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GEOGRAPHY

> **Paper 9696/11**
>
> **Core Geography**

Key messages

- Candidates need to be more precise in the use of technical terms and in giving definitions.
- Candidates need to be able to describe trends and relationships accurately from data provided.

General comments

Excellent marks were achieved by a significant number of candidates from across the geographical range of Centres. As noted in previous reports, there has been a steady improvement in the standard of answers to the Physical Geography questions. This has continued in this examination although there are still many examples of very imprecise use of technical terms. Also, the level of detail in the description of processes is often underestimated. Mass movement and land sliding concepts still cause many issues. The accurate use of local examples continues to impress, especially in answers to the Human Geography questions.

As in previous years, the Physical Geography questions caused more problems than the Human Geography questions and the question that was not chosen from the six questions in **Section A** was invariably a Physical Geography question.

As reported often in previous reports, many candidates do not seem to understand command words such as 'overall', 'relationships', 'trend' and many more. Also, many candidates answered both components of a question where there was a choice. This was especially noticeable in **Question 1 (b)**. Data support continues to be lacking in answers involving visual resources. Comments in previous reports have stressed the importance of being able to evaluate issues with convincing arguments when answering questions in **Sections B** and **C**. There were encouraging signs of an improvement in this respect.

Overall the paper was completed by most candidates and time did not seem to be an issue. There is still a minority of candidates who answer 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)   Both features were correctly identified by most candidates although identification of the river cliff did cause some problems. Virtually all candidates knew feature B indicated deposition but the name of the feature was often vague.

(b)   The question asked for the processes that lead to **one** of the features identified. As noted earlier, a great number of candidates described both features. This meant that the level of detail was often less than might have been the case if only one feature was described. For both the river cliff and point bar, candidates should be able to identify helicoidal flow and to be able to relate it to the development of the features, but many did not do so. Most candidates mentioned the higher velocity at the eroded river cliff and deposition on the point bar where there is lower velocity and more friction on the inside bend. However, most answers were descriptive rather than explanatory. The nature of the erosional processes was rarely mentioned and, even when mentioned, the level of detail was very basic.

(c)   Most candidates were able to make a reasonable attempt at this question, although there were a few who needed to mention that the river has to overtop its banks. The drop in velocity and competence of the water on entering the floodplain was usually noted, thus resulting in deposition. However, the gradation in sediment size away from the river bank was often omitted. The need for repeated flooding was often forgotten. It was encouraging that a number of candidates stressed the role of the river in swinging back and forth across the floodplain, thus creating the 'plain' for sedimentation to take place. Most of the sediments in a floodplain are actually channel sediments left behind as the river meanders.

Question 2

(a)   The majority of candidates correctly identified 'more' for both **(i)** and **(ii)** although a sizeable minority thought **(i)** should have been less

(b)   The aspect that was often lacking in answers to this question was a comparison between urban and rural areas. Many answers concentrated on urban areas with little reference to the contrast with rural areas. Explanations of temperature differences were usually clearer than for precipitation differences. However, many were unable to explain fully the role of albedo in influencing temperatures in urban areas. Also, many concentrated on reflection of heat rather than absorption and re-radiation. With respect to precipitation the role of condensation nuclei was often stressed but convectional heating was often downplayed.

(c)   This question caused few problems although detail was often lacking. Particulate matter was often ignored and the nature of the gaseous components was often lacking as well.

Question 3

This was the least popular of the questions in **Section A** and was not answered well.

(a)   Many did not identify the feature as a shear surface, failure zone or slip plane, yet it is a diagram that appears in all standard textbooks

(b)   The same comments apply here as to part **(a)**.

(c)   Any question that asks for a consideration of the influence of rock type and structure invariably results in 'hard' and 'soft' rocks being described. Unfortunately this was the case in answers to this question. Inevitably, limestone was described as a 'soft' rock which it clearly is not. The relationships between rock type and structure and slope stability also seem to cause problems. Most candidates describe the weathering of the rocks but needed to show the significance of this to mass movement. Most recognised the importance of water and the contrast in permeability of the rock types. However, few could articulate the processes involved. Most relied on the increased weight of saturated sediments and the force of gravity to initiate movement. It was encouraging that a minority of candidates recognised that they could use coastal cliffs as examples of slopes. In this respect the role of joints and the inclination of bedding planes were stressed.

Question 4

This proved to be one of the more straightforward questions on the paper and was answered well by the majority of candidates.

(a)   This was invariably answered correctly.

(b)   The only issues in this question were not including an element of comparison and also the percentage level was often incorrectly assessed for LEDCs.

(c)   This was a very wide-ranging question with the answers demonstrating good breadth of knowledge and understanding of the issues in both LEDCs and MEDCs.. Excellent marks often attained.

Question 5

This question caused few problems although the detail extracted from the resource varied greatly.

(a)   The marks awarded varied depending on the level of detail provided in the answers. Most candidates recognised the major difference in the mid-thirties peak. However, many did not examine the full age range and the gender differences.

(b)   As with answers to Part **(a)** most concentrated on the working age groups. Suitable explanations were provided for this group. There was some confusion in the explanations for the older age sections of the population. Many did not consider that retired immigrants might return to their home countries, thus explaining, in part, the drop in numbers in this age group.

Question 6

This question was answered almost as well as **Question 5**.

(a)   The two cities were usually identified correctly, but there were some instances of incorrect identification.

(b)   The only problem was the lack of detail in comparing the growth of New York and Sao Paolo. Sometimes, direct comparison was lacking.

(c)   The question asked for two challenges faced by cities in either MEDCs or LEDCs. Many candidates described more than two challenges and discussed both MEDCs and LEDCs. The challenges were often described in a very general way and were sometimes challenges facing the country as a whole and not specifically cities. The level of detail and exemplification was often minimal. This meant that the marks awarded were not as high as they might have been.

Section B

Question 7

(a) (i)   As noted in previous reports, the main problem with Physical Geography definitions, concepts and processes is the precision with which they are known and understood. This was true in this instance with groundwater and springs. Groundwater was understood to be water somewhere below the surface but the water table was very rarely mentioned. There was also confusion between water in the soil and in fractured rock. The nature of springs was even more imperfectly understood. The relationship with the water table was hardly ever mentioned. Many described underground rivers coming to the surface. In general, sub-surface hydrology is not understood as well as surface hydrology. This is something that needs to be addressed.

   (ii)   The main element that was lacking in answers to this question was the idea that the groundwater store had been depleted before recharge occurs. Many answered simply in terms of water percolating to the groundwater store. The recharge concept was ignored.

(b)   Questions relating to storm hydrographs are usually answered quite well, and this question was no exception. However, the level of detail in the answers was quite variable and marks were lost because of this lack of detail. Many diagrams of storm hydrographs were incomplete in some respect. The precipitation histograms were often lacking, thus lag times were often unrelated to precipitation. Also, lag times were often incorrectly identified. Quite often soils and vegetation were not differentiated. Soil types were often limited to sands or clays. Thus, there would be a hydrograph of a vegetated area with permeable soils contrasted with an area with no vegetation and bare soils or even no soil at all such as an urban area. The effect of different types of vegetation, such as woodland or grassland, was rarely covered. The effect of interception in reducing the amount of water reaching the surface and the role of vegetation in taking up water from the soil, thus affecting soil water store was not appreciated. Candidates need to realise the interactions and complexity in even quite basic Physical Geography processes.

(c)   As in the past, meandering streams are understood better than braided rivers. The basic facts that braided channels are straighter, broader and steeper are often unknown. As was mentioned in the response to **Question 1**, the level of detail in the explanation of landforms of meandering channels was often minimal, although the nature of the commonest landforms was well understood.

Question 8

Although not very popular, there were some good answers but there is still great confusion over lapse rates.

(a) (i)   Most candidates understood that atmospheric stability occurred when the parcel of air cools more rapidly than the surrounding air. The fact that, if displaced, it will return to its original position without reaching condensation level was the detail that was most often lacking. The reverse is true for atmospheric instability. Some candidates, rather than describing the concepts in these simple terms, became very confused over specific lapse rates.

(ii)   Questions on dew seem to cause problems. Although most candidates understood that condensation into water droplets on the Earth's surface was needed, few could explain precisely the processes involved. Most knew that dew formed at night and was something to do with nocturnal cooling, with the better answers describing radiation cooling.

(b)   This question proved to be a good discriminator leading to a wide spread of marks. Pressure patterns were better understood than wind systems. The detail in the description of the tri-cellular model was often quite impressive, although, inevitably, a minority got the associated pressures wrong. Some candidates described ocean currents rather than wind systems.

(d)   This was quite a broad question and candidates had to decide how much detail to provide for each component. The majority of the answers concentrated on explaining the greenhouse effect and how human activities had affected it. The level of explanation was usually satisfactory but with occasional confusion over the wave lengths of the incoming and outgoing radiation and the nature of greenhouse gases. For some candidates, carbon dioxide is the only greenhouse gas. There were the usual confusions with the ozone layer. Consequences were usually restricted to melting ice caps and rising sea levels, although better candidates speculated on weather changes and the effect on certain habitats.

Question 9

This was quite a popular question with some excellent answers.

(a) (i)   Most candidates were aware that oxidation was a chemical weathering process and that it had something to do with oxygen. However, the details of the process were little understood, although many did know that iron was involved somewhere. Freeze-thaw, as a process, was better understood. The only aspect that was sometimes missing was the necessity for frequent cycles in order for the process to be effective,

(ii)   This question posed few problems; the topic seems to have been learnt thoroughly, although certain aspects of the process were ignored. The contrast between the hot surface of the rock and a cooler core was rarely mentioned. Also, as with freeze-thaw, the necessity for frequent cycles was sometimes missing from the answers.

(b)   There were some excellent answers to this question, with the weathering of both limestone and granite being understood well. An understanding of carbonation would be expected, but knowledge and understanding of hydrolysis and its relation to the mica and feldspar in granite was especially impressive. A minority of candidates wasted time in describing the landforms produced, such as limestone pavements and tors.

(c)   Most candidates produced diagrams of the three possible convergent plate boundaries but, as in previous years, they were often uninformative and inaccurate. There were some impressive but inaccurate diagrams of continental plates colliding and splintering to produce impressive mountains, with the Himalayas being the common example. Unfortunately this is not how the process works. However, what was encouraging this time, was the number of candidates who described sediments being trapped between converging plates, with accretionary wedges being a component of mountain building. There was often some confusion between volcanoes and fold mountains. The accounts of island arcs also contained many inaccuracies. Most realised that subduction was involved but many did not describe the meeting of two oceanic plates. Volcanoes were often placed on the wrong side of the plate boundary. A significant number of candidates still confuse island arcs with volcanic hot spots. Thus, the Hawaiian Islands and Galapagos Islands were often quoted as island arcs.

Section C

Question 10

(a)(i)   Most candidates were able to state the definition.

(ii)   The response was generally sound, although many spent too much time describing the demographic transition model, which was not really required. This meant that the emphasis was on birth and death rates without making the connection with natural increase. It was good to see that zero population growth and even negative natural increase are well understood.

(b)   This question and part **(c)** produced some excellent answers with impressive exemplification. The China 'one child' policy was most frequently described, but the policies adopted by India, Singapore and France were also commonly described.

(c)   The level of specific detail in many of the answers was impressive. The assessment was often convincing and based on thorough knowledge. It was a pleasure to read many of the answers. Inevitably there were some weak answers, but even these managed to gain some marks.

Question 11

(a)   This was quite a wide-ranging question and most candidates were able to describe a number of ways that potential migrants receive information about possible destinations. All the elements in the mark scheme were covered by some candidates. Good marks were usually obtained.

(b)   This question required the description and analysis of one example of voluntary migration. The marks awarded were determined by the example and the level of detail provided. A general account of push and pull factors received few marks. Mexicans migrating to the United States of America and Turkish workers moving to Germany were the most frequent examples. The ability to recognise command words and key phrases was noted in the introductory comments. The key word in this question was 'combined'. Many candidates described the separate factors but did not go on to address the way that the factors combined to promote the movement.

(c)   This question was also a good discriminator. The better candidates were able to produce thoughtful balanced arguments, but often the level of assessment was basic. Most candidates provided a response which contained valid points but which was partial in the detail and the assessment made. Gender and marital status were often ignored. There was sometimes too much emphasis on physical risk.

Question 12

There were some interesting and informative answers to this question, especially to Part **(c)**.

(a)   Most candidates saw this question as merely about push and pull factors. The number of marks awarded depended on the level of detail of push and pull factors. Answers that simply reversed the two sets of factors received few marks. Good detail on specific examples was required for top marks, as demonstrated in the mark scheme.

(b)   Candidates seemed well aware of factors such as the rapid growth, shortage of resources, etc and scored highly either by dealing with two or three factors in depth or discussing more factors in less

detail. The quality, again, was in the detail and the exemplification. The level of knowledge was often impressive.

(c)   This question addressed a topic that has become fashionable and much in the news lately. There have been a number of well publicised videos and television programmes on the topic. This was reflected in the answers which were often excellent. Most candidates also produced balanced arguments with effective examples. The ability to make a balanced assessment is the main criterion that lifts an answer from Level 2 to Level 3.

