discussing the impact of threats and would have been better used in addressing the question where appropriate. The best answers did this, and those candidates were able to use accurate knowledge of the nature of the threats. For example, with respect to 'land-based pollution', they referred to both chemicals and solids as threats and then developed their answers, mentioning nitrates from fertilisers, sewage and industrial effluents as well as stream sediment discharge. These were then related to their impact on the conditions, for example, algal bloom from nitrates reducing the penetration of sunlight. Weaker answers were couched in very general terms and many gave an exaggerated impact of global warming as a result of land-based pollution. The extent to which the threats could be overcome was answered in very general and often unrealistic terms such as 'impose penalties' or 'restrict access', 'pass laws' etc. Good answers cited specific examples where marine conservation areas had been set up or types of tourist activities restricted, as in the case of the Great Barrier Reef. Good answers also addressed the extent to which any measures were feasible.

Hazardous environments

This was almost universally a chosen option, with **Question 5** the more favoured choice.

Question 5

(a) Most candidates were able to attribute tsunami to either an earthquake or volcanic event under or on the sea bed, but very few could actually explain how these generated tsunami. A number attributed the tsunami waves directly to the seismic waves from an earthquake, but only a limited number explained the need for a massive displacement of water, either from plate movements or landslides into the sea or volcanic eruptions. Similarly, there were few answers which described how a tsunami wave would move rapidly, almost unnoticed, across an ocean and only become hazardous as an upward sloping sea bed reduced their speed, decreased wavelength and transferred energy to wave height. Most answers were about their hazardous impact in terms of deaths and destruction, where the focus of the question was to explain 'how they become hazardous'.

(b) In the case of this question, there were many candidates who did not read carefully the demand of the question, but instead wrote all that they knew of volcanoes. Too many described the hazards of volcanoes in the first part, which was not asked for. Many got no further than; 'volcanoes occurred where one or more types of plates meet with the "ring of fire"', often omitting 'Pacific', as an example. In good answers, candidates did explain in terms of their hazardous nature, linked to appropriate types of plate boundary and their global distribution. Measures taken to manage hazards was better understood, although evaluating their effectiveness was absent from all but the best answers. In this part, the nature of hazards was relevant as in assessing measures to manage different types of products; ash, lava and pyroclastic flows, lahars etc. In some, there were detailed and accurate examples of appropriate measures, whereas in weak responses measures were merely listed. As ever, those candidates who could use examples accurately and relevantly scored well.

Question 6

(a) Many candidates could recite conditions under which tropical storms develop, such as sea temperature, location between 5º and 20º North and South of the equator and that they were fuelled by latent heat. However, it was a minority of candidates who explained their development and who knew, for example, how latent heat occurred. Cross-section diagrams were often drawn which revealed some descriptive knowledge, but were rarely linked to any valid explanation. In describing the associated hazards, many wrote of flooding and death and destruction, but often omitted that they were caused by very high rainfall, winds and storm surges i.e. the hazards generated by tropical storms. The best answers did that and used relevant examples, such as hurricanes Katrina and Haiyan or the vulnerability of Bangladesh, to support their answers.

(b) Candidates were given a free choice of example and for the majority that was earthquakes. Many answers then went straight into possible solutions, and often with an exhaustive catalogue of preparedness, prediction, evacuation, building and infrastructure design, education, practice drills and insurance. In such catalogues, the chosen hazard was often lost sight of and, in many cases, the 'solutions' were either not relevant or realistic ones. For the latter, an oft-quoted solution was 'evacuation' without thought given to the practicalities. In good answers, candidates did set out actual and possible problems that might need to be addressed for sustainable management. In such better answers, the type and nature of the hazard was always in evidence.

Arid and semi-arid environments

There were so few attempts at either question that no meaningful generalisations can be made.

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Key Messages

- Using examples and case studies is important and integrating them into a response effectively as evidence is highly creditable.
- Reading the question carefully and identifying its key words is important for ensuring success.
- Arguments and analysis need to be evidence-based and based on content, not simply consist of a structure and generalisations.
- All parts **(b)** require assessment and an approach which is evaluative, rather than simply descriptive or explanatory.

General Comments

Most candidates interpreted the questions and the accompanying resources in the Insert appropriately. Examiners noted a satisfactory level of skills in handling the different styles of resources: two types of graph in Fig. 1; part of a leaflet in Fig. 2; a model in Fig. 3; and a world map in Fig. 4. Of the questions on this paper, the interpretation of **Question 6(a)** was the least secure (see comments below) and understanding the term *recycling* in **Question 4** could be improved. Almost all responses would have been enhanced by a more thorough and thoughtful deconstruction of the question before starting to write. This, for example, may have helped candidates address the ideas 'combine' in **Question 2(a)**, 'balance' in **Question 3(a)** and 'key to success' in **Question 6(b)** more effectively, so enhancing achievement (see question-specific comments below). Many responses would be greatly enhanced by the use of examples and/or case studies: see Key Message 1, above.

Almost all candidates produced two full responses, and rubric errors were very rare. Examiners reported improvement in some Centres in candidates' structuring of an essay and framing of an argument, by using introduction, argument, counter-argument, and conclusion. What is now needed is for this approach to be based on geographical evidence and use exemplar support, rather than being stylistic and generalised. Knowing how to argue as a style or approach is in itself insufficient to receive a good award. This can be seen in the manner in which the levels descriptors are crafted in the mark scheme. See also Key Message 3, above.

Comments on Specific Questions

Production location and change

Question 1

(a) (i) This element of data response was satisfactorily answered by most. Fig. 1A was interpreted effectively and an appropriate answer used date information and units. Fewer candidates interpreted Fig. 1B well, as it was only necessary to refer to the time period 2011-2012 to show the impact of the 2012 drought. Nearly all candidates linked the 'spike' in the price of the export crop chosen to the drought, and some explained that a drought-induced shortfall in production led to the rise in unit price.

(ii) The concept of the risk of water shortage was understood robustly. What farmers can do included different types of irrigation, water storage in dams and tanks, water conservation methods, such as zero tillage or glasshouse cultivation, switching to crops or activities with lower water demands, and greater awareness of weather forecasts. It was possible to achieve full marks by a detailed explanation of what different methods of irrigation have to offer. Most candidates combined different things that farmers can do. The best explanations integrated examples and made it clear how each element reduced the risk of water shortage.

