

GEOGRAPHY

Paper 9696/11
Core Geography 11

General comments

The paper was appropriate and commensurate with previous years. There has been a change of rubric with candidates having a choice in **Section A**. Candidates now have to choose 5 questions from 6. This seemed to cause some confusion with a sizeable minority answering all six questions. There was also some indication that candidates were deliberately answering all six questions in the anticipation that the highest mark would be counted. This is a dangerous decision as it may leave insufficient time to complete the questions in **Sections B** and **C**. As usual some questions were more popular than others. In **Section A**, it may have been anticipated that **Question 2**, the Atmosphere and Weather option, would have been the question that was not chosen. However **Question 3** was the question most often left unanswered. This may have been because of the nature of the question. This is discussed in greater detail later. Performance was on a par with previous years. There were some excellent answers which is very encouraging and reflects the standard of teaching across the Centres. The use of English also shows an improvement. However, it is possible to make the same comments as in previous Examiners Reports. There is still an inability among a sizeable number of candidates to identify the command words in a question and to do what they say. Thus, when description is asked for, there is much irrelevant explanation. This not only wastes time but shows a lack of understanding. Many candidates still find data response questions difficult and fail to read and assimilate the data carefully enough. All the data in the data response questions are there for a purpose and should be used in answering the questions. Candidates seem to find comparison between two sets of data difficult. Several Examiners reported that many candidates were achieving better marks in **Sections B** and **C** than in **Section A**. This is something teachers might consider when preparing their candidates for the Examination. Apart from comments on the changed choice in **Section A**, there were few other rubric infringements. Candidates timing was generally exemplary.

Comments on specific questions

Section A

Question 1

- (a) Few candidates managed to identify the four components of the figure correctly. Infiltration was commonly quoted in (ii) instead of percolation, although the distinction between the two was often identified correctly in part (b). A common fault in the answers to parts (iii) and (iv) was to refer to the line of separation, i.e. water table, rather than the zone as a whole. It was clear that sub-surface hydrology was not as well understood as surface hydrology and movement of water in soils.
- (b) The description of water movement towards, within and from the water table was answered quite well, although detailed explanation was often lacking. This was especially true of removal from the water table with only very few mentioning removal by human action such as water abstraction. The nature of water storage in bedrock was only partially understood, with many candidates confusing storage in soils with storage in rocks. The nature of primary and secondary permeability was very rarely described.

Question 2

- (a) Many candidates failed to see that the differences between Figures A and B were based on whether or not the cause of the initial ascent of a parcel of air persisted beyond condensation level or not. Conditional instability was missed by most candidates. Identification of differences in ELR between the two graphs for Part (ii) was weak. Candidates still find lapse rates difficult with an inability to interpret rate of change from the angle of the lapse rate line. Statements such as 'one rate is below the other' or 'one is to the left or right' of another are thoroughly confusing and demonstrate a lack of precision and understanding.
- (b) Explanations of reasons for cloud formation in A and a lack of cloud formation in B were made difficult by an inability to spot the difference between conditional instability and stability, noted