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Key messages

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- Candidates need to ensure that they follow the command words in questions, especially 'describe' and 'explain'. Writing an explanation when a description is required will not score marks. The same applies where descriptions are written when explanations are required.

General comments

This examination produced a very wide range of quality of response, both between and within Centres. A number of candidates produced answers that stood out in terms of content, factual recall, organisation and the use of examples and case studies. At the other end of the scale there were candidates who produced thin, scrappy answers that often missed out parts of questions and, on occasion, whole questions altogether.

Many candidates could have achieved higher marks if they paid attention to the command words in questions. The most common of these was the attempt at explanation of data sets when a description of the pattern of the data was required. This mostly occurred in **(a)** and **(b)** parts of human geography questions in **Section A**. Omissions tended to occur most frequently in **Sections B** and **C**, particularly to the second part of **(a)** questions.

It is pleasing to note that in some areas of the syllabus understanding has improved such as in urban heat islands, overland flow and to some extent, lapse rates. In other areas however, there was a widespread miscomprehension of some syllabus terminology, such as, in **Question 6(c)** where the term residential segregation was often misinterpreted.

The interpretation of photographs remains problematic for many candidates. **Question 1** on this paper was poorly answered due to the inability of candidates to produce sketch diagrams of the river and to identify the main features from the photograph. Perhaps candidates should be encouraged to produce simple sketch plans that reflect the shape of the river in the photograph and the visual identification of land forms. To a lesser extent, similar criticisms apply to the types of diagram produced in undertaking answers to fluvial geomorphology questions. Often these diagrams are crude and inaccurate, particularly in representing channel flows such as helicoidal flow. Generally those diagrams that accompany answers to human geography questions, such as population pyramids or demographic transition models, are more accurately produced and better integrated within the text of the answer. The use of relevant exemplification is always important, but can raise the marks awarded to answers particularly in human geography.

Rubric infringements were generally few, apart from the habit of some candidates who wasted time by attempting more than the stipulated number of questions. Overall, handwriting and the use of English were good, and in many cases where English is not the candidates first language, outstandingly good.

Comments on Specific Questions.

Section A.

Question 1

Many candidates experienced great difficulty in utilising the photograph. Many appear to have decided on the identification of the central feature (x) as an ox bow lake, and then drew a text book type of diagram to illustrate its formation. A better strategy would have been to draw a sketch diagram representing the general shape of the river channel and valley floor and then to have proceeded to identify features on the diagram. This way, credit could, at least, be given for the sketch diagram even if the identifications of the features were incorrect. In many cases an inaccurate textbook diagram accompanied by an incorrect explanation of

land forms yielded little or no credit. Better answers produced a sketch of the general channel shape, identified the partially vegetated eyot and provided an explanation in terms of variations in channel discharge and hence sedimentation.

Question 2

(a) Most correctly calculated both the temperature differences from the graph.

(b) Most answers recognised the higher temperatures experienced in the CBD as being due to the influence of the urban heat island effect. There were big differences in the quality of explanations of the heat island. Weaker answers assigned it solely to pollution, whilst better responses contrasted the albedo / specific heat capacities of the CBD with those of rural / riverine areas. Such answers also indicated anthropogenic heat sources (central heating in buildings, vehicle engines, etc) in urban areas in contrast to rural surroundings.

(c) Candidates in some Centres ignored the reference to climate in the question and wrote about differences in buildings and vegetation. The more successful answers tended to explain higher precipitation in urban areas due to convection and hygroscopic nuclei and the lower wind speeds induced by increased friction. Answers that attempted to explain differences in humidity and fogs often resulted in confusion.

Question 3

(a) Most answers successfully identified **(i)** freeze/thaw and a suitable chemical process in **(ii)** such as carbonation, hydrolysis or oxidation.

(b) The role of vegetation in mechanical weathering was accurately described, but many answers provided a more limited explanation of the contribution of vegetation to chemical weathering. Better answers explained the origin and operation of humic acids.

(c) Acid rain was poorly understood with much confusion over both its pH values and its origins. There was a general recognition of industrial and urban pollutants but only the better answers identified these. The role of carbonation was most commonly described although better answers did recognise that acid rain could lead to a greater variety of rock weathering.

Question 4

(a) The vast majority gained the mark for a correct identification.

(b) Nearly all answers recognised that these countries were located within Africa. Answers that gained full marks gave a more precise location with reference to central, western and southern Africa as well as the island of Madagascar.

(c) This produced some very good answers where the demand for food was shown to exceed supply for a number of economic, environmental, political and even social reasons. These were often appropriately exemplified. Weaker answers tended to list characteristics such as 'no fertile land', 'drought', 'no jobs', which were often assumed to exist throughout the whole of Africa.

Question 5

(a) Answers commonly received 2 marks for comparing the data for both countries, often in considerable detail. Far fewer answers gained the third mark for any comment upon the <u>pattern</u> of immigration.

(b) This question was widely misinterpreted as many candidates wrote about job availability rather tha government policies. The best answers employed simple examples such as visa restrictions, immigration quotas or border controls.

(c) This produced a lot of disorganised and rather simplistic answers. Many answers listed impacts such as overcrowding, crime and unemployment without explanation or exemplification. The better answers contextualised the types of migration and the types of receiving countries and were able to demonstrate both positive and negative outcomes.

Question 6

(a) Virtually all candidates correctly identified Limpopo.

(b) Many candidates merely repeated the percentage of the population living in shanty towns for each of the provinces. The better answers realised that there was little overall spatial pattern, though the lowest was in the north of the country, and organised the provinces into those showing higher than average percentages, median percentages and lower percentages.

(c) The term residential segregation was not understood by many candidates who wrote about rural to urban migration. Even those who did understand the term often did not distinguish residential segregation beyond the location of rich and poor housing, contrasts which often were not made specific to LEDCs. Better answers discussed the influence of socio-economic status, religion, race and ethnicity. They also emphasised their points with appropriate exemplification drawn from cities in LEDCs.

Section B

Question 7

This was the most popular of *Section B* questions.

(a) (i) Most candidates demonstrated a broad understanding of infiltration and percolation, but the definitions often lacked precision. Many definitions of infiltration needed a reference to the surface of the soil, whilst percolation often omitted either means of water flow or its direction.

(ii) The understanding of overland flow has improved markedly with many candidates able to distinguish between Hortonian and saturation overland flow, even though this distinction was not required for full marks.

(b) This was often poorly executed due to inappropriate selection of land forms and/or weak, inaccurate diagrams. Many selected landforms such as waterfalls, deltas, or braided channels. Even those selecting river cliffs, point bars, cut-offs, pools and riffles produced little by way of explanation. Much credit could have been achieved by use of clear, simple and well annotated diagrams describing the land forms and the effects of channel flows.

(c) Many responses concerned themselves entirely with catchment conditions that might enhance flooding, such as impermeable soils, lack of vegetation, steep slopes and urbanisation. The significance of water inputs into the catchment system in the form precipitation or spring melts was often not mentioned. If candidates could be encouraged to view river catchments as systems with inputs, flows, stores and outputs then they would find it easier to organise their answers. Better answers identified causes of floods as intense storms, monsoons, sudden spring melts and explained ameliorative action in terms of the controls of flow accompanied by some debate as to their effectiveness. Weaker answers merely suggested a cessation of those human activities that they saw as the cause of floods (e.g. deforestation/ urbanisation).

Question 8

(a) Whilst there has been some improvement in the understanding of lapse rates, many candidates still need to be more exact in their definitions to gain full marks.

(b) Stability was generally well understood and accompanied by appropriate diagrams. Conditional instability remains problematic and is little understood by many candidates. Often, absolute instability was shown in a diagram instead of conditional instability. The problem appears to be that many candidates do not understand that conditional instability begins in circumstances of stability. It is only the <u>forced</u> ascent of air that brings about instability after the condensation level.

(c) Answers were very wide ranging as the question allowed. Candidates are generally happier dealing with the effects of global warming rather than its causes. The weakness of some answers was a failure to link the effects (e.g. sea level rise) with global warming. Better answers not only forged and exemplified such links, but also achieved a more balanced description of climatic and other global warming effects. Level 3 answers were also able to indicate those effects that they felt were to be most likely.

Question 9

Relatively unpopular.

(a)   Descriptions of mass movements have improved but there is still a lot of uncertainty about the processes involved. This was particularly the case with heave which was often seen as being indistinguishable from creep.

(b)   Better answers made good use of annotated diagrams to illustrate slides and flows and also indicate their impact upon slopes. The processes were not well understood by many, particularly the triggers for mass movement, shear stress and strength, and the impact of pore water pressure. Any connection between slope gradient and mass movement was only indicated in the better answers.

(c)   Plate tectonics remain a popular area with many candidates but the process of subduction and resultant landforms were often poorly described and explained. Better answers had clear diagrams distinguishing between continental and oceanic plates and linking subduction with landforms such as ocean trenches, island arcs, volcanoes and fold mountains. Such answers also linked the explanation of subduction to the landforms created. Weaker answers were confused about the meaning of subduction. They also needed to describe the landforms produced.

Section C

Question 10

By far the most popular question in this section.

(a) (i)   Most gained at least two marks for the definition. The most common omission being <u>average</u> number of years.

   (ii)   Some candidates lost marks through a misreading of the question. Many described the physical characteristics of an aged person or the economic impacts of an ageing population rather than the demographic characteristics of an aging population.

(b)   A surprising number of answers did not address life expectancy but rather traced changes in vital rates over time within the demographic transition model. Others explained increases in life expectancy in very general terms due to advances in the availability of health care. Better answers were those that took an example (often local) and traced the impact of improvements in diet, health, sanitation and education over time. They also postulated the possibility of declines in life expectancy due to the impact of HIV / AIDS, obesity, war and famine.

(c)   This part-question was generally well answered with most candidates gaining at least Level 2 credit. Most answers were aware of the increasing economic burden imposed by an ageing population upon a diminishing workforce. Good responses related this to declining birth rates, greater longevity and the resultant financial burden of pension provision. Weaker accounts concentrated upon the need for care homes, wheelchairs and zimmer frames. Level 3 responses addressed management issues such as encouragement of in-migration or the adoption of pro-natalist policies and the extension of pension age qualification.

Question 11

(a)   Many answers produced a list of different types of migration, often straying from internal to international migration. Many descriptions did not extend beyond rural to urban migration and were not developed by exemplification.

(b)   Most answers did not recognise the significance of the word 'increase' in the question. Answers were thus frequently framed in terms of the reasons for rural to urban migration and repeated much of the material in **(a)**. Better answers were those that recognised the impact upon migration of increased mobility, education, the lowering of social ties of family, as well as the increased opportunity for enhancing income. These were illustrated by a few well chosen examples.

(c)   Most obtained some credit from answers that outlined the negative impacts upon source areas of migration. Weaker responses tended to simplify and overstate these impacts suggesting that such areas could become deserted or inhabited only by children and the aged. Better answers produced a more balanced assessment with both positive and negative outcomes spanning economic and social aspects. These accounts tended employ well developed (and often local) examples.

Question 12

This was the least popular question within *Sections B* and *C*.

(a) (i)   Spatial competition was often not understood in terms of bids (competitive) for the use of space (e.g. CBD).

(ii)   The effects of competition upon the CBD were not identified beyond high costs. It might have been expected that candidates would refer to such features as high rise development, dense land use, rapid building replacement through a highly active property market.

(b)   The location of retailing was only described as central (CBD) or local (the corner shop). No account was made of the importance of profitability, space or access. It might have been expected that the emergence of peripheral shopping malls, markets and the like would have been developed.

(c)   A very broad question that produced only narrow answers. Few answers went beyond increasing population and overcrowding. Problems associated with increasing urbanisation, renewal of infrastructure, limits of finance, and globalisation could have been developed. The question could also have been answered by addressing the decline of industry and the effects that has had on urban areas such as Detroit.

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(a) The vast majority gained the mark for a correct identification.

(b) Nearly all answers recognised that these countries were located within Africa. Answers that gained full marks gave a more precise location with reference to central, western and southern Africa as well as the island of Madagascar.

(c) This produced some very good answers where the demand for food was shown to exceed supply for a number of economic, environmental, political and even social reasons. These were often appropriately exemplified. Weaker answers tended to list characteristics such as 'no fertile land', 'drought', 'no jobs', which were often assumed to exist throughout the whole of Africa.

Question 5

(a) Answers commonly received 2 marks for comparing the data for both countries, often in considerable detail. Far fewer answers gained the third mark for any comment upon the pattern of immigration.

(b) This question was widely misinterpreted as many candidates wrote about job availability rather tha government policies. The best answers employed simple examples such as visa restrictions, immigration quotas or border controls.

(c) This produced a lot of disorganised and rather simplistic answers. Many answers listed impacts such as overcrowding, crime and unemployment without explanation or exemplification. The better

answers contextualised the types of migration and the types of receiving countries and were able to demonstrate both positive and negative outcomes.

Question 6

(a)   Virtually all candidates correctly identified Limpopo.