(b) This part-question was based on the two possible ways to increase agricultural production: by intensification and by extending the cultivated area, sometimes termed *extensification*. Regardless of quality, almost all responses were fuller and more secure in considering intensification than extensification. Some candidates misinterpreted increasing the amount of land cultivated as meaning extensive farming. Few candidates addressed the idea of one or the other being 'easier' effectively. Many, instead of writing about comparative ease or comparative difficulty for farmers and/or landowners, wrote about the associated costs or how successful the change was. Rarely was this cost information made relevant by expressing it as 'easier to afford' or 'easier to finance' or 'easier for farm management as returns on the investment are better'. The issue of success was for a different question. The best quality responses were reasonably balanced in assessing the relative ease or difficulty of intensification and of extensification, and used detailed examples as evidence for the analysis and argument. For example, during the Green Revolution in India, it was easier to intensify production through the use of HYVs, inorganic fertilisers, pesticides and new production technologies, such as modern irrigation and tractors for ploughing, rather than to extend cultivation into new areas, because of population pressure, the lack of additional cultivable land and landownership structures which worked to favour wealthy traditional owners. A few excellent responses pointed out that 'easier' is relative and that intensification is difficult to achieve in terms of finance, labour demands and the personal cost of innovating and change-making. Moderate quality responses tended to focus on intensification and seemed to respond to 'intensify' as a trigger word for recall knowledge, with limited engagement with the other elements of the question. In such cases, deconstructing the question into its different elements and planning a response to address each would be valuable. At the lower end of the spectrum, many responses consisted of a simple, unsupported view, such as 'I agree that it is easier …'.

Question 2

(a) The majority of candidates produced a response which was a developed list of locational factors using the simple structure, 'Another factor … Another factor'. This demonstrated knowledge of the subject area avoiding the key word 'combine'. Such an approach did not offer much explanation, and the key element of the factors' combination was left out. Higher-scoring responses attempted to show how factors may come together to influence the location of manufacturing industry and used examples to support and further the explanation. So, for example, a location peripheral to a major urban area could offer relatively cheap land (bid-rent) and room for expansion, combined with good road transport by ring road, a potential large labour supply, a secure energy supply and a local market for the product(s). This would make it preferable to a more remote location or to a central urban one. A few candidates used a distinctive locational context such as a port, an industrial estate or an export processing zone (EPZ) to explain this factor combination.

(b) This was an opportunity to use the case study from Syllabus 1.4 and to offer an evaluation of success. The full range of answer quality was seen. Most responses would have benefitted from two things: the identification of what the 'industrial change' was or consisted of, such as a plan, policy or initiative; and a clearer understanding of management as a concept. It could involve, for example, how well problems were solved, people handled, plans delivered and objectives met. At this level, the ability to provide a nuanced evaluation which shows that some elements were more successful than others, or that some industries, locations or people benefitted more than others, is highly creditable. Some candidates did not use evaluative language at all and others offered a simple view such as 'it was a success' or 'to a certain extent' without showing what.

Environmental management

Question 3

An effective response addressed the key element of balance in **(a)** and of success using distinct success criteria in **(b)**.

(a) Most candidates grasped the concept of factors affecting energy production satisfactorily. Resource endowment, cost and technology issues were particularly well explained. More sophisticated reasoning included energy policy and energy security as factors. Most responses could have been enhanced in two ways. The first was by careful attention to the national scale, i.e. the context of one or more individual countries, integrated as exemplar content to substantiate general comments. The second was by addressing the element of 'balance between different sources' directly. Some good work was seen explaining that, despite the existence of coal reserves, some MEDCs are switching to more environmentally-friendly means of energy production, such as wind power or new generation nuclear schemes. The case of China yielded some astute comments about its vast energy demand leading to a complex energy balance based on the increasing use of renewable sources, such as HEP and wind power, as well as to the opening of new coal powered stations using 'clean coal' technology. Some responses contained simplistic and sweeping comments about LEDCs not being able to use renewables and MEDCs having switched to them, neither of which reflects contemporary reality or the judging approach needed at this level and for this type of demand.

(b) This has become a classic question for this Option which many candidates handled well. Indicators of answer quality included detail, for example the use of dates, wattages, and percentage information; brief quotes from media or leaders about success; and specificity about effects such as precisely where impacts were felt, or which ecosystem or species was affected. Most responses were about an HEP scheme, either Kariba in Zimbabwe, which opened in 1939, or the Three Gorges Dam in China, which opened in 2008 and was fully functional in 2012. Many candidates 'told the story' including details of how long the dam wall is, how many turbines there are, etc. Such material is not creditable when the response should be focused on success. There was considerable variation in quality as to how success was treated. At the low end of the spectrum of achievement, success was seen as power production, often in vague terms. There were some inaccurate claims of what the Three Gorges Dam can produce, such as 'one third of the energy for China'. There were some contemporary and realistic comments about the initial success of Kariba in terms of output being constrained more recently by the lack of maintenance of the turbines leading to load shedding. Middle-quality responses tended to include other success criteria in addition to power output, such as environmental impact or the implications of controlling water flow above and below the dam. The best assessments included a variety of other success criteria, such as numbers of people displaced, impact on culture, loss of historical monuments and impact on ecosystems. Some had specific knowledge of the wildlife rescue operation, Operation Noah, at Kariba, or the contribution of the Three Gorges to the extinction of the Chinese river dolphin. A few candidates attempted to use slight knowledge of the disasters at Chernobyl or Fukushima to answer **(b)**. Without knowledge of normal operation before the incidents, this did not perform well in terms of a secure evaluation of success.

Question 4

This question combined an unfamiliar stimulus resource showing the collection of waste items for recycling, with a concept familiar from past papers, that of 'polluter pays'.

(a) Most candidates differentiated satisfactorily between reusing items, such as refilling beer bottles, and recycling items which involves a change of state. Recycling reduces the risk of environmental degradation in four main ways: by reducing surface waste accumulation as in 'rubbish lying around' and landfill; by avoiding incineration (burning) and therefore contributing to air pollution; by avoiding the contamination of water, especially groundwater by seepage, or lakes and ponds by improper disposal; and by reducing the need for raw materials, e.g. tree cutting for paper, mining for metals. Of these, it was the first point, about rubbish, which was the best understood and most frequently covered, and the point about water pollution which was seldom made. Some very good attempts included the idea that recycling is a mindset or habit and that, supported by environmental education, it is part of a more responsible contemporary approach to the environment which, when shared and supported by monitoring and legislation, will naturally lead to lower risks of degradation.

(b) The 'polluter pays' approach to solving pollution depends on being able first to identify and then to call to account the polluter(s) in any given environment, context or event. Clearly this is easier in some contexts and cases than in others. These two ideas, if explored and illustrated by the use of examples, could form a high-scoring response. Many candidates observed the relative ability of MEDCs to use this approach economically, technologically, politically and in terms of governance and legal process; and the relative inability of many LEDCs, with other, higher, priorities and ongoing issues, such as corruption and instability. Some candidates referred to the 'pollute and pay' attitude of some companies and to practical issues of evidence-gathering and long timescales for cases. Examiners noted that some candidates only dealt with this question in a general way, offering a hollow argument and counter-argument without much substance, just opinion. A few offered a developed assessment based on the perceptive perspective that 'polluter pays' works well in theory but only works in practice as a disincentive if the systems are in place to pursue it effectively. These systems could be pollution monitoring, cross-border co-operation on major rivers such as the Rhine, legal systems and enforcement systems so that polluters do indeed pay their fines.