(b)   Many candidates merely repeated the percentage of the population living in shanty towns for each of the provinces. The better answers realised that there was little overall spatial pattern, though the lowest was in the north of the country, and organised the provinces into those showing higher than average percentages, median percentages and lower percentages.

(c)   The term residential segregation was not understood by many candidates who wrote about rural to urban migration. Even those who did understand the term often did not distinguish residential segregation beyond the location of rich and poor housing, contrasts which often were not made specific to LEDCs. Better answers discussed the influence of socio-economic status, religion, race and ethnicity. They also emphasised their points with appropriate exemplification drawn from cities in LEDCs.

Section B

Question 7

This was the most popular of **Section B** questions.

(a) (i)   Most candidates demonstrated a broad understanding of infiltration and percolation, but the definitions often lacked precision. Many definitions of infiltration needed a reference to the surface of the soil, whilst percolation often omitted either means of water flow or its direction.

(ii)   The understanding of overland flow has improved markedly with many candidates able to distinguish between Hortonian and saturation overland flow, even though this distinction was not required for full marks.

(b)   This was often poorly executed due to inappropriate selection of land forms and/or weak, inaccurate diagrams. Many selected landforms such as waterfalls, deltas, or braided channels. Even those selecting river cliffs, point bars, cut-offs, pools and riffles produced little by way of explanation. Much credit could have been achieved by use of clear, simple and well annotated diagrams describing the land forms and the effects of channel flows.

(c)   Many responses concerned themselves entirely with catchment conditions that might enhance flooding, such as impermeable soils, lack of vegetation, steep slopes and urbanisation. The significance of water inputs into the catchment system in the form precipitation or spring melts was often not mentioned. If candidates could be encouraged to view river catchments as systems with inputs, flows, stores and outputs then they would find it easier to organise their answers. Better answers identified causes of floods as intense storms, monsoons, sudden spring melts and explained ameliorative action in terms of the controls of flow accompanied by some debate as to their effectiveness. Weaker answers merely suggested a cessation of those human activities that they saw as the cause of floods (e.g. deforestation/ urbanisation).

Question 8

(a)   Whilst there has been some improvement in the understanding of lapse rates, many candidates still need to be more exact in their definitions to gain full marks.

(b)   Stability was generally well understood and accompanied by appropriate diagrams. Conditional instability remains problematic and is little understood by many candidates. Often, absolute instability was shown in a diagram instead of conditional instability. The problem appears to be that many candidates do not understand that conditional instability begins in circumstances of stability. It is only the <u>forced</u> ascent of air that brings about instability after the condensation level.

(c)   Answers were very wide ranging as the question allowed. Candidates are generally happier dealing with the effects of global warming rather than its causes. The weakness of some answers was a failure to link the effects (e.g. sea level rise) with global warming. Better answers not only

forged and exemplified such links, but also achieved a more balanced description of climatic and other global warming effects. Level 3 answers were also able to indicate those effects that they felt were to be most likely.

Question 9

Relatively unpopular.

(a)   Descriptions of mass movements have improved but there is still a lot of uncertainty about the processes involved. This was particularly the case with heave which was often seen as being indistinguishable from creep.

(b)   Better answers made good use of annotated diagrams to illustrate slides and flows and also indicate their impact upon slopes. The processes were not well understood by many, particularly the triggers for mass movement, shear stress and strength, and the impact of pore water pressure. Any connection between slope gradient and mass movement was only indicated in the better answers.

(c)   Plate tectonics remain a popular area with many candidates but the process of subduction and resultant landforms were often poorly described and explained. Better answers had clear diagrams distinguishing between continental and oceanic plates and linking subduction with landforms such as ocean trenches, island arcs, volcanoes and fold mountains. Such answers also linked the explanation of subduction to the landforms created. Weaker answers were confused about the meaning of subduction. They also needed to describe the landforms produced.

Section C

Question 10

By far the most popular question in this section.

(a) (i)   Most gained at least two marks for the definition. The most common omission being <u>average</u> number of years.

   (ii)   Some candidates lost marks through a misreading of the question. Many described the physical characteristics of an aged person or the economic impacts of an ageing population rather than the demographic characteristics of an aging population.

(b)   A surprising number of answers did not address life expectancy but rather traced changes in vital rates over time within the demographic transition model. Others explained increases in life expectancy in very general terms due to advances in the availability of health care. Better answers were those that took an example (often local) and traced the impact of improvements in diet, health, sanitation and education over time. They also postulated the possibility of declines in life expectancy due to the impact of HIV / AIDS, obesity, war and famine.

(c)   This part-question was generally well answered with most candidates gaining at least Level 2 credit. Most answers were aware of the increasing economic burden imposed by an ageing population upon a diminishing workforce. Good responses related this to declining birth rates, greater longevity and the resultant financial burden of pension provision. Weaker accounts concentrated upon the need for care homes, wheelchairs and zimmer frames. Level 3 responses addressed management issues such as encouragement of in-migration or the adoption of pro-natalist policies and the extension of pension age qualification.

Question 11

(a)   Many answers produced a list of different types of migration, often straying from internal to international migration. Many descriptions did not extend beyond rural to urban migration and were not developed by exemplification.

(b)   Most answers did not recognise the significance of the word 'increase' in the question. Answers were thus frequently framed in terms of the reasons for rural to urban migration and repeated much of the material in **(a)**. Better answers were those that recognised the impact upon migration of

increased mobility, education, the lowering of social ties of family, as well as the increased opportunity for enhancing income. These were illustrated by a few well chosen examples.

(c)   Most obtained some credit from answers that outlined the negative impacts upon source areas of migration. Weaker responses tended to simplify and overstate these impacts suggesting that such areas could become deserted or inhabited only by children and the aged. Better answers produced a more balanced assessment with both positive and negative outcomes spanning economic and social aspects. These accounts tended employ well developed (and often local) examples.

Question 12

This was the least popular question within **Sections B** and **C**.

(a) (i)   Spatial competition was often not understood in terms of bids (competitive) for the use of space (e.g. CBD).

   (ii)   The effects of competition upon the CBD were not identified beyond high costs. It might have been expected that candidates would refer to such features as high rise development, dense land use, rapid building replacement through a highly active property market.

(b)   The location of retailing was only described as central (CBD) or local (the corner shop). No account was made of the importance of profitability, space or access. It might have been expected that the emergence of peripheral shopping malls, markets and the like would have been developed.

(c)   A very broad question that produced only narrow answers. Few answers went beyond increasing population and overcrowding. Problems associated with increasing urbanisation, renewal of infrastructure, limits of finance, and globalisation could have been developed. The question could also have been answered by addressing the decline of industry and the effects that has had on urban areas such as Detroit.

GEOGRAPHY

> **Paper 9696/21**
>
> **Physical Geography**

Key messages

- It is essential that candidates focus on the physical geography as well as the impact of human activities.
- Candidates should make more use of the resources provided in half of the questions, especially where direct questions are based on the resources.
- Candidates need to take note of command words: on many occasions the requirement to explain or evaluate were ignored.

General comments

Many candidates were able to demonstrate good levels of physical geographical knowledge and the ability to debate spatial issues raised by the application of physical processes to human activities. As has been the case in the recent past the majority of candidates selected to answer questions from only the coastal and hazardous environments. It is regrettable that such a narrow range of questions are attempted, particularly as many candidates will have had first hand experience of tropical or semi-arid environments.

Many of the questions allowed candidates the opportunity to demonstrate their understanding of the processes of physical geography and the extent to which these processes are influenced by human activities. In many instances, candidates did not achieve a balance between these two elements. Many concentrated on the human applications rather than their physical geographical underpinnings, which severely restricted the amount of credit that can be obtained in a physical geography examination. This was most, but not exclusively, evident in the hazardous environment questions. Thus, on this paper, in **Question 6**, the causes of earthquakes and the physical factors influencing their hazardous nature often received relatively scant attention as compared to the human factors.

Half of the questions (one in each environment) are accompanied by resource material which is often under exploited by the candidates answering these questions. Frequently the answers merely acknowledged the topic of the resource and then made no further reference to the resource material throughout the answer. The resource usually contains material that can be employed in framing the answer. Thus in Fig. 1 (**Question 1**) the relative sizes of the stores and flows should have been utilised. In Photograph A, the location and extent of the coral formations could have been integrated with an explanation of the conditions favouring coral development. In Fig. 2 (**Question 5**) the direction and frequency of the hurricanes was often ignored as was the extension of the pediment to produce residual hills in Fig. 3 (**Question 7**).

Candidates often displayed good factual knowledge but did not gain full credit for it due to it not addressing the command words in the question. This is seen most frequently in a lack of explanations. Thus in **Question 3 (a)**, for example, many were able to provide impressive numbers of conditions favouring coral growth without ever providing any explanation. Similarly in **Question 8 (a)** most answers recognised the importance of over grazing to the development of desertification, but then needed to explain how the loss of vegetation and roots could lead to the vulnerability of soils to removal by wind or flash flooding.

There were some outstanding uses of case studies, such as the Dorset coast in **Question 3(b)** and **4(b)**. These were well observed and intelligently adapted to the requirements of the question. In many cases, however, exemplification and case studies are a problem. Often the example has been learnt and is regurgitated with little attention to the demands of question, or is a vague recall of a text book example. Clearly candidates fare far better when dealing with examples drawn from environments they themselves have experienced.

Rubric infringements were minimal and the general use of English and clarity of handwriting, particularly amongst candidates whose first language is not necessarily English, remains impressive.

Comments on specific questions.

Tropical environments

A sadly neglected study area, with few answers to **Question 1** and very few to **Question 2**

Question 1

(a)   The general movement of nutrients within the tropical rainforest environment was usually described with some accuracy. Few answers made full us of the Gersmehl diagram (Fig. 1). This could have been employed to explain the relative sizes and significance of the stores as well as the flows. Most were aware of the inputs and outputs to the system, but did not explain their impact in any detail.

(b)   Most candidates gained credit for detailed descriptions of the structure of tropical rainforest vegetation accompanied by well constructed diagrams. Better answers were those that demonstrated a clear appreciation of the influence of climate upon the nature of the vegetation. Thus they explained how climate could encourage photosynthesis and thus continuous growth. They explained the role of light in producing differing vegetation and vegetation adaptations within the tropical rainforest structure. Some even explained the roles of soil and altitude. Weaker answers did not develop climate much beyond 'hot and wet' and the vegetation response in terms of buttress roots and drip tip leaves.

Question 2

There were so few answers seen it is difficult to provide general comments. However it was expected that in:-

(a)   Candidates would have addressed the mineralogy and structure of granite, emphasising the role of jointing. In hot, humid climates hydrolysis would be active allowing the development of deep regoliths aided by humic acids derived from the abundant vegetation.

(b)   Candidates would explain how the infertile and coarse grained nature of latosols together with the seasonality of rainfall makes cultivation of these savanna areas difficult. Many of these areas are fragile environments with relatively low carrying capacities. Any development should recognise these limitations and perhaps could have been illustrated by a case study.

Coastal environments

A very popular environment answered by a very high proportion of all candidates.

Question 3

(a)   The conditions that encourage the growth of coral in tropical seas are now well known by many candidates who gained credit by listing the various conditions. Many answers, however, lacked any explanation as to how these conditions affected coral. They also tended to ignore the photograph beyond a mention of the existence of reefs close to the coast. Better answers described the discontinuous nature of coral growth along the coast, the shallow depths of apparently clear water and identified the reefs as fringing reefs. These responses also explained the conditions in terms of the needs of coral polyps and the algae, along with the general requirements for photosynthesis.

(b)   Most candidates gained credit for their descriptions of the factors that can influence the development of cliffs. Thus geology, marine processes and subaerial weathering were outlined often in very general terms. Unfortunately, only the better responses related these factors to cliff profiles, a requirement that was clearly stated in the question. The better answers used diagrams of profiles to illustrate the importance of rock type, structure (dip) and erosional history. Some very well developed answers also included slumping and explained how cliff profiles declined as cliff foot processes diminished such as after the creation of a wide wave cut platform.

Question 4

(a)   Dunes were the favoured choice and there were a number of good responses. The better answers described formation as the accumulation of sand sources through the operation of longshore drift, constructive waves and a large tidal range to expose beaches. The operation of the wind to produce stages of dunes from embryo through to grey dunes was explained as was the role of vegetation and the water table.

Saltmarshes were less popular and generally less well explained. Most described the significance of spit development in the formation of saltmarshes, but were far less clear on the role of tidal ranges, entrapment of sediment, flocculation and the type and development of vegetation.

(b)   There were some instances of the outstanding use of case studies in response to this question. For example, the use of part of the Dorset coast to illustrate the interplay of wave action, geology, marine processes and weathering in producing its characteristic landforms. Unfortunately such answers were relatively rare and most relied upon generic descriptions of landforms such as stacks and stumps or spits and bars which were then vaguely assigned to marine erosion or deposition. Very few answers addressed the extent to which these landforms were the result of the waves present and the contribution that was made by geology or weathering. This was required to achieve the highest levels.

Hazardous environments

Easily the most popular study area with questions answered by virtually all candidates.

Question 5

(a)   Many answers lacked clarity or organisation in the description of the distribution of areas at risk from hurricanes. A lot of information was available from Fig. 2 which was not well exploited. The locations of the coasts most at risk in the northern and southern hemispheres, the direction and frequency of the storms were frequently ignored. Explanations were a little more successful, but too often were disorganised and partial in their coverage. The importance of high sea temperatures was generally recognised, but candidates needed to explain the links between that and the areas at risk.

(b)   Many candidates had excellent examples available to them on hurricanes, but did not always apply the example(s) to the question. For example, some candidates had clearly prepared very detailed studies of the methodology of hurricane prediction whilst others described in great detail the events surrounding hurricane Katrina. In both cases, however, many did not address the issues of the extent to which it is possible to manage the resultant hazards. Better answers tended to concentrate upon specific hazards such as storm surges, torrential rain and high winds and provided examples and judgements upon the success with which they have been approached. Weaker answers were totally unspecific as to the nature of the hazards and just dealt in generalities of response such as evacuation, re-housing and the like.

Question 6

(a)   Most candidates gained some credit for a general association of earthquakes with plate boundaries, but very few could give any clear explanation of the causes of earthquakes or explain why some earthquakes occur in areas not immediately adjacent to plate boundaries. Better answers focused on the build up of stress along fault lines with its sudden release bringing about displacement.

(b) Many candidates dived straight into accounts of the human responses to earthquake hazards. Some credit was gained for explanations of methods of earthquake prediction, although its efficacy was frequently wildly overestimated. Other activities, such as the engineering of buildings, land use planning, practicing earthquake drills and evacuation were similarly detailed. The better answers were those that considered both the physical and human aspects of the question and carefully planned and organised their response. Physical aspects such as the strength, depth, closeness to the epicentre, aftershocks and the time of earthquake occurrence were considered as well as the local terrain that might induce landslides and liquefaction. These accounts usually employed good exemplification in their descriptions of both the human and physical factors. They also answered the question set by assessing the relative importance of physical and human factors.

Arid and semi-arid environments

Answered by only a few Centres, whose candidates at times produced very good answers to **Question 8**

Question 7

Few answers were seen to this question making generalisations difficult.

(a)   Weathering, beyond that of thermal fracture does not appear to be very well understood in the context of arid or semi-arid environments. The role of water in the form of dew, condensation or episodic rain is usually overlooked and hence salt crystallisation or the slow operation of some chemical weathering is ignored. The products of the weathering in terms of sheeting, granular and block disintegration are also rarely mentioned.

(b)   The few answers seen largely ignored Fig. 3, apart from the extraction of the names playa lake and alluvial fans. These were then described in a rather vague manner and their formation ascribed to a rather unspecific process involving water action. It was anticipated that answers would focus upon the role of both weathering and water action in producing the landforms that characterise desert piedmont zones and not solely those named in the diagram. Thus free faces, pediments and bahadas would all be explained and described as well as playa lakes.

Question 8

The preferred choice of question with some excellent use of case studies.

(a)   Many answers appeared unclear as to the nature of desertification, seeing it merely as environmental deterioration induced by overgrazing.   Better answers defined and located desertification and explained its development as a combination of both human activities and physical processes such as drought and climate change. The consequences were demonstrated as the loss of top soil, dune invasion, dust storms and environmental degradation with inevitable implications for human occupation.

(b)   There was a wide range of responses. The weaker answer described some generic attempts to develop arid areas through irrigation via such things as the Aswan dam. Better answers utilised case studies that included both or one of an arid or semi–arid area.   By and large those concentrating on semi-arid environments were more successful (e.g. examples chosen from Jordan, Australia, Aral Sea area) although there were one or two excellent assessments of schemes in the Negev. Occasionally, candidates described the nature of the schemes in some detail but lost sight of the question, which concerned the management of such environments.

GEOGRAPHY

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Paper 9696/22

Physical Geography
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Key messages

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General Comments

Some individual candidates from a wide range of Centres were able to demonstrate a firm grasp of the processes of Physical Geography and applied these to human situations in terms of environmental management. Other candidates struggled to show a comprehension of physical processes and tended to rely on examples of human activities to earn credit. This often manifested itself in very short answers to part **(a)** of many questions in an attempt to concentrate on the more human oriented part **(b)**. Even here, however, the physical underpinnings were not clearly explained which restricted the amount of credit that could be obtained.

The trend, noted in previous examinations, for candidates to concentrate their choice upon the two study areas of coastal and hazardous environments continued and, if anything, increased this year. The avoidance of Tropical environments, in particular, was disappointing in that so many of the Centres are located in such environments. This has led many candidates, particularly in the case of coastal questions, to employ only partially comprehended examples from areas distant from their own locality. Although the compass of an A Level syllabus is clearly global, opportunity is always given for, and Examiners will always reward, the use of well developed local examples.

Candidates who selected questions that had resource material attached, frequently needed to make greater use of the information contained within the resource. Often, candidates merely noted the topic of the resource and then proceeded to answer the substance of the question with no further reference to the resource. Thus in **Question 3(b)** many answers dealt with the general processes of marine erosion without relating them to the evolution of the landforms shown. In **Question 5(a)** the magnitude of the earthquakes was often ignored as was the general nature of their distribution. Candidates should be encouraged to make greater use of the resource to both structure and frame their responses.

At times candidates did not fully capitalise on the sound geographical knowledge that they possessed. This was often because they did not pay due attention to the questions being asked. Thus in **Question 4(a)** many answers described constructive waves in some detail, but did not explain their generation or describe their effects upon beaches. Similarly, in **Question 6(a)**, many accounts were given of the nature of hurricanes but did not provide any explanation.

Whilst there were many candidates who employed exemplification in an appropriate and accurate manner, there were some occasions where the exclusive use of a case study inhibited the answer. This was most evident in the questions on hazardous environments. Thus in **Question 5(b)** the events of the eruption of Mount St Helens were detailed with little reference to the measures that could be taken to reduce the hazardous impacts. Similarly, in **Question 6(b)**, Hurricane Katrina was described with little reference to either prediction or attempts to limit the hazardous effects.

Rubric infringements were rare and the general quality of English and the clarity of the handwriting was admirable.

Comments on specific questions

Tropical environments

Question 1

(a)   Soils do not appear an area of the syllabus to which most candidates devote much attention. Many only made a cursory attempt at this part of the question, devoting most of their effort to part **(b)**. Some credit was obtained by the linking of pH values to colour and mineral content. Very few answers demonstrated an understanding of soil forming processes or even the impact of climate in promoting rapid chemical weathering and hence deep regolith profiles.

(b)   There were some good answers that made effective use of examples of management strategies employed in the tropical rainforest ecosystem, such as selective logging, controlled cultivation and ecotourism. One particularly excellent case study was made of Madagascar. The better candidates framed their answers by considerations as to levels of sustainability. No answers were seen that selected savanna ecosystems, although it might have been anticipated that such responses would have concentrated on the control of grazing and the sustainability of safaris and ecotourism.

Question 2

(a)   Whilst there was some understanding of nutrient cycling in the tropical rainforest, whilst the model of nutrient cycling in the savanna was not well comprehended or studied. Credit could be gained through the accurate depiction of a Gersmehl diagram with explanation of its operation in tropical environments. A diagram to illustrate interruptions to the nutrient cycle by activities such as clearance and cropping would also have gained credit.

(b)   The accounts of the nature and particularly the effectiveness of weathering were very limited. Most recognised the importance of chemical weathering under conditions of high temperatures and precipitation, but were unable to develop the processes much further. The only attempts at seasonally humid environments seen made brief reference to heating and cooling of rocks. Most answers did not explain the landforms developed in either granite or limestone that resulted from weathering processes. The role of rock jointing was usually overlooked.

Coastal environments

A very popular study area answered by a high proportion of candidates.

Question 3

(a)   The diagram provided by Fig. 2 could have been used to organise an answer, such that the processes leading to the sequence of landforms developed on a headland that resulted in stacks, stumps and a wave cut platform. Most answers, however, treated each landform in turn usually starting with a cave. Marine processes were thus often repeated as each landform was approached, but often little was made of either the geology or of the possible role of weathering. Better answers were those that referred to headlands, emphasised the role of blocky jointed rocks allowing the opening up of fault lines by refracted wave action.

(b)   To many candidates the terms human interference and coastlines automatically brings a response of hard engineering methods of coastal protection. In the case of depositional landforms, as in this question, such responses were of very limited relevance. Better answers focused upon depositional landforms such as spits, bars, dunes and saltmarshes, but were often not able to make any judgment concerning the balance between human activities and physical processes. One or two answers were framed in terms of sediment cells and thus the impact of human interference in terms of supplies of sediment and its deposition. There were particularly good accounts of sediment cells in Christchurch Bay.

Question 4

(a)   There were some very good answers that described wave generation, accurately illustrated destructive and constructive waves and were able to describe their impact upon beaches. These answers realised constructive waves break on a gentle sloping beach, but gradually build the beach up due the deposition of sediment. Storm beaches were described as were berms and breakpoint bars. The majority of answers, however, gained limited credit for a description of constructive and destructive waves with only confused descriptions of the impacts upon beaches.

(b)   Sustainability in terms of coastal management is not well understood as most appear to define it only in terms of measures taken to encourage coastal protection. This results in accounts of hard engineering methods such as gabions, rip-raps, groynes and occasionally soft engineering solutions such as beach nourishment. The better answers did manage to put these into the context of actual coastal management schemes such as those for the Holderness or East Sussex coastlines that were drawn from text book examples. It was pleasing to note that some candidates did employ local examples of attempts at coastal management.

Hazardous environments

As always by far the most popular environment, the questions being answered by a very high proportion of all candidates.

Question 5

(a)   Many candidates experience difficulties in describing distributions, as they are unwilling to generalise. Beyond this they need to describe specific aspects of the distribution. In this case, most realised there was some approximation to plate boundaries, but were uncertain as to what types of boundary or as to where the majority of the earthquakes were occurring. Describing in terms such as 'around the margins of the Pacific …' would have gained some credit. Only the better answers explained the nature of an earthquake and how it was linked to the release of stress along fault lines. Few stated that earthquakes were a series of vibrations or shocks that travel through the crustal rocks at varying speeds and in different ways.

(b)   There were some good responses that addressed both the type of hazardous material and the hazardous effect that it produced. This then led the answer on to consider ways in which these hazardous effects could be reduced, such as through prediction and evacuation as well as such things as lava dams. Assessment was made of the success of such actions by citing examples. Weaker answers described the products of volcanic eruptions with little indication as to their hazardous nature. The measures taken to reduce the effects were similarly limited as was any level of assessment.

Question 6

Less popular than **Question 5** and often less well answered.

(a)   The nature of hurricanes was surprisingly poorly expressed. In many answers the descriptions of hurricanes did not extend much beyond high winds and rainfall within an intense low pressure system. Similarly, the general distribution was merely described as occurring in warm tropical areas beyond 5 degrees north and south of the equator. There was a general lack of detail which was only supplied by the fewer better answers. Some of these illustrated their answers with good diagrams demonstrating the scale, cloud patterns, winds and precipitation of a hurricane and were able to identify and explain the locations where they were most frequent.

(b)   Only relatively few answers gave any accurate assessment of the success and limitations of prediction. Most stated the means of attempting predictions, through the use of satellites, aircraft and computers, but gave little indication as to how these methods were employed. The problems of tracking and the identification of when and where landfall would occur were thus overlooked. Much more was written on attempts to limit loss of life through building construction (houses and levées), first aid training and provision of shelters. Little or no consideration was given to the hazards to which these actions were addressed. Better answers tended to outline the hazards such as mud flows, storm surges, high winds and torrential rainfall and then to assess the various attempts at limiting loss of life through evacuation, sea wall construction, land use planning, planting mangroves, etc.

Arid and semi-arid environments

There were few answers to this section of the paper.

Question 7

(a) It was expected that descriptions should include all of the types of dunes shown in Fig. 4 with some detail concerning scales and locations. Wind direction should feature strongly in the explanations which should also make mention of topographical and vegetational influences.

(b) The environmental problems should be detailed, that is aridity, episodic and unreliable rainfalls and the general nature of arid soils. Thus carrying capacities are low and sustainability easily breached. This could be illustrated with reference to examples of attempts at development that have either managed these environments with some degree of sustainability or, at the other extreme, caused irreversible damage.

Question 8

(a) There were a handful of good answers that classified plant adaptations into categories such as xerophytes, phreatophytes, salt toleration and behavioural adaptations such as perennials and seasonal plants that adjust to water supply. Weaker answers developed little beyond xerophytic adaptations, such as cacti.

(b) The sources of water supply in deserts was not well understood. Many descriptions did not develop beyond exotic rivers, oases and unspecified 'underground' supplies. The nature of rainfall in deserts was rarely discussed and the role of ephemeral, short lived streams was not recorded. The fossil nature of desert aquifers could have been explained as could the existence of dew. Sustainability should have been addressed in terms of the water requirements of cultivation and differing human activities and perhaps illustrated by exemplification from say the Colorado or Nile.