Global interdependence

Question 5

Keys to success in answering this question were to focus on 'causes' in **(a)** and 'attempts' in **(b)** and to respond at the correct scale: national in **(a)** and international in **(b)**.

(a) Causes of a country's debt were covered at a basic to moderate level of quality by most candidates. Understanding of debt mechanisms, fundamentally that a country's borrowing exceeds its payments, and that rising interest rates make 'catching up' on defaulted repayments near impossible, was secure. Knowledge of how debt occurs was simple and often broad and unspecific or supported using general knowledge of a candidate's home country and/or its immediate neighbours. Knowledge of World Bank and IMF lending arrangements and details of a country's borrowing, such as when and why it occurred, was found in only a few responses. A few candidates wrote convincingly about odious debt, incurred by a government that misappropriates borrowed funds, and the consequences of events such as war resulting in debt.

(b) An effective response to this part-question recognised the change in scale from **(a)** and took an appropriately international approach, broader than for a single country, to an international phenomenon, the international debt crisis. It was not necessary to describe the causes of and background to the crisis and this material, if included, could not be credited, given the question's focus on overcoming the crisis rather than creating it. The main substance of an appropriate response was to consider attempts by the international community to cancel countries' debts, to reduce them or to alleviate them, for example by rescheduling repayments over longer timescales. In responses where knowledge was shown of one or more of these international initiatives, assessment of their success, if present, was basic and insufficiently developed to achieve high reward, as reflected in Key Message 4. In the best responses, some indication of outcomes was given, such as debt cancellation allowing a country to invest in priority areas such as education and healthcare rather than continue to service its debts, or risks of entering into new debts because of unforeseen needs, difficulty in selling primary products or financial mismanagement.

Question 6

Tourism remains a very popular topic; however the specific demands of parts **(a)** and **(b)**, especially the skills required in selecting and applying learned material, were challenging for many candidates.

(a) Although the syllabus includes a 'critical appreciation of the life cycle model of tourism', few candidates responded well to this explanatory demand. An effective response usually identified the type of tourist destination as mass tourism in a 'sun, sand, and sea' context for **(i)** and ecotourism, business tourism or adventure tourism destinations in **(ii)** as the type of tourism least well described by the model. A suitable explanation for **(i)** was that this was the type of tourism on which the model was based, and in **(ii)** that the stages are simply not recognisable for any one of these other types of tourism. This, if supported with evidence from one or more tourist destinations, was a full response. A significant proportion of candidates took a wrong approach. Many chose a single destination, such as Goa, Victoria Falls or the Costa del Sol, rather than a 'type', without explaining what the character of tourism there is. A smaller proportion identified one of the named stages of the model for **(i)** and another for **(ii)**. This produced little creditable content.

(b) Success in answering this part-question involved knowledge of tourism products and of tourism markets, understanding of marketing and promotion and a wider perspective on what is fundamental to success in tourism. No particular position in relation to the statement was expected by Examiners; what they looked for was an evidence-based analysis and argument providing the necessary assessment. Overall, knowledge of tourism products, from package holidays to cruises and adventure holidays, was fuller and more secure than knowledge of markets. Some candidates identified new markets, such as the emerging middle classes in China and India; weddings and honeymoons; or high-end tourists prepared to pay high sums for exclusive holidays in unusual and cutting edge and 'unspoilt' locations. Some wrote perceptively of the influence of the media, of advertising and of the Internet through websites like Tripadvisor as well as of word-of-mouth and positive experiences leading both to new customers and to return visits. Some considered other factors that are also keys to success, such as peace, calm and political stability; a good exchange rate for local currency against, say, the US dollar, British pound sterling or South African rand; and a high-value environment that is protected from the kinds of environmental degradation often associated with mass tourism. In many responses, it was the development of these other factors which was the best quality content. At the low end of the spectrum of achievement, candidates tended to tell the story of a particular resort or tourist destination with little or no attention to its success or the reasons for it. This kind of approach demonstrated knowledge recall but was unsatisfactory as it did not address the actual question set. A few minutes spent thinking about the question 'What were the keys to success for tourism here?' could have led to a better focused and more relevant response worthy of better reward.

Economic transition

Question 7

(a) An effective response to **(a)** considered the strengths and limitations of both calories consumed per day as a measure and of the choropleth world map in a reasonably balanced way. Most candidates tended to write largely about one or the other, or to make general comments which could have applied to one or both. One strength of the measure is that it was easy to understand; one limitation was that it was dated, being for the period 2003–05. One strength of the map was that it is visually clear and 'speaks', for example by the blue shadings. One limitation is that it is difficult to read the data for small countries and islands. One astute observation made by a few candidates was that the measure is only of calories consumed and says nothing about nutrition and the amount of, say, protein, in the diet or how healthy and balanced people's food consumption is.

(b) Few candidates had the breadth of perspective and command of the subject matter to provide a realistic and robust assessment of the validity of the view given. Most achieved most of the marks awarded by describing and explaining how physical factors and human factors lead to inequalities, as reflected in Key Message 4. This was seldom at the global scale and often related only to their home country. Overall knowledge and understanding of physical factors, especially resource endowment and extreme conditions, was more secure than of human factors. Many interpreted human factors simply as 'people' or considered colonialism and globalisation in a broad and unsupported way.

Question 8

Responses tended to be of good to very high quality, or notably weak. Keys to success were, in **(a)**, paying attention to the 'others', i.e. countries which do not attract foreign direct investment (FDI), and, in **(b)**, considering all the activities and operations of the chosen TNC, rather than production only.

(a) There are many reasons why some locations attract more FDI than others and comprehensive responses were not expected. What was needed was an explanation which was built on a combination of factors or features which are FDI-friendly, and of those which operate as constraints on or counter-indications to potential investors. Financial incentives, potential for profit, potential for cost-reduction, access to raw materials and high-quality infrastructure are part of the first group. Poor governance, political instability, poverty so that market potential is small and remoteness from major markets are found in the second group. Some of the best examples used in terms of FDI attracted were contemporary China, China in Africa and specific named export processing zones (EPZs). Unstable countries such as Afghanistan and relatively closed countries such as Bhutan, Cuba and North Korea were used as examples of locations which attract little or no FDI.