GEOGRAPHY

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Paper 9696/23
Physical Geography
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Comments on specific questions

Tropical environments

Question 1

(a)   Soils do not appear an area of the syllabus to which most candidates devote much attention. Many only made a cursory attempt at this part of the question, devoting most of their effort to part **(b)**. Some credit was obtained by the linking of pH values to colour and mineral content. Very few answers demonstrated an understanding of soil forming processes or even the impact of climate in promoting rapid chemical weathering and hence deep regolith profiles.

(b)   There were some good answers that made effective use of examples of management strategies employed in the tropical rainforest ecosystem, such as selective logging, controlled cultivation and ecotourism. One particularly excellent case study was made of Madagascar. The better candidates framed their answers by considerations as to levels of sustainability. No answers were seen that selected savanna ecosystems, although it might have been anticipated that such responses would have concentrated on the control of grazing and the sustainability of safaris and ecotourism.

Question 2

(a)   Whilst there was some understanding of nutrient cycling in the tropical rainforest, whilst the model of nutrient cycling in the savanna was not well comprehended or studied. Credit could be gained through the accurate depiction of a Gersmehl diagram with explanation of its operation in tropical environments. A diagram to illustrate interruptions to the nutrient cycle by activities such as clearance and cropping would also have gained credit.

(b)   The accounts of the nature and particularly the effectiveness of weathering were very limited. Most recognised the importance of chemical weathering under conditions of high temperatures and precipitation, but were unable to develop the processes much further. The only attempts at seasonally humid environments seen made brief reference to heating and cooling of rocks. Most answers did not explain the landforms developed in either granite or limestone that resulted from weathering processes. The role of rock jointing was usually overlooked.

Coastal environments

A very popular study area answered by a high proportion of candidates.

Question 3

(a)   The diagram provided by Fig. 2 could have been used to organise an answer, such that the processes leading to the sequence of landforms developed on a headland that resulted in stacks, stumps and a wave cut platform. Most answers, however, treated each landform in turn usually starting with a cave. Marine processes were thus often repeated as each landform was approached, but often little was made of either the geology or of the possible role of weathering. Better answers were those that referred to headlands, emphasised the role of blocky jointed rocks allowing the opening up of fault lines by refracted wave action.

(b)   To many candidates the terms human interference and coastlines automatically brings a response of hard engineering methods of coastal protection. In the case of depositional landforms, as in this question, such responses were of very limited relevance. Better answers focused upon depositional landforms such as spits, bars, dunes and saltmarshes, but were often not able to make any judgment concerning the balance between human activities and physical processes. One or two answers were framed in terms of sediment cells and thus the impact of human interference in terms of supplies of sediment and its deposition. There were particularly good accounts of sediment cells in Christchurch Bay.

Question 4

(a) There were some very good answers that described wave generation, accurately illustrated destructive and constructive waves and were able to describe their impact upon beaches. These answers realised constructive waves break on a gentle sloping beach, but gradually build the beach up due the deposition of sediment. Storm beaches were described as were berms and breakpoint bars. The majority of answers, however, gained limited credit for a description of constructive and destructive waves with only confused descriptions of the impacts upon beaches.

(b) Sustainability in terms of coastal management is not well understood as most appear to define it only in terms of measures taken to encourage coastal protection. This results in accounts of hard engineering methods such as gabions, rip-raps, groynes and occasionally soft engineering solutions such as beach nourishment. The better answers did manage to put these into the context of actual coastal management schemes such as those for the Holderness or East Sussex coastlines that were drawn from text book examples. It was pleasing to note that some candidates did employ local examples of attempts at coastal management.

Hazardous environments

As always by far the most popular environment, the questions being answered by a very high proportion of all candidates.

Question 5

(a) Many candidates experience difficulties in describing distributions, as they are unwilling to generalise. Beyond this they need to describe specific aspects of the distribution. In this case, most realised there was some approximation to plate boundaries, but were uncertain as to what types of boundary or as to where the majority of the earthquakes were occurring. Describing in terms such as 'around the margins of the Pacific …' would have gained some credit. Only the better answers explained the nature of an earthquake and how it was linked to the release of stress along fault lines. Few stated that earthquakes were a series of vibrations or shocks that travel through the crustal rocks at varying speeds and in different ways.

(b) There were some good responses that addressed both the type of hazardous material and the hazardous effect that it produced. This then led the answer on to consider ways in which these hazardous effects could be reduced, such as through prediction and evacuation as well as such things as lava dams. Assessment was made of the success of such actions by citing examples. Weaker answers described the products of volcanic eruptions with little indication as to their hazardous nature. The measures taken to reduce the effects were similarly limited as was any level of assessment.

Question 6

Less popular than **Question 5** and often less well answered.

(a) The nature of hurricanes was surprisingly poorly expressed. In many answers the descriptions of hurricanes did not extend much beyond high winds and rainfall within an intense low pressure system. Similarly, the general distribution was merely described as occurring in warm tropical areas beyond 5 degrees north and south of the equator. There was a general lack of detail which was only supplied by the fewer better answers. Some of these illustrated their answers with good diagrams demonstrating the scale, cloud patterns, winds and precipitation of a hurricane and were able to identify and explain the locations where they were most frequent.

(b) Only relatively few answers gave any accurate assessment of the success and limitations of prediction. Most stated the means of attempting predictions, through the use of satellites, aircraft and computers, but gave little indication as to how these methods were employed. The problems of tracking and the identification of when and where landfall would occur were thus overlooked. Much more was written on attempts to limit loss of life through building construction (houses and levées), first aid training and provision of shelters. Little or no consideration was given to the hazards to which these actions were addressed. Better answers tended to outline the hazards such as mud flows, storm surges, high winds and torrential rainfall and then to assess the various attempts at limiting loss of life through evacuation, sea wall construction, land use planning, planting mangroves, etc.

Arid and semi-arid environments

There were few answers to this section of the paper.

Question 7

(a)   It was expected that descriptions should include all of the types of dunes shown in Fig. 4 with some detail concerning scales and locations. Wind direction should feature strongly in the explanations which should also make mention of topographical and vegetational influences.

(b)   The environmental problems should be detailed, that is aridity, episodic and unreliable rainfalls and the general nature of arid soils. Thus carrying capacities are low and sustainability easily breached. This could be illustrated with reference to examples of attempts at development that have either managed these environments with some degree of sustainability or, at the other extreme, caused irreversible damage.

Question 8

(a)   There were a handful of good answers that classified plant adaptations into categories such as xerophytes, phreatophytes, salt toleration and behavioural adaptations such as perennials and seasonal plants that adjust to water supply. Weaker answers developed little beyond xerophytic adaptations, such as cacti.

(b)   The sources of water supply in deserts was not well understood. Many descriptions did not develop beyond exotic rivers, oases and unspecified 'underground' supplies. The nature of rainfall in deserts was rarely discussed and the role of ephemeral, short lived streams was not recorded. The fossil nature of desert aquifers could have been explained as could the existence of dew. Sustainability should have been addressed in terms of the water requirements of cultivation and differing human activities and perhaps illustrated by exemplification from say the Colorado or Nile.

GEOGRAPHY

Key messages

- Attention needs to be given to the topics included in the syllabus since the revision of 2010. For example, some candidates seemed unprepared to write about global water demand in **Question 4(b)** and the debt crisis in **Question 6(b)**.
- In preparing for the examination, the whole content of the chosen Option needs to be taught and learned as Setters may set questions in different ways. For example, **Global interdependence** did not contain a whole question on tourism this session.
- Examples are required in all responses. In many parts **(a)** a maximum of 6/10 applies to responses without examples. A descriptor about general responses is found in Level 1 for parts **(b)**.
- Credit is derived from addressing the question using its own terms. For example, the most effective responses to **Question 7(b)** on globalisation adopted its language of "winners" and "losers", rather than the standard evaluative framework of advantages and disadvantages.

General comments

Some impressive geography, and much able interpretation and reflection on the world of the 21st century, underline the way in which 9696 can help prepare candidates as global citizens. This is as true for issues of agricultural change (**Question 1**), energy needs (**Question 3**) and aid (**Question 5**) as it is for globalisation (**Question 7**). Skills in interpreting the contemporary world geographically, whether the candidate's home country, or in relation to global issues such as these, are both to be encouraged in candidates and highly creditable in the examination.

Those candidates who spend approximately 45 minutes answering each, perform best. Within a question, more time should be spent planning and producing a response to part **(b)**, (15 marks), than to part **(a)**, (10 marks).

It is important to train candidates to break down the question into its key constituent elements, such as command word, key idea(s) and scale/context. This achieves three things. Firstly, it helps to sort material and to decide what is relevant to include and what is not relevant and should, therefore, be left out (even though this material has been learned and is, perhaps, considered interesting). Secondly, it may mean that all the aspects of the question can be addressed in a reasonably balanced manner. Thirdly, it helps to ensure that the nature of the response reflects the nature of the question; for example, the command word 'Consider' requires a different kind of writing from the command word 'Explain'.

It is worth restating that Examiners do not expect any particular viewpoint, perspective or position on an issue to be taken by candidates. This is true across all the Options, for example in relation to the difficulty of meeting the global demand for water in **Question 4**, or the extent to which tourism is a sound foundation for economic development in **Question 6**. At this level analysis and argument rest on evidence, and in geography, that evidence, those examples and cases, vary between candidates, Centres and countries as much as viewpoints may do. Credit is given for the way that evidence is given and for the way that, from it, an argument – and perhaps a counter-argument – is developed and structured and a conclusion reached. It is also the case that Examiners treat content about all countries in the same manner. In particular this means neither rewarding UK content particularly, nor applying to it standards that are harsher than, say, if the case study was of Mexico or Indonesia.

Comments on specific questions

Production, location and change

This Option remains popular amongst Centres in Africa and the Caribbean. Some effective work was seen using home country content as the basis of responses to the parts **(b)**.

Question 1

Many satisfactory responses were seen and a few very good ones. At the lower end, candidates seemed to depend on the resource, Fig. 1, to gain credit and offered valid but general content in response to part **(b)**, when located examples of actual changes in agriculture were required.

(a) (i) This straightforward demand was met readily by most candidates and some very good answers were seen which gave both an overview of growth and differentiated the trends of different world regions. It was important to use data to support observations made and to do more than identify the highest trend (Latin America) and the lowest (MEDCs).

(ii) The command word 'Outline' may have suggested to candidates that a brief response was expected. However, with a mark allocation of 6 marks, meaning at least 10 minutes of writing time, that was not the case; it was more that reasoning (explanation) was the focus. Some made note-form responses or used bullet points. This could mean that the "reasons" were insufficiently developed to gain the second mark of the two available in each case. Although asked for "three reasons", some candidates gave more than three, which left the Examiner to choose. All regions shown had growth in food production projected and region-specific reasons were not expected. Responses varied, but the two most common reasons given were the increasing demand for food as world population grows and the continuing application of agricultural technology, from new varieties of seed to mechanisation.

(b) This broad question allowed candidates to develop an approach of their own, based on the material they had, at any scale. Deconstructing the part-question into its constituent elements shows that all responses needed to be developed on the basis of "one or more examples" and to cover both "some cases" and "others". As such general explanations about relative difficulty and relative ease worked broadly around factors such as climate, government and finance, did not score highly. The Green revolution in India was an effective foundation for some good responses, as was agricultural change since 1980 in Zimbabwe. Some other responses were rather stereotyped, claiming that everything about agricultural change in MEDCs is easy whilst most agricultural change in LEDCs is difficult. This is both mistaken and not an authentic critical approach to the subject of geography at A Level.

Question 2

Only a few responses were seen. Outcomes were bipolar in nature; notably good, or weak and fragmentary.

(a) The question divided naturally into two parts, on economies of scale, and diseconomies. Good responses made clear the key concept underlying both, relating to unit costs. These unit costs are lowered as the scale of operation increases, but then, beyond a certain point, increase again as large scale operations or businesses face challenges and increased costs of communication and decision-making. Lower-scoring responses tended to be firmer in explaining diseconomies of scale and to remain general. This made them subject to a maximum of 6/10 marks, given the wording of the question.

(b) The most effective responses were based on a developed case study of a country, were reasonably balanced between "character" and "location" and focused carefully on the role of the government and success criteria by which its action(s) could be judged. At the lower end, broad responses could have been improved with specific information about the government or with country detail. Some answers were narrow, for example in relation to a single manufacturer or industrial location and would have gained from an introduction giving some wider context.

Environmental management

This remains one of the two most popular Options for the entry to both June and November examination sessions. The majority of responses were to **Question 3**.

Question 3

This combined an unfamiliar resource at the world scale, with the case study of the energy strategy of a named country from Syllabus **2.2**, page 18.