(b) Examiners observed that some examples of TNCs, such as Nike, Shell and Toyota, performed better as the chosen case study than McDonalds and Coca Cola, which might be more familiar to candidates, because of their more complex character and spatial organisation. Although many McDonalds outlets are actually franchises, rather than part of the corporation of that name, it was accepted as a named example. The best responses considered the element 'truly global' directly and explicitly. Some pointed out that TNCs' presence varies in strength from continent to continent depending on home country, market penetration, profit potential, corporate strategy, etc. Royal Dutch Shell plc (known as Shell), is, for example, an Anglo-Dutch TNC, headquartered in the Netherlands. Oil extraction is not truly global, being located in oil-rich areas such as Nigeria, Brunei and the Middle East for Shell. As an oil and gas retailer Shell may be seen as active 'worldwide' but is actually found in only 90 countries, having extensive exploration operations and over 40,000 retail outlets (petrol stations) bearing its name. As with previous questions, more candidates described the global organisation of their chosen TNC than actually provided an assessment (see Key Message 4).

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Key Messages

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Comments on Specific Questions

Production location and change

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(a) (i) This element of data response was satisfactorily answered by most. Fig. 1A was interpreted effectively and an appropriate answer used date information and units. Fewer candidates interpreted Fig. 1B well, as it was only necessary to refer to the time period 2011-2012 to show the impact of the 2012 drought. Nearly all candidates linked the 'spike' in the price of the export crop chosen to the drought, and some explained that a drought-induced shortfall in production led to the rise in unit price.

(ii) The concept of the risk of water shortage was understood robustly. What farmers can do included different types of irrigation, water storage in dams and tanks, water conservation methods, such as zero tillage or glasshouse cultivation, switching to crops or activities with lower water demands, and greater awareness of weather forecasts. It was possible to achieve full marks by a detailed explanation of what different methods of irrigation have to offer. Most candidates combined different things that farmers can do. The best explanations integrated examples and made it clear how each element reduced the risk of water shortage.

(b) This part-question was based on the two possible ways to increase agricultural production: by intensification and by extending the cultivated area, sometimes termed *extensification*. Regardless of quality, almost all responses were fuller and more secure in considering intensification than extensification. Some candidates misinterpreted increasing the amount of land cultivated as meaning extensive farming. Few candidates addressed the idea of one or the other being 'easier' effectively. Many, instead of writing about comparative ease or comparative difficulty for farmers and/or landowners, wrote about the associated costs or how successful the change was. Rarely was this cost information made relevant by expressing it as 'easier to afford' or 'easier to finance' or 'easier for farm management as returns on the investment are better'. The issue of success was for a different question. The best quality responses were reasonably balanced in assessing the relative ease or difficulty of intensification and of extensification, and used detailed examples as evidence for the analysis and argument. For example, during the Green Revolution in India, it was easier to intensify production through the use of HYVs, inorganic fertilisers, pesticides and new production technologies, such as modern irrigation and tractors for ploughing, rather than to extend cultivation into new areas, because of population pressure, the lack of additional cultivable land and landownership structures which worked to favour wealthy traditional owners. A few excellent responses pointed out that 'easier' is relative and that intensification is difficult to achieve in terms of finance, labour demands and the personal cost of innovating and change-making. Moderate quality responses tended to focus on intensification and seemed to respond to 'intensify' as a trigger word for recall knowledge, with limited engagement with the other elements of the question. In such cases, deconstructing the question into its different elements and planning a response to address each would be valuable. At the lower end of the spectrum, many responses consisted of a simple, unsupported view, such as 'I agree that it is easier …'.

Question 2

(a) The majority of candidates produced a response which was a developed list of locational factors using the simple structure, 'Another factor … Another factor'. This demonstrated knowledge of the subject area avoiding the key word 'combine'. Such an approach did not offer much explanation, and the key element of the factors' combination was left out. Higher-scoring responses attempted to show how factors may come together to influence the location of manufacturing industry and used examples to support and further the explanation. So, for example, a location peripheral to a major urban area could offer relatively cheap land (bid-rent) and room for expansion, combined with good road transport by ring road, a potential large labour supply, a secure energy supply and a local market for the product(s). This would make it preferable to a more remote location or to a central urban one. A few candidates used a distinctive locational context such as a port, an industrial estate or an export processing zone (EPZ) to explain this factor combination.

(b) This was an opportunity to use the case study from Syllabus 1.4 and to offer an evaluation of success. The full range of answer quality was seen. Most responses would have benefitted from two things: the identification of what the 'industrial change' was or consisted of, such as a plan, policy or initiative; and a clearer understanding of management as a concept. It could involve, for example, how well problems were solved, people handled, plans delivered and objectives met. At this level, the ability to provide a nuanced evaluation which shows that some elements were more successful than others, or that some industries, locations or people benefitted more than others, is highly creditable. Some candidates did not use evaluative language at all and others offered a simple view such as 'it was a success' or 'to a certain extent' without showing what.

Environmental management

Question 3

An effective response addressed the key element of balance in **(a)** and of success using distinct success criteria in **(b)**.

(a) Most candidates grasped the concept of factors affecting energy production satisfactorily. Resource endowment, cost and technology issues were particularly well explained. More sophisticated reasoning included energy policy and energy security as factors. Most responses could have been enhanced in two ways. The first was by careful attention to the national scale, i.e. the context of one or more individual countries, integrated as exemplar content to substantiate general comments. The second was by addressing the element of 'balance between different sources' directly. Some good work was seen explaining that, despite the existence of coal reserves, some MEDCs are switching to more environmentally-friendly means of energy production, such as wind power or new generation nuclear schemes. The case of China yielded some astute comments about its vast energy demand leading to a complex energy balance based on the increasing use of renewable sources, such as HEP and wind power, as well as to the opening of new coal powered stations using 'clean coal' technology. Some responses contained simplistic and sweeping comments about LEDCs not being able to use renewables and MEDCs having switched to them, neither of which reflects contemporary reality or the judging approach needed at this level and for this type of demand.

(b) This has become a classic question for this Option which many candidates handled well. Indicators of answer quality included detail, for example the use of dates, wattages, and percentage information; brief quotes from media or leaders about success; and specificity about effects such as precisely where impacts were felt, or which ecosystem or species was affected. Most responses were about an HEP scheme, either Kariba in Zimbabwe, which opened in 1939, or the Three Gorges Dam in China, which opened in 2008 and was fully functional in 2012. Many candidates 'told the story' including details of how long the dam wall is, how many turbines there are, etc. Such material is not creditable when the response should be focused on success. There was considerable variation in quality as to how success was treated. At the low end of the spectrum of achievement, success was seen as power production, often in vague terms. There were some inaccurate claims of what the Three Gorges Dam can produce, such as 'one third of the energy for China'. There were some contemporary and realistic comments about the initial success of Kariba in terms of output being constrained more recently by the lack of maintenance of the turbines leading to load shedding. Middle-quality responses tended to include other success criteria in addition to power output, such as environmental impact or the implications of controlling water flow above and below the dam. The best assessments included a variety of other success criteria, such as numbers of people displaced, impact on culture, loss of historical monuments and impact on ecosystems. Some had specific knowledge of the wildlife rescue operation, Operation Noah, at Kariba, or the contribution of the Three Gorges to the extinction of the Chinese river dolphin. A few candidates attempted to use slight knowledge of the disasters at Chernobyl or Fukushima to answer **(b)**. Without knowledge of normal operation before the incidents, this did not perform well in terms of a secure evaluation of success.

Question 4

This question combined an unfamiliar stimulus resource showing the collection of waste items for recycling, with a concept familiar from past papers, that of 'polluter pays'.

(a) Most candidates differentiated satisfactorily between reusing items, such as refilling beer bottles, and recycling items which involves a change of state. Recycling reduces the risk of environmental degradation in four main ways: by reducing surface waste accumulation as in 'rubbish lying around' and landfill; by avoiding incineration (burning) and therefore contributing to air pollution; by avoiding the contamination of water, especially groundwater by seepage, or lakes and ponds by improper disposal; and by reducing the need for raw materials, e.g. tree cutting for paper, mining for metals. Of these, it was the first point, about rubbish, which was the best understood and most frequently covered, and the point about water pollution which was seldom made. Some very good attempts included the idea that recycling is a mindset or habit and that, supported by environmental education, it is part of a more responsible contemporary approach to the environment which, when shared and supported by monitoring and legislation, will naturally lead to lower risks of degradation.

(b) The 'polluter pays' approach to solving pollution depends on being able first to identify and then to call to account the polluter(s) in any given environment, context or event. Clearly this is easier in some contexts and cases than in others. These two ideas, if explored and illustrated by the use of examples, could form a high-scoring response. Many candidates observed the relative ability of MEDCs to use this approach economically, technologically, politically and in terms of governance and legal process; and the relative inability of many LEDCs, with other, higher, priorities and ongoing issues, such as corruption and instability. Some candidates referred to the 'pollute and pay' attitude of some companies and to practical issues of evidence-gathering and long timescales for cases. Examiners noted that some candidates only dealt with this question in a general way, offering a hollow argument and counter-argument without much substance, just opinion. A few offered a developed assessment based on the perceptive perspective that 'polluter pays' works well in theory but only works in practice as a disincentive if the systems are in place to pursue it effectively. These systems could be pollution monitoring, cross-border co-operation on major rivers such as the Rhine, legal systems and enforcement systems so that polluters do indeed pay their fines.

Global interdependence

Question 5

Keys to success in answering this question were to focus on 'causes' in **(a)** and 'attempts' in **(b)** and to respond at the correct scale: national in **(a)** and international in **(b)**.

(a) Causes of a country's debt were covered at a basic to moderate level of quality by most candidates. Understanding of debt mechanisms, fundamentally that a country's borrowing exceeds its payments, and that rising interest rates make 'catching up' on defaulted repayments near impossible, was secure. Knowledge of how debt occurs was simple and often broad and unspecific or supported using general knowledge of a candidate's home country and/or its immediate neighbours. Knowledge of World Bank and IMF lending arrangements and details of a country's borrowing, such as when and why it occurred, was found in only a few responses. A few candidates wrote convincingly about odious debt, incurred by a government that misappropriates borrowed funds, and the consequences of events such as war resulting in debt.

(b) An effective response to this part-question recognised the change in scale from **(a)** and took an appropriately international approach, broader than for a single country, to an international phenomenon, the international debt crisis. It was not necessary to describe the causes of and background to the crisis and this material, if included, could not be credited, given the question's focus on overcoming the crisis rather than creating it. The main substance of an appropriate response was to consider attempts by the international community to cancel countries' debts, to reduce them or to alleviate them, for example by rescheduling repayments over longer timescales. In responses where knowledge was shown of one or more of these international initiatives, assessment of their success, if present, was basic and insufficiently developed to achieve high reward, as reflected in Key Message 4. In the best responses, some indication of outcomes was given, such as debt cancellation allowing a country to invest in priority areas such as education and healthcare rather than continue to service its debts, or risks of entering into new debts because of unforeseen needs, difficulty in selling primary products or financial mismanagement.

Question 6

Tourism remains a very popular topic; however the specific demands of parts **(a)** and **(b)**, especially the skills required in selecting and applying learned material, were challenging for many candidates.

(a) Although the syllabus includes a 'critical appreciation of the life cycle model of tourism', few candidates responded well to this explanatory demand. An effective response usually identified the type of tourist destination as mass tourism in a 'sun, sand, and sea' context for **(i)** and ecotourism, business tourism or adventure tourism destinations in **(ii)** as the type of tourism least well described by the model. A suitable explanation for **(i)** was that this was the type of tourism on which the model was based, and in **(ii)** that the stages are simply not recognisable for any one of these other types of tourism. This, if supported with evidence from one or more tourist destinations, was a full response. A significant proportion of candidates took a wrong approach. Many chose a single destination, such as Goa, Victoria Falls or the Costa del Sol, rather than a 'type', without explaining what the character of tourism there is. A smaller proportion identified one of the named stages of the model for **(i)** and another for **(ii)**. This produced little creditable content.

(b) Success in answering this part-question involved knowledge of tourism products and of tourism markets, understanding of marketing and promotion and a wider perspective on what is fundamental to success in tourism. No particular position in relation to the statement was expected by Examiners; what they looked for was an evidence-based analysis and argument providing the necessary assessment. Overall, knowledge of tourism products, from package holidays to cruises and adventure holidays, was fuller and more secure than knowledge of markets. Some candidates identified new markets, such as the emerging middle classes in China and India; weddings and honeymoons; or high-end tourists prepared to pay high sums for exclusive holidays in unusual and cutting edge and 'unspoilt' locations. Some wrote perceptively of the influence of the media, of advertising and of the Internet through websites like Tripadvisor as well as of word-of-mouth and positive experiences leading both to new customers and to return visits. Some considered other factors that are also keys to success, such as peace, calm and political stability; a good exchange rate for local currency against, say, the US dollar, British pound sterling or South African rand; and a high-value environment that is protected from the kinds of environmental degradation often associated with mass tourism. In many responses, it was the development of these other factors which was the best quality content. At the low end of the spectrum of achievement, candidates tended to tell the story of a particular resort or tourist destination with little or no attention to its success or the reasons for it. This kind of approach demonstrated knowledge recall but was unsatisfactory as it did not address the actual question set. A few minutes spent thinking about the question 'What were the keys to success for tourism here?' could have led to a better focused and more relevant response worthy of better reward.