(a)　High-achieving responses described the trends (changes over time) carefully, naming world regions and supporting the description with data (year and MW installed capacity). Many well-reasoned responses were seen, which combined economic, social, environmental and political factors effectively and differentiated between the world regions shown in Fig. 2. Good contemporary detail, for example about the Kyoto Protocol enforced since 2005, or specific government programmes relating to the installation of wind turbines in Europe or China, enhanced some responses. Good marks were achievable by the application of geographical understanding of energy globally, rather than trying to find facts or ideas to explain each trend. It was important to describe the trends as well as to suggest reasons for them, as in the question; otherwise all 10 marks could not be made available. Answer quality could have been enhanced for some by structuring the response more economically. For example, taking each world region separately, with description and reasons, tended to lead to a great amount of repetition. It was, perhaps, natural to deal with the three world regions to the left (Europe, North America and Asia) as a group and the three world regions to the right (Latin America, Africa and Middle East, Pacific) as a group. The expression of the description of the trends revealed that a large proportion of candidates had misread or misinterpreted the statistic as total wind turbine capacity (i.e. cumulative, year on year) or as power production, rather than installed capacity. This made features such as the drop between 2003 and 2004 in North America, or the uneven trend in Latin America, difficult to explain.

(b)　High quality responses (Level 3, 12–15 marks), were characterised by detailed knowledge of a case study, robust conceptual understanding of renewable sources and energy needs; and the ability to select, direct and apply material to respond to the assessment of the actual question set. Case studies varied, with China, France and the UK being deployed effectively. Given the syllabus content, understandably, the generation of electrical energy dominated responses. Many candidates also made reference to the significance of the transport sector, its needs for oil derivatives and the lack of alternatives. Many middle range responses would have benefited from two things. One was a more focused approach to the question, as time was spent reproducing material which was factually correct but not relevant as part of the response. The other was addressing the contribution of non-renewables. Some reached this point in the last few lines, whereas others never did, with the assessment that was offered being partial as a result. For the sake of teachers who are new to 9696, it is worth restating that CIE accepts nuclear energy as either renewable or non-renewable, given its nature. At the lower end of the mark range, some candidates needed a case study at the appropriate scale. Some wrote about a scheme, notably the Three Gorges Dam in China; others produced a list of basic ideas about sources of renewable energy, sometimes with a country example in name only, "e.g. Nigeria". This is one instance where the key message about teaching the whole syllabus content applies.

Question 4

(a)　A simple structure worked best for responses to this part-question and the 'developed list' approach, with introductory and concluding comments, was effective. High quality work was seen taking a single initiative in some detail, such as the Rhine Action Plan, or ranging more widely explaining different measures to reduce pollution such as tightening legislation, education or protecting water sources. Credit was given to material at any spatial scale from that of a water body near a settlement or farm to issues of international waters. The quality of many mid-range responses could have been enhanced by a more direct approach to the question. It was not, on this occasion, necessary to outline what water pollution is or to account for how water becomes polluted; only to "explain how water pollution may be reduced". Time saved could have been used productively on **(b)** or the second question selected. Examiners cannot credit material which is simply true or interesting, rather than pertinent to the question. Knowledge of an example or examples, and less reliance on the deterrent effect of force or severe penalties, would have lifted some responses from achieving only a few marks.

(b) It is widely reported that water is the next global environmental issue of the 21st century after energy and carbon emissions. The first sentence, included as a stimulus, established the context. It is for this reason that the topic of water entered the syllabus in 2010. This open part-question allowed candidates to develop their own approach using the material they had. The best responses recognised and explored two broad areas of concern and difficulty: water quantity and water quality. One aspect of the issue of quantity, the mismatch between availability of water and demand globally, was introduced in a resource which appeared as Fig. 2 on 9696/03 in November 2008. The issue of water quality is familiar from the study of water pollution which has been part of *Environmental management* from the start of 9696. Some high quality work was seen reflecting on both quantity and quality, in the light of climate change, world population growth and the competing demands of different sectors. Other candidates conveyed a sense of difficulty and needed specific support for the factors they identified.

Global interdependence

This remains one of the two most popular Options for the entry to both June and November examination sessions. The majority of responses were to **Question 6**.

Question 5

(a) The key words in this question were "relationships" and "aid". Some outstanding responses were seen which developed a number of different relationships between MEDCs and LEDCs both conceptually and through recent examples of aid being given and received. Whilst not necessary for full credit, some answers contained perceptive interpretations of Fig. 3. In the cartoon, what may be financial or political monoliths in an MEDC are pulled down and/or propped up by the weight of Latin America and Africa, representing LEDCs (and NICs in the former case), attached to the institutions with $-headed screws. Any relationships that could be identified were creditable as the relationships are complex and various. One effective way to respond was to consider two or more "types of aid", such as bilateral aid or emergency/relief aid. Lower-scoring responses showed some knowledge of aid. Attention to "relationships" would have helped, as would the inclusion of specific examples to support and develop general observations.

(b) Cost/benefit analysis (CBA) distinguished some of the responses to this classic question about aid. Some candidates had high order skills in weighing and judging and developed a 'big picture' perspective. They showed command of the subject area in terms both of conceptual understanding and carefully-directed knowledge recall. The issue of dependency was one area to consider. Others included the importance of emergency aid in saving lives at times of disasters such as the Haiti earthquake (2010) and the mismanagement of aid monies. Many low to mid-scoring responses would have benefited from the exclusion of content about trade and about international debt, which, although closely related, was not being examined here. Again, specific located examples with detail, such as a date, would have enhanced many valid, general, answers.

Question 6

The key messages about the importance of teaching all the content of an Option, and about including the material which appeared in the 2010 syllabus for the first time, apply here.

(a) The best responses identified "the debt crisis" correctly as the world situation by the early 1980s when money was owed to MEDCs and institutions such as the IMF by LEDCs in large amounts that they were unable to repay. Some high quality explanations were seen of how this crisis occurred, combining reasons such as large-scale lending, LEDCs' needs to fund development, and poor financial planning or mismanagement. In a context of the world recession of the 1970s and the increase in oil prices of the early 1980s, LEDCs started to default on repayment. Very good explanations included attitudes to both lending and borrowing and some touched on global power structures such as those of the World Bank, as part of *Global interdependence*. Examiners credited other aspect of LEDCs' indebtedness, such as odious debt, but this was subsidiary to the international debt crisis already outlined. Almost all responses would have been improved with some country-specific content as to the size of sums of money involved and the purpose(s) for which the money was borrowed. It was not relevant on this occasion to include material on debt restructuring and debt cancellation.

(b)   Whether tourism is sound – or unsound – as a foundation for economic development was the organising principle of, and clear thread through, some high quality responses. What soundness is in this context was for the candidate to interpret. Its meaning was certainly economic, but many recognised relevant social/ cultural, environmental and political aspects from their studies of tourism, also. Some made links to concepts such as the multiplier effect, leakage and the demonstration effect. Good use was also made by applying the life cycle model of tourism to the issue of soundness, especially in relation to the stages of stagnation and decline. Many recognised the potential of the ideas of fashion, seasonality and different threats, from disease outbreaks to terrorism, as part of their assessment. The quality of some satisfactory responses would have been enhanced by teasing out the idea of "economic development" in the question and by including specific located examples in otherwise general writing. As is often the case, ecotourism provided one interesting element for the assessment.

Economic transition

The full range of answer quality was seen, including some exceptional geography. **Question 7** was chosen more frequently than **Question 8**.

Question 7

Examiners noted that those who read the question carefully and responded to its specific demand did well. For example, in **(a)** an example was asked for in **(ii)** although some only gave one in response to **(i)**. In **(b)** some candidates couched their essays in terms of the advantages and disadvantages of globalisation, whilst the question employed the more judging and interpretative terms "winners" and "losers".

(a)(i)   Most candidates understood the term *foreign direct investment* and explained it appropriately. In a few cases this understanding suffered from being poorly expressed, such as when the aspect of moving from one country to another was omitted. Some included, creditably, the notions of inward FDI and outward FDI and many included transnational corporations (TNCs) in the explanation.

(ii)   Understanding of the new international division of labour (NIDL) was more variable than of FDI. Some effective responses were seen using the required example as the medium for explaining the term. Some examples were in name only "e.g. Nike". Others provided two or three named TNCs when asked for "an example". Many had the correct idea about division of labour but only identified two functions, production (manufacturing or assembly, 'blue collar') and headquarters ('white collar'), when TNCs have complex global production networks involving many functions. One misconception was that the division of labour relates to the primary sector in LEDCs, the secondary sector in LEDCs and NICs, and the tertiary and quaternary sectors in MEDCs. This is unrobust and unreal and was not credited.

(b)   The assessment of uneven development within the world economy and the idea of some groups of people and locations being impacted more than others provided a vehicle for some very good, and some exceptional, geographical writing. A few candidates, for example, identified the environment as one loser and explained the polluting impact of unregulated factories in LEDCs. Other groups of losers identified included poorly paid and unprotected workforces in LEDCs, indigenous manufacturers forced to close through competition and workers made redundant in MEDCs through deindustrialisation. Some well-judged work was seen on the customers and on the profit-maximising TNCs, their employees and shareholders as winners. Better responses handled scale effectively and moved easily from considering the national scale, such as an LEDC attracting TNCs as one route to economic development; to the local scale, or to the single event or incident, such as the Bhopal disaster (1984). Few lower end candidates attempted this question. Level 1 responses tended to develop the idea, in general and unsupported terms, that globalisation is a good/bad idea.

Question 8

This question combined the interpretation of an unfamiliar resource in **(a)** with the classic question about overcoming regional disparities in **(b)**. Some candidates found it easier to respond to the more familiar part **(b)**.

(a)   Some balance between the appraisal of the Human Development Index (HDI) and the representation in Fig. 4, characterised satisfactory to good responses. Some very good perceptive work was seen interpreting both in the light of wider geographical knowledge and understanding both of measures of development and of "studying development". For example it was creditable to observe that HDI is usually given as a national value, not a regional one, or that HDI is regarded as weak on gender, empowerment and political freedom, measures of which are not included. Many commented on the difficulty of any incomplete data set. Some noticed the date in the heading (2001) and a few developed this by identifying India as a BRIC country and emerging superpower in which significant change has occurred in the past decade. Some responses only considered either the index or the map representation. There were misconceptions about what measures make up HDI. At the lower end, ideas were often weak and/or expressed poorly, for example that the map was "bad" or the HDI "perfect". A comparison with **Question 8** on 9696/32, 33 this examination session shows that it was both similar and distinctively different.

(b)   Responses of all qualities demonstrated firm knowledge and understanding of regional disparities conceptually. Quality was determined by the assessment offered and by the use of material about the chosen country to this end. Some moderate responses were limited by inattention to the question which was about "one or more attempts" but "within a (i.e. one) country". Time was wasted covering a second country when Examiners could only credit the better of the two. Other candidates needed to return to the terms of the question, "overcome regional disparities", and address this explicitly at the regional scale, rather than stopping short of this with an assessment of the success of the attempts covered as individual projects or schemes.

GEOGRAPHY

Key messages

- Effective answers result from paying attention to all the key words of a question, such as the command word and the key terms, and styling the response accordingly.
- Detailed case studies are needed to answer many parts **(b)** well. Candidates need to be able to select material from the case study which is relevant to the actual question set.
- Developing skills in evaluation and assessment, and the language to express them, enhances performance in parts **(b)**, in which assessment/evaluation is a key objective.

General comments

The style of questions and of resources would have been mostly familiar to any teacher or candidate who had studied past papers as part of preparation for the examination. The inclusion of two photographs as the resource for **Question 3** was unusual on this paper, although a frequent occurrence on the Paper 2 variants. Candidates responded well to the challenge of interpreting the photographs (see further comments below).

Questions **3** and **4** from *Environmental management* and **Question 6** on tourism from *Global interdependence* were selected the most frequently. Large numbers of responses were seen to all questions across the entry except to **Question 5**.

In **Question 5** the topic of Fair Trade, which was added to the syllabus in 2010 after revision, is not yet firmly understood and confusion between Fair Trade and free trade, which is a different issue, persists. Attention is drawn to one website which may help those teaching Fair Trade in the definitions it offers and the issues it identifies; see http://www.fairtrade.org.uk

Some excellent work was seen combining geographical theory and concepts with contemporary examples and case studies from home country or the world region familiar to candidates. An up-to-date approach to geography is encouraged and some teachers promote the keeping of a journal or folder throughout the course. In this way news items relevant to the chosen 9696 Options can be gathered by candidates from websites, CNN News, BBC News 24 and the press and from other media such as advertising or government publications. This helps to develop the skills of geographical analysis and reflection and supplements material in text books which may be dated.

Comments on specific questions

Production, location and change

Question 1

The question comprised a specific demand in **(a)** and a more open demand in **(b)** to which candidates were free to develop their own approaches. Teachers are encouraged to include both styles of task as part of their preparing candidates for the examination.

(a)   The concept of a systems approach, with inputs, processes and outputs, was understood by most. Better responses applied systems thinking to actual forms of production, such as intensive wet rice cultivation, or extensive livestock production (ranching), some using diagrams similar to that in Fig. 1, effectively. This was both a clear and a time-saving approach to the demand. The command word "compare" involves identifying similarities, such as the nature of inputs, whereas the command word "contrast" means identifying differences, such as the subsistent or commercial nature of the outputs. (NB In many cases the use of the command word 'compare' will require

candidates to discuss similarities and differences.) The highest-scoring responses established the variety of systems classified as intensive and as extensive and were strong conceptually in terms of output per unit area. For example, plantation systems (e.g. rubber) are intensive over large areas of land, whereas most systems operating over large land areas are extensive (e.g. commercial grain production, such as wheat). Weaker responses showed some knowledge of agriculture without embracing a systems approach appropriately. This was seen either by avoiding using a systems approach altogether or by limited ability to apply the framework in Fig. 1.

(b) Many candidates responded well to the challenge to set their knowledge and understanding of agricultural change in the broader context of "achieving growth". This was to be understood as economic growth. Agriculture's potential was viewed in a number of different ways including: good nutrition for the workforce; self-sufficiency; revenue from export earnings (food and raw materials); and links to manufacturing through increased demands for fertilisers, farm machinery, etc. Some set this alongside national plans which focused on the development of manufacturing industry. Examiners accepted any position or viewpoint if argued and based on evidence. Many middle of the range responses would have gained from the integration of specific located examples, in valid, but largely general, writing. The weakest responses simply narrated a learned case, such as that of the Green Revolution and needed to show the selection, direction and application of this learned material to the actual question set in order to achieve a satisfactory mark.

Question 2

The mark allocation between **(a)** sub-parts **(i)** and **(ii)**, and **(b)**, was a good indication of how time and effort were best divided.

(a) (i) Most candidates offered suitable definitions of both terms and many developed each sufficiently to achieve the second mark. It is worth noting that in this kind of short demand, if an example was required, it would be made explicit. Of the two terms, *industrial inertia* was the better understood. Some candidates confused *industrial agglomeration*, which involves the concentration of different manufacturing and related service industries in close proximity with each other in a chosen location, with business mergers and amalgamations, where they become one business. Others saw this as an invitation to write about economies of scale. Although these are involved, *agglomeration* is a distinct term.

(ii) Good responses were robust conceptually, following a clear definition of *industrial agglomeration* in **(i)** and suitably explanatory of disadvantages. These disadvantages included increasing traffic congestion affecting deliveries and journeys to work, lack of space to expand, competition for labour raising wage levels and high or unacceptable levels of environmental pollution. Weaker candidates tended to state, rather than explain, for example using bullet points or a simple list. Most candidates wrote about disadvantages within the industrial agglomeration, although disadvantages that resulted beyond it, such as the closure of non-competitive industries forced out of business, were creditable. It would have been equally possible to set a question of the advantages of agglomeration: such a framework of advantages and disadvantages is a useful one when teaching many topics in geography.

(b) Some excellent essays were seen in response to this evaluative demand. The best work combined strong conceptual understanding of the informal and formal sectors; and knowledge of one or more detailed examples, notably about Jua Kali in Kenya, but also from countries in Asia, with skills of analysis, argument and assessment. This work was also distinguished by able handling of two scales (individuals/the economy of a country), as scale is fundamental to geography as a subject. Some made good use of statistical content, for example about income, wage rates or numbers of people involved in the informal sector. For example, 'the informal sector in country A employs over 5 million people, approximately 70% of adults, but only contributes 14% of GDP, therefore it is of greater significance to the individuals who survive on it than to the national economy'. In the middle range of quality, some answers required evidence or substantive content to support and develop a valid argument or perspective. Others that comprised a case study, needed this content to be applied and directed to the question set as Examiners can only reward that which is pertinent, not simply that which is true or factually correct.

Environmental management

Question 3

The two most fundamental ways to enhance response quality were, in **(a)** to remember to "describe" as well as to "explain", and, in **(b)** to consider what may be criteria for "success" of the energy strategy.

(a)   A balanced approach was the most effective. This approach balanced attention to Photograph A reasonably evenly with attention to Photograph B, and, also, covered both the element of description and that of explanation. The description was understandably and appropriately briefer. The resources were expected to be unfamiliar, whereas solar power and waste disposal should have been familiar from the taught content. Many strong responses defined sustainability at the outset. Very good interpretations of Photograph A saw potential benefits, such as use of a renewable energy source, and potential limitations, such as the environmental impact of the production of solar panels. High quality work on Photograph B considered such potential benefits as recycling of materials, for example plastic drinks bottles or aluminium cans, reducing landfill. Potential limitations included the uncooperative attitude or behaviour of the individual who persists in littering and on whom the success of the initiative largely depends. Top quality work was often expressed in a way which opened up issues and debated them without needing to be definite or categorical in framing answers. Lower-scoring responses could have been enhanced by more careful reading of the stem of the question and the titles of the photographs for clues and by more careful observation of the photographs. It would also have helped to try to consider what "seeking to achieve sustainability" might mean in this context.

(b)   Many prepared candidates responded well to this straightforward demand taken straight from the Syllabus, 2.2, at the national scale. Case detail, a sense of the contemporary scene in producing electricity energy and attention to what amounts to "success" – or the lack of it – distinguished the best responses. Middle quality responses tended to be more narrative, telling the story of the chosen case, with an evaluative conclusion, sometimes quite brief, as to whether the strategy worked or not. This kind of response would have been improved if an evaluative thread had run throughout and if more attention had been given to developing the idea of success. At the low end candidates could be helped to recognise the difference between a country's overall energy strategy, at the national scale, and an energy scheme (e.g. a power station) at the local or regional scale. There were a number of attempts to use China's Three Gorges Dam, an energy scheme, as the energy strategy (of which it only forms one part). As in previous examination sessions, such responses were marked using a maximum of 8/15 marks.

It may help in teaching to develop a broad understanding of success, see Assessment objective (AO) 4.2. This could usefully include different aspects of success. One would be dimensions of success for an energy strategy: social, e.g. the link to education; economic, e.g. enabling development; environmental, e.g. reduction of greenhouse gas emissions; political, e.g. popularity for government. Another would be energy security, in terms of self-sufficiency, reliability of electricity supply and the ability to meet demands (compared to blackouts and load shedding). Success could also be considered in terms of timescale (short-term needs, medium-term developments, long-term planning, etc.) and spatial scale (the relative success or failure of different locations within the country). Lastly, it is highly creditable, (AO 4.3), to consider success as experienced by different groups of people; for example, the need for rural electrification and not only meeting urban demands for power.

Question 4

High-scoring responses recognised the significance of the words "main" in **(a)** and "effectiveness" in **(b)** in focus and organisation.

(a)   For a response to move from satisfactory to good or very good, three things were required. One was the quality and detail of the examples used. Compare, for example, 'in China' with 'in Dandong, Liaoning Province, China, growth of manufacturing industry resulting from national development zone status has led to a decline in air quality, especially sulfur dioxide emissions and particulates'. The second was to select material and structure the response as given in the question, "the main sources of air pollution". For example, cigarette smoke and aerosol usage were better omitted. The third thing was both to "describe" and to "explain". At the lower end, responses that were a developed list would have been improved with some explanatory content, for example in relation to incomplete combustion of fossil fuels, or to the significance of open

burning in Asia, prevailing winds, and the cross-border haze which results sometimes in neighbouring countries.

(b)   High-scoring responses defined and located the chosen environment or environments clearly; discussed measures of varying type, scale and time period; and framed the whole piece of writing as an assessment. Effectiveness was assessed in a number of ways, for example averting environmental degradation, improving environmental quality, or by the mitigation or removal of threats or risks to the environment. Good quality work was seen in relation to the atmospheric environment at city scale; tropical forest at local/regional scale; and lakes and coasts. Many candidates wrote with understanding of an environment within their home countries. Some work suggested that this may have been the object of a special project, field visit or investigation any of which is to be encouraged at this level. Responses in the middle range of quality tended to tell the story of the case study and would have benefited from an evaluative framework. The choice of environment could also provide a helpful focus. For example, it was more difficult to be precise about the world's oceans, or about a whole distant country such as "Mexico", than about a named located forest reserve or national park in or near to the candidate's own country. Some teachers encourage candidates to keep a folder of news items relevant to the chosen 9696 Options. This is of clear potential relevance to environmental management, for example in relation to BP's oil spill into the Gulf of Mexico, April–July 2010, or the Fukushima nuclear disaster in March 2011.

Global interdependence

Responses to **Question 6**, on tourism, dominated this Option.

Question 5

Some excellent work was seen to both parts. Candidates demonstrated high order knowledge and understanding and, in **(b)** the skills to structure and support an analytical response and provide an assessment.

(a)   A few prepared candidates responded well about Fair Trade, its nature and role. It was more often that Fair Trade (a technical term and name) was confused with the issue of perceived fairness or unfairness of trade generally and the much broader and older concept of free trade. Fair Trade, sometimes written Fairtrade, relates to over 3000 products, from tropical fruit to cotton clothing, traded by LEDCs with MEDCs. Fuller content is given in the published Mark Scheme for the paper and can be accessed through a number of websites including http://www.fairtrade.org.uk Fair Trade is a specific example of global interdependence which is of growing significance. At the lower end, candidates wrote mistakenly about the World Trade Organization (WTO) in seeking to achieve free trade, rather than groups such as the Fairtrade Foundation seeking to widen participation in Fair Trade initiatives, to educate consumers and to certify products as fairly traded.

(b)   This part was answered rather better as it did not require the specialist knowledge that **(a)** did. Some perceptive responses were seen which identified constraints and obstacles clearly and provided a real sense of difficulty for the countries concerned. Many had detail from recent world news or contemporary events to help elucidate the assessment. Other responses needed some examples or a case study to carry the general argument offered. Some needed to rethink the idea that it is easy for MEDCs because they are MEDCs and difficult for all LEDCs because they are LEDCs. This kind of stereotype is not the analysis that is needed in studying geography at this level. Some good use was made of home country. Given the wording of the question "some countries", a maximum of 10/15 was used to assess responses which were about one country only.

Question 6

Tourism remains a very popular choice and some excellent work was seen. Some candidates, who were clearly familiar with the subject area in broad terms, did not identify the specific demands of each part of the question sufficiently well to achieve higher marks.

(a)(i)   The best responses identified from Fig. 2, or from their own knowledge, that to write about change from 'development' to 'stagnation' also involved covering the stage known as 'consolidation'. The specific demand was how the character of a tourist resort changes. Here "character" could be interpreted to mean both the place (buildings, landscape, environment) and its tourism-related activities from the nature of hotels to noise levels.

(ii) The highest achievement identified "factors" correctly as a key word and featured these in the response made. One economical manner in which to respond was to take one example of rejuvenation and identify factors such as entrepreneurship or government investment, and one example of decline and outline factors such as a negative image from media reports or environmental pollution. Many responses described the two stages, some giving examples, but lacked the focus on these influential factors which tip a tourist area one way or the other in the model. Recognising different possible outcomes is an assessment objective of the syllabus, **AO4.5**.

(b) Some high-scoring responses were seen which were set ecotourism firmly in the context of the problems of conventional tourism and worked to analyse the element of inevitability throughout. No particular viewpoint or judgement was expected by Examiners in that much depends on the evidence selected and the outcomes of different ecotourism initiatives. Some perceptive content was seen in relation to what is known as 'greenwashing', where tourism operators add the tag of ecotourism to holidays which are not environmentally-friendly and which do not share ecotourism's aims of sustainability for the environment, the community and the local economy. Carrying capacity and management were two other concepts which helped develop a robust analysis of ecotourism. Many responses which achieved Level 2 rewards reproduced one or more case studies of ecotourism and needed to apply this much more to the question set. For example, this question was not simply about the success of ecotourism, but about the likelihood of the development of problems over time. Identifying what the problems of conventional tourism can be, such as antagonising the local population (Doxey's Irridex), leakage of profits, or pollution, was itself creditable, rather than simply using the generic terms "problems". Some work lacked a clear definition of ecotourism, which is defined by the nature of the development, not by its location. For example, tourism in a national park may be conventional (mass) tourism or ecotourism; it is not ecotourism simply because it is outdoor activity in a protected environment of high landscape quality.

Economic transition

Question 8 with Fig. 3, the resource on spatial inequalities in Vietnam, was more popular than **Question 7**.

Question 7

Both parts required candidates to organise their ideas and structure their responses carefully in order to achieve higher marks.

(a) Better responses were characterised by careful attention to the word "main" in the question and the development of a small number of human factors, say three. Some very good use was made of the experience of colonialism (and neo-colonialism) in Asia as was mismanagement of development by governments. Some valid explanatory responses would have been sharper if the "main **human** causes" had been identified clearly. Others had some relevance but seemed to have missed the word "global" in the question and so responded at another scale, usually national, to limited effect. Examples were integrated into higher-scoring responses; those without examples were marked using a maximum of 6/10 marks.

(b) Some outstanding work was seen in which candidates developed essays critiquing the concept of North and South and assessing uneven development globally. North and South could be seen both in terms of the hemispheres and the Brandt line and there was excellent contemporary content about globalisation, NICs such as the Asian tigers and the BRIC countries (Brazil, Russia, India and China). The concept of winning was also seen in **Question 7** on 9696/31 this examination session. It would repay further study because of the opportunities for geographical analysis and making a judgement based on evidence that it offers. In the middle range of response quality, some work needed support for the argument or opinion put forward. Other candidates wrote an example or case study they had learned and needed to address the question in its own terms. It was generally the case that few weaker candidates chose this question, most looking to **Question 8** and its resource to help them.

Question 8

(a) (i) The best responses made reference to all four classes of income poverty in the key. They also identified elements of a broader pattern, between northern, central and southern areas, and anomalies, such as the incidence of a single area of 0–24% income poverty in the north and centre east. Lower skills responses tended to list what they saw and may have omitted to use numerical values. The ability to 'stand back' from a map (a graph or a diagram) and describe a distribution, is a fundamental skill in geography at this level.

(ii) Some good critical appreciation of both the unfamiliar index and the mapping (an example of a choropleth) was seen. For example, the index did not differentiate on the basis of gender and women are often poorer than men in LEDCs. It is also difficult to calculate a measure such as income poverty in an economy where subsistence agriculture and the informal sector are significant and statistics may not be obtainable. Many observed creditably that the mapping has no background information such as relief, borders or the location of major cities, and that the classes are broad and unequal. Even if candidates did not grasp the meaning of the index fully, it was still possible to gain marks by identifying limitations appropriately in relation to both it and the map representation.

(b) This part-question is firmly within the topic of regional disparities, but was not the classic issue of the success of overcoming regional disparities, as seen on 9696/31 this examination session. Candidates who extracted from their learned material reasons why these regional disparities are "difficult to overcome" and showed skills in directing and applying their knowledge to the question, performed better than those who depended on recall, maybe adding an introductory or concluding paragraph. Examiners credited reasons where they were embedded in a case study or implicit, but such responses remained within Level 2. Weak, descriptive responses about development generally or simply naming a country such as Malaya or Brazil, needed a different approach (that of making an assessment) and to focus on the issue set (that of why regional disparities are difficult to overcome). Good work was seen on a number of different constraints and problems, from relief and accessibility (physical); dominant people groups (social, cultural); lack of investment and debt (economic); and the nature of the regime (political). Some robust conceptual understanding was shown linking this appreciation of difficulty to core-periphery theory, cumulative causation and/or the action of backwash effects. At the lower end work would have been improved by a greater amount of analysis and explanation, for example being an LEDC is not, in itself, suitably explanatory.

GEOGRAPHY

Paper 9696/33

Human Options

Key messages

- Effective answers result from paying attention to all the key words of a question, such as the command word and the key terms, and styling the response accordingly.
- Detailed case studies are needed to answer many parts **(b)** well. Candidates need to be able to select material from the case study which is relevant to the actual question set.
- Developing skills in evaluation and assessment, and the language to express them, enhances performance in parts **(b)**, in which assessment/evaluation is a key objective.

General comments

The style of questions and of resources would have been mostly familiar to any teacher or candidate who had studied past papers as part of preparation for the examination. The inclusion of two photographs as the resource for **Question 3** was unusual on this paper, although a frequent occurrence on the Paper 2 variants. Candidates responded well to the challenge of interpreting the photographs (see further comments below).

Questions **3** and **4** from *Environmental management* and **Question 6** on tourism from *Global interdependence* were selected the most frequently. Large numbers of responses were seen to all questions across the entry except to **Question 5**.

In **Question 5** the topic of Fair Trade, which was added to the syllabus in 2010 after revision, is not yet firmly understood and confusion between Fair Trade and free trade, which is a different issue, persists. Attention is drawn to one website which may help those teaching Fair Trade in the definitions it offers and the issues it identifies; see http://www.fairtrade.org.uk

Some excellent work was seen combining geographical theory and concepts with contemporary examples and case studies from home country or the world region familiar to candidates. An up-to-date approach to geography is encouraged and some teachers promote the keeping of a journal or folder throughout the course. In this way news items relevant to the chosen 9696 Options can be gathered by candidates from websites, CNN News, BBC News 24 and the press and from other media such as advertising or government publications. This helps to develop the skills of geographical analysis and reflection and supplements material in text books which may be dated.

Comments on specific questions

Production, location and change

Question 1

The question comprised a specific demand in **(a)** and a more open demand in **(b)** to which candidates were free to develop their own approaches. Teachers are encouraged to include both styles of task as part of their preparing candidates for the examination.

(a) The concept of a systems approach, with inputs, processes and outputs, was understood by most. Better responses applied systems thinking to actual forms of production, such as intensive wet rice cultivation, or extensive livestock production (ranching), some using diagrams similar to that in Fig. 1, effectively. This was both a clear and a time-saving approach to the demand. The command word "compare" involves identifying similarities, such as the nature of inputs, whereas the command word "contrast" means identifying differences, such as the subsistent or commercial nature of the outputs. (NB In many cases the use of the command word 'compare' will require

candidates to discuss similarities and differences.) The highest-scoring responses established the variety of systems classified as intensive and as extensive and were strong conceptually in terms of output per unit area. For example, plantation systems (e.g. rubber) are intensive over large areas of land, whereas most systems operating over large land areas are extensive (e.g. commercial grain production, such as wheat). Weaker responses showed some knowledge of agriculture without embracing a systems approach appropriately. This was seen either by avoiding using a systems approach altogether or by limited ability to apply the framework in Fig. 1.

(b) Many candidates responded well to the challenge to set their knowledge and understanding of agricultural change in the broader context of "achieving growth". This was to be understood as economic growth. Agriculture's potential was viewed in a number of different ways including: good nutrition for the workforce; self-sufficiency; revenue from export earnings (food and raw materials); and links to manufacturing through increased demands for fertilisers, farm machinery, etc. Some set this alongside national plans which focused on the development of manufacturing industry. Examiners accepted any position or viewpoint if argued and based on evidence. Many middle of the range responses would have gained from the integration of specific located examples, in valid, but largely general, writing. The weakest responses simply narrated a learned case, such as that of the Green Revolution and needed to show the selection, direction and application of this learned material to the actual question set in order to achieve a satisfactory mark.

Question 2

The mark allocation between **(a)** sub-parts **(i)** and **(ii)**, and **(b)**, was a good indication of how time and effort were best divided.

(a) (i) Most candidates offered suitable definitions of both terms and many developed each sufficiently to achieve the second mark. It is worth noting that in this kind of short demand, if an example was required, it would be made explicit. Of the two terms, *industrial inertia* was the better understood. Some candidates confused *industrial agglomeration*, which involves the concentration of different manufacturing and related service industries in close proximity with each other in a chosen location, with business mergers and amalgamations, where they become one business. Others saw this as an invitation to write about economies of scale. Although these are involved, *agglomeration* is a distinct term.

(ii) Good responses were robust conceptually, following a clear definition of *industrial agglomeration* in **(i)** and suitably explanatory of disadvantages. These disadvantages included increasing traffic congestion affecting deliveries and journeys to work, lack of space to expand, competition for labour raising wage levels and high or unacceptable levels of environmental pollution. Weaker candidates tended to state, rather than explain, for example using bullet points or a simple list. Most candidates wrote about disadvantages within the industrial agglomeration, although disadvantages that resulted beyond it, such as the closure of non-competitive industries forced out of business, were creditable. It would have been equally possible to set a question of the advantages of agglomeration: such a framework of advantages and disadvantages is a useful one when teaching many topics in geography.

(b) Some excellent essays were seen in response to this evaluative demand. The best work combined strong conceptual understanding of the informal and formal sectors; and knowledge of one or more detailed examples, notably about Jua Kali in Kenya, but also from countries in Asia, with skills of analysis, argument and assessment. This work was also distinguished by able handling of two scales (individuals/the economy of a country), as scale is fundamental to geography as a subject. Some made good use of statistical content, for example about income, wage rates or numbers of people involved in the informal sector. For example, 'the informal sector in country A employs over 5 million people, approximately 70% of adults, but only contributes 14% of GDP, therefore it is of greater significance to the individuals who survive on it than to the national economy'. In the middle range of quality, some answers required evidence or substantive content to support and develop a valid argument or perspective. Others that comprised a case study, needed this content to be applied and directed to the question set as Examiners can only reward that which is pertinent, not simply that which is true or factually correct.

Environmental management

Question 3

The two most fundamental ways to enhance response quality were, in **(a)** to remember to "describe" as well as to "explain", and, in **(b)** to consider what may be criteria for "success" of the energy strategy.

(a)   A balanced approach was the most effective. This approach balanced attention to Photograph A reasonably evenly with attention to Photograph B, and, also, covered both the element of description and that of explanation. The description was understandably and appropriately briefer. The resources were expected to be unfamiliar, whereas solar power and waste disposal should have been familiar from the taught content. Many strong responses defined sustainability at the outset. Very good interpretations of Photograph A saw potential benefits, such as use of a renewable energy source, and potential limitations, such as the environmental impact of the production of solar panels. High quality work on Photograph B considered such potential benefits as recycling of materials, for example plastic drinks bottles or aluminium cans, reducing landfill. Potential limitations included the uncooperative attitude or behaviour of the individual who persists in littering and on whom the success of the initiative largely depends. Top quality work was often expressed in a way which opened up issues and debated them without needing to be definite or categorical in framing answers. Lower-scoring responses could have been enhanced by more careful reading of the stem of the question and the titles of the photographs for clues and by more careful observation of the photographs. It would also have helped to try to consider what "seeking to achieve sustainability" might mean in this context.

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It may help in teaching to develop a broad understanding of success, see Assessment objective (AO) 4.2. This could usefully include different aspects of success. One would be dimensions of success for an energy strategy: social, e.g. the link to education; economic, e.g. enabling development; environmental, e.g. reduction of greenhouse gas emissions; political, e.g. popularity for government. Another would be energy security, in terms of self-sufficiency, reliability of electricity supply and the ability to meet demands (compared to blackouts and load shedding). Success could also be considered in terms of timescale (short-term needs, medium-term developments, long-term planning, etc.) and spatial scale (the relative success or failure of different locations within the country). Lastly, it is highly creditable, (AO 4.3), to consider success as experienced by different groups of people; for example, the need for rural electrification and not only meeting urban demands for power.

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burning in Asia, prevailing winds, and the cross-border haze which results sometimes in neighbouring countries.

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Question 6

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(ii) The highest achievement identified "factors" correctly as a key word and featured these in the response made. One economical manner in which to respond was to take one example of rejuvenation and identify factors such as entrepreneurship or government investment, and one example of decline and outline factors such as a negative image from media reports or environmental pollution. Many responses described the two stages, some giving examples, but lacked the focus on these influential factors which tip a tourist area one way or the other in the model. Recognising different possible outcomes is an assessment objective of the syllabus, **AO4.5**.

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Economic transition

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Question 7

Both parts required candidates to organise their ideas and structure their responses carefully in order to achieve higher marks.

(a) Better responses were characterised by careful attention to the word "main" in the question and the development of a small number of human factors, say three. Some very good use was made of the experience of colonialism (and neo-colonialism) in Asia as was mismanagement of development by governments. Some valid explanatory responses would have been sharper if the "main **human** causes" had been identified clearly. Others had some relevance but seemed to have missed the word "global" in the question and so responded at another scale, usually national, to limited effect. Examples were integrated into higher-scoring responses; those without examples were marked using a maximum of 6/10 marks.

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Question 8

(a) (i) The best responses made reference to all four classes of income poverty in the key. They also identified elements of a broader pattern, between northern, central and southern areas, and anomalies, such as the incidence of a single area of 0–24% income poverty in the north and centre east. Lower skills responses tended to list what they saw and may have omitted to use numerical values. The ability to 'stand back' from a map (a graph or a diagram) and describe a distribution, is a fundamental skill in geography at this level.

(ii) Some good critical appreciation of both the unfamiliar index and the mapping (an example of a choropleth) was seen. For example, the index did not differentiate on the basis of gender and women are often poorer than men in LEDCs. It is also difficult to calculate a measure such as income poverty in an economy where subsistence agriculture and the informal sector are significant and statistics may not be obtainable. Many observed creditably that the mapping has no background information such as relief, borders or the location of major cities, and that the classes are broad and unequal. Even if candidates did not grasp the meaning of the index fully, it was still possible to gain marks by identifying limitations appropriately in relation to both it and the map representation.

(b) This part-question is firmly within the topic of regional disparities, but was not the classic issue of the success of overcoming regional disparities, as seen on 9696/31 this examination session. Candidates who extracted from their learned material reasons why these regional disparities are "difficult to overcome" and showed skills in directing and applying their knowledge to the question, performed better than those who depended on recall, maybe adding an introductory or concluding paragraph. Examiners credited reasons where they were embedded in a case study or implicit, but such responses remained within Level 2. Weak, descriptive responses about development generally or simply naming a country such as Malaya or Brazil, needed a different approach (that of making an assessment) and to focus on the issue set (that of why regional disparities are difficult to overcome). Good work was seen on a number of different constraints and problems, from relief and accessibility (physical); dominant people groups (social, cultural); lack of investment and debt (economic); and the nature of the regime (political). Some robust conceptual understanding was shown linking this appreciation of difficulty to core-periphery theory, cumulative causation and/or the action of backwash effects. At the lower end work would have been improved by a greater amount of analysis and explanation, for example being an LEDC is not, in itself, suitably explanatory.