Economic transition

Question 7

(a) An effective response to **(a)** considered the strengths and limitations of both calories consumed per day as a measure and of the choropleth world map in a reasonably balanced way. Most candidates tended to write largely about one or the other, or to make general comments which could have applied to one or both. One strength of the measure is that it was easy to understand; one limitation was that it was dated, being for the period 2003–05. One strength of the map was that it is visually clear and 'speaks', for example by the blue shadings. One limitation is that it is difficult to read the data for small countries and islands. One astute observation made by a few candidates was that the measure is only of calories consumed and says nothing about nutrition and the amount of, say, protein, in the diet or how healthy and balanced people's food consumption is.

(b) Few candidates had the breadth of perspective and command of the subject matter to provide a realistic and robust assessment of the validity of the view given. Most achieved most of the marks awarded by describing and explaining how physical factors and human factors lead to inequalities, as reflected in Key Message 4. This was seldom at the global scale and often related only to their home country. Overall knowledge and understanding of physical factors, especially resource endowment and extreme conditions, was more secure than of human factors. Many interpreted human factors simply as 'people' or considered colonialism and globalisation in a broad and unsupported way.

Question 8

Responses tended to be of good to very high quality, or notably weak. Keys to success were, in **(a)**, paying attention to the 'others', i.e. countries which do not attract foreign direct investment (FDI), and, in **(b)**, considering all the activities and operations of the chosen TNC, rather than production only.

(a) There are many reasons why some locations attract more FDI than others and comprehensive responses were not expected. What was needed was an explanation which was built on a combination of factors or features which are FDI-friendly, and of those which operate as constraints on or counter-indications to potential investors. Financial incentives, potential for profit, potential for cost-reduction, access to raw materials and high-quality infrastructure are part of the first group. Poor governance, political instability, poverty so that market potential is small and remoteness from major markets are found in the second group. Some of the best examples used in terms of FDI attracted were contemporary China, China in Africa and specific named export processing zones (EPZs). Unstable countries such as Afghanistan and relatively closed countries such as Bhutan, Cuba and North Korea were used as examples of locations which attract little or no FDI.

(b) Examiners observed that some examples of TNCs, such as Nike, Shell and Toyota, performed better as the chosen case study than McDonalds and Coca Cola, which might be more familiar to candidates, because of their more complex character and spatial organisation. Although many McDonalds outlets are actually franchises, rather than part of the corporation of that name, it was accepted as a named example. The best responses considered the element 'truly global' directly and explicitly. Some pointed out that TNCs' presence varies in strength from continent to continent depending on home country, market penetration, profit potential, corporate strategy, etc. Royal Dutch Shell plc (known as Shell), is, for example, an Anglo-Dutch TNC, headquartered in the Netherlands. Oil extraction is not truly global, being located in oil-rich areas such as Nigeria, Brunei and the Middle East for Shell. As an oil and gas retailer Shell may be seen as active 'worldwide' but is actually found in only 90 countries, having extensive exploration operations and over 40,000 retail outlets (petrol stations) bearing its name. As with previous questions, more candidates described the global organisation of their chosen TNC than actually provided an assessment (see Key Message 4).

GEOGRAPHY

Paper 9696/33

Advanced Human Options

Key Messages

- Using examples and case studies and integrating them effectively into a response as evidence is necessary to achieve higher reward.
- Selection, application and direction of learned material to the actual question is fundamental. Being able to use material in a manner other than which it was learned or used previously is a key skill.
- Understanding the term *factor* is important for success as it is used in questions and in the syllabus. A factor is a characteristic, element or influence that contributes to an outcome or result.
- All parts **(b)** require assessment and an approach which is evaluative, rather than simply descriptive or explanatory.

General Comments

Examiners noted signs in many responses to parts **(b)** of training in how to answer questions. These signs included using an introduction and a conclusion, stating a viewpoint, opinion or assessment, using argument and counter-argument, and including explicit assessment and evaluative comments. In some cases, this framework, combined with detailed knowledge and secure conceptual understanding, supported a high-scoring response. In others, candidates seemed to know what they needed to do in terms of the approach and did not provide the necessary content of knowledge and understanding to carry it. This led to general and rather 'hollow' arguments with an insubstantial foundation in human geography.

Many responses were too brief in view of the mark allocations of 10 and 15. A few lines or one paragraph for **(a)** and half a side of writing for **(b)** are insufficient for success at this level. Candidates are advised only to select questions from Options for which they have been prepared and to choose questions where both parts can be answered, rather than leaving one part blank.

Comments on Specific Questions

Production location and change

Question 1

(a) Basic credit was given where candidates demonstrated knowledge and understanding of what physical factors are. Some understood these, wrongly, to include 'physical labour' and 'physical machinery', both of which are human factors. Candidates described the physical factors, such as climate, better than they explained how they affect agricultural land-use and practices. *Land-use* should be understood as what the land is used for, such as growing wheat or cattle grazing, and *practices* are what is done, such as irrigation, fallowing, application of chemical fertilisers and the use of machinery such as tractors. To achieve more than 6 marks, examples were needed. Some effective use of farms in named, located areas was seen, as was reference to hazardous events which impacted farming, such as drought.

(b) The best responses seen were structured as assessments throughout and maintained a tight focus on the statement, directing the writing to the four key words 'change', difficult', 'introduce' and 'achieve'. Some identified elements of agricultural change which were relatively easy, such as getting farmers to accept gifts of new varieties of seeds, and some which were relatively difficult, such as overcoming traditional mindsets or introducing new techniques which required large inputs of finance beyond the means of poorer farmers. A few of the best responses mentioned issues of how agricultural change was managed using media, education, advisors and incentives to try to overcome some of the things that could make it difficult. Most candidates had a case study of agricultural change, such as the Green Revolution in India, on which to draw. Fewer had the necessary combination of skills and self-discipline to select material from that case study and apply it to this actual demand.

Question 2

Fig. 1, a schematic map of location was interpreted satisfactorily. Knowledge of industrial estates for **(a)** remains insecure.

(a) (i) Responses which were based on what was visible on the map, such as the two airports for transfer of goods and executives, were firm. It was valid to interpret Gateway City Industrial Estate on Fig. 1 as peripheral with room to expand, yet well-connected by highways, such as 304 and 331.

(ii) Answers were less successful here, either because the chosen features were actually shown on Fig. 1, such as 'good transport', or because they were not specifically associated with industrial estates. These include companies' being able to make profits or access raw materials. Valid features of industrial estates that are attractive and which were credited included financial incentives, linkages, assured supplies of water and electricity, and security.

(b) The full range of answer quality was seen. The very best responses outlined government policy, or a sequence of policies, tightly, with supportive detail and showed how it or they had affected manufacturing and related service industry in the chosen country. The effects of the policy included those on the type of industry, on industrial location and on its organisation, as well as broader effects in different dimensions. These effects included output and profitability (economic); skills training and goods available (social); and resource use, pollution and degradation (environmental). Both Pakistan and Malaysia were used effectively as case studies. At the lower end, responses tended to describe an industry and how it had changed, with little or no reference to the government or any actual policy.

Environmental management

Question 3

In **(a)**, it involved the integration of reading Fig. 2 with candidates' own knowledge of the environmental impacts of the two selected types of renewable energy. In **(b)**, the focus was the consequences of the depletion of non-renewable energy, with assessment as the required approach.

(a) All candidates chose two types of renewable energy. Reading the question carefully pointed to these choices having some environmental impacts. HEP and nuclear as choices therefore had greater potential than the other types. Many chose wind and solar and wrote very similar descriptions of impacts for both of them. A few chose biofuels or fuelwood, which were not shown on Fig. 2. The definition of carbon footprint in the stem of the question enabled a holistic consideration of the chosen methods. In the case of solar energy, with the largest carbon footprint on Fig. 2, this could include the manufacture of the panels, which is highly energy-consumptive and involves toxic materials for safe disposal, and transporting the panels and associated items, such as cabling, to the installation location. A full response involved some data reading from Fig. 2, the description of environmental impacts and one or more named located examples. The best responses detailed specific environmental impacts, for example in relation to the Three Gorges Dam, with the displacement of approx. 1.2 million people, the extinction of the already endangered Yangtze river dolphin, and an increase in seismicity associated with the weight of the dam and impounded water. Positive environmental impacts, such as flood control, were credited. At the lower end, responses based on simple knowledge recall seemed to Examiners to have been triggered by the names of the types of renewables. In these cases, writing often covered how the energy was generated and considered locational requirements or cost issues, none of which were creditable given the wording of the question.

(b) A secure conceptual grasp of what depletion means provided a firm foundation for responses. Some candidates were overly concerned with simply finding more reserves of coal, oil and gas, although this was one creditable strand. Some used fracking as a technique and exploitation in remote places of high landscape value, such as Antarctica, to raise issues of cost and energy prices, and of environmental impact. Most responses were based on the following two main consequences of depletion.

The first consequence was the economic and geopolitical implications of the end of fossil fuel production and life as it was lived in the 20th century, especially in relation to dependency on oil. For countries such as Brunei, in which oil is the mainstay of the economy, candidates explained the consequences for the economy, for employment and for the country overall. Many accounts could be categorised as 'doom and gloom', outlining an escalation from price rises to energy conflicts and a severe economic downturn, with 'the lights going out' in MEDCs. The second consequence was increased research into and investment in renewable energy production. Some candidates made an effective link to part **(a)** here. Many pointed out that, for most countries, renewables are not yet able to meet the energy needs and that the potential to run the transport sector on electricity is, to date, limited. Some used the cases of France, Iceland, New Zealand and Norway to show what can be done and what the remaining challenges are. In better responses, some attention was given to other consequences, such as energy conservation and promoting energy efficiency, for example through the use of new low energy light bulbs, or of public transport rather than private cars.

Examiners reported that most candidates took a descriptive or explanatory approach to this part-question and that very few offered an assessment. The assessment could be of the significance or scale of the consequences identified, and of what they mean for the world or for life in the 21st century. For example, some observed that the consequences would be great for LEDCs because of their relative inability to finance alternative energy, and great for MEDCs in terms of the highly energy consumptive character of all sectors and enforced changes of lifestyle and working. For others, the assessment was that it would be 'good for the planet' in a number of ways, from the end of coal extraction and combustion, to the wider use of 'clean green' technologies, such as for harnessing wind energy, an otherwise 'wasted resource'.

Question 4

A successful response kept an urban focus in **(a)** and offered an assessment in **(b)** rather than a description of attempts or a narrative of what happened.

(a) An effective approach was to identify two or more 'main factors' and then explain each, making links where relevant and providing one or more examples as support. A maximum of 6 was applied to general explanations without the required example(s). The syllabus gives factors as 'e.g. urbanisation, industrial development, inadequate infrastructure' and at least two of these formed the basis for a secure answer. One other factor frequently chosen was urban population growth with the pressures it puts on housing, transport and services. It was more difficult for candidates who chose 'land pollution, air pollution and water pollution' to make an effective answer, especially when rural activities were included or examples were not clearly urban, such as 'the global atmosphere'. The best use of examples was detailed and specific to a named urban area, for example giving data or other evidence in relation to environmental degradation. Many candidates used an example in name only, such as 'e.g. New York' or referred to urban areas in a generic manner, such as 'cities in India'. A few candidates only considered social or socio-economic degradation, as in quality of life for residents and their personal experience of problems such as traffic congestion and crime, even though the emphasis of the syllabus is on the physical or built environment.

(b) The best responses were distinguished by secure conceptual understanding of environment protection and what constitute risks; detailed knowledge of attempts; and skills in assessment to determine the success of each. At the low end, assessment could be absent, or simply stated, such as 'It was a success'. Middle-quality responses often 'told the story' of the attempt before ending with one or more sentences of assessment, for example, 'This attempt worked well but cost a lot of money which people thought could be better used.' and 'This was a relative success although there is still a lot of work left to do and constant monitoring is needed to avoid further illegal tree cutting.' High-scoring responses were framed as an assessment throughout, only providing sufficient detail of the chosen attempts as background to, and evidence for, the assessment made. Some contemporary, nuanced and realistic evaluative comments were seen, some of which were extended into potential risks in future, such as the impact of a drought, an unforeseen in-migration of refugees, or an economic recession provoking a survival urge amongst individuals and companies in a bid to obtain resources. Some responses would have been improved if material had been selected more carefully to answer this particular question. In particular, material about treating the results of pollution incidents and improving degraded environments needed careful use and application to be relevant, as neither one was fundamentally about environmental protection as such. Compare, for example, how environments can be protected by legislation, monitoring, education, law enforcement, fencing and giving areas protected status as a national park or marine reserve.

Global interdependence

Question 5

(a) Knowledge and understanding of Fair Trade (note the upper case letters) is improving. Some candidates confused it with the WTO's efforts to achieve free trade, which may be regarded as fairer. The best responses used an example, such as Starbucks coffee or Whittaker's 72% Dark chocolate (New Zealand), to describe the initiative and to explain how it aims to gain better trading conditions for producers in LEDCs. This involves guaranteed prices and markets, the certification of produce with the Fairtrade logo and cutting out the middlemen. It also involves education for the farmers and production that meets higher social and environmental standards. Teachers who want to research Fair Trade may be helped by the following links, http://www.fairtradeusa.org and http://www.fairtrade.org.uk

(b) This classic question yielded the full range of answer quality. Many candidates took it as the opportunity to provide a developed typology of aid, with the pros and cons of each. Some of this material was relevant. Other parts of this material needed to be made relevant to the question or otherwise left out. The best responses were carefully problem-focused. For example, aid could be seen as solving problems such as lack of food, shelter and safe water as humanitarian aid after a disaster; or, through bilateral or multilateral aid, improving the quality of life through programmes of healthcare and education in rural areas of slums and shanty towns in LEDCs. Some observed that receiving aid is not confined to LEDCs and gave an example, such as after Hurricane Katrina in New Orleans in 2005 or after the earthquake and tsunami which hit Japan in 2011. As for the problems aid creates, the issue of dependency (i.e. reliance on aid) was covered best. Other problems included where tied aid commits a country perhaps to supply resources or buy military equipment against its best interests, issues of corruption, mismanagement, indebtedness, and what to do when the aid stops. Candidates were free to come to their own view and assessment. Many differentiated the assessment of aid by type. In the best responses, detailed evidence was integrated with analysis, argument and assessment. Examiners noted that some responses which showed good appreciation of aid's potential both to create and to solve problems were written generally, without the use of a single example, and were therefore restricted in the credit that could be given.

Question 6

This question combined the interpretation of a table showing the results of a survey of tourists about the effects of taking an ecotourism holiday in **(a)** with a more straightforward demand in **(b)**.

(a) Most candidates interpreted Table 1 robustly, even though its contents were unfamiliar. Most also managed to combine some of the responses in Table 1 with their own knowledge of ecotourism. This was done best in terms of environmental impact. For example, Table 1 shows that 93% of tourists questioned were concerned that their presence may damage the environment. This shows that most ecotourists are aware and responsible environmentally and wanting to avoid impacts such as footpath erosion, littering, improper disposal of wastes and ecosystem disruption. Some ecotourists took an active role in doing good to the environment as part of the holiday experience. Table 1 shows that 61% of ecotourists contributed to the conservation of the area visited. This could, for example, be through a project recording fauna and flora, or helping to protect areas at risk, such as a breeding site or fragile ecosystem. Many candidates mentioned that 96% of ecotourists surveyed said that the holiday had increased their respect for the local indigenous population. Only a few explained how this happened, such as by day-to-day contact with their hosts and guides, and through the experience of immersion in their culture. As the table only had one response which could be seen as economic (rank 10), it was not surprising that economic impacts were mentioned rarely by candidates.

Overall, response quality could have been improved in two main ways. The first was by articulating what 'the negative impacts associated with traditional tourism' in the question actually are. Most candidates assumed this element. A few very good responses outlined the environmental impacts of pollution, environmental degradation and erosion which mass tourism can cause, mentioned economic leakage, and included social impacts such as commodification of culture, westernisation and alienating the local population, as described by Doxey's 'Irridex'. The second way in which most responses could have been improved was by the integration of one or more examples, in more than name, i.e. 'e.g. Xcaret'. The best examples to use were of what happens in actual ecotourism destinations. A few mentioned traditional resorts to illustrate 'the negative impacts'.

(b) This was one part-question to which the second key message applies. The work of many candidates suggested that they wanted a different question; notably about how the life cycle model fits the chosen tourist area or resort. This kind of approach made much content irrelevant and also 'left the Examiner to do the work', identifying the factors for which the question asked. A few strong responses identified individual factors clearly and provided an assessment of which one(s) were the most important, perhaps in different time periods. It was highly creditable to point out, for example, that the original attraction, such as a feature of the environment or landscape, had been superseded in the late 20th century by the development of a form of niche tourism. Others identified a key change, such as the opening of an international airport in an island location, or aggressive promotion and advertising in a new market, such as China. Most candidates told the story of the growth and development of the chosen tourist area or resort. In this type of approach factors remained embedded in the narrative, and assessment, if present, tended to be brief and not well-linked to the story told. Some candidates reproduced their learned case study of the application of the life cycle model and a few took its named stages as 'factors', mistakenly. See Key message 4 at the head of this report.

Most responses could have been improved in two ways. The first was the discipline under examination conditions to try to answer the actual question set by selecting, applying and directing learned material to fulfil its demands. The second was by providing an assessment rather than just an explanation. Both these hold true for responses to many of the questions for 9696 Advanced Human Options, not just on this question paper.

Economic transition

Question 7

Examiners noted the disparate character of responses to this question. There were some high-scoring responses from prepared candidates and some which only received a few marks, suggesting that the question may have been chosen as a last resort by those who had not studied this Option.

(a) A full answer explained the nature of the core, the nature of the periphery and explained the links between them in terms of flows of labour, capital, materials and, classically, backwash and spread effects, in the context of the core and peripheral regions of a chosen country. A number of regional contexts were chosen; Brazil, Pakistan and Malaysia performed well. The case study of regional development in Italy was rather dated. Brunei has an identifiable core and an identifiable periphery and could be worked up as an appropriate example. A few offered a sketch map or sketch diagram, gained credit for it, and probably found it easier to explain the context by so doing. A few candidates wrongly used the term *swash*, from waves in Coastal Environments, for spread effects.

(b) Most candidates interpreted Fig. 3 effectively and recognised its message: that different development indicators show different things about inequality. So, Madagascar was more developed than Uganda in 2009 by the composite measure HDI and less developed than Uganda by the single criterion measure of GDP per capita PPP in Fig. 3. The astute pointed out that the HDI combines income information with measures of life expectancy and education to give a fuller or more holistic picture of development. Indicators of response quality were the development of an evaluative argument, rather than 'a developed list' of measures; and the integration of detail and use of some data to support the analysis. Most candidates evaluated composite measures as more effective than single criterion ones. Exceptions to this are infant mortality rate and life expectancy, both of which reflect many different conditions in a country. To this, many also added the Gini coefficient as an effective measure of income inequality, either spatially (such as between coastal China and interior China) or people groups (such as the elite and the masses).

Question 8

Only a few responses were seen, with the same disparate nature as those to **Question 7**. There was some excellent work from prepared candidates, focussing on detailed named policy or policies in **(a)** and on difficulties in **(b)**.

(a) Two approaches were seen, both creditable. One outlined current policy; the other looked at policies or policy initiatives over time. Those that made both social and economic aspects of the policy or policies clear performed well. The best responses named the policy or policies and could offer dates and detail, such as identifying separate aims or particular spatial contexts.

(b) Whilst many candidates started by describing the outcomes of following the policy or policies chosen in **(a)**, the best responses were, instead, careful to organise the response around the difficulties faced and the attempts to overcome them. Any difficulties were acceptable (social, economic, political, environmental) and any type of attempts. Some used evidence of policy adjustments or replacement policy by later regimes creditably as attempts to overcome the relative failure of earlier policy. Some considered delivery issues, such as traditional mindsets about gender, resistance to change, and corruption and mismanagement, and offered perceptive and realistic evaluations of the persistence of these difficulties and of the complexity of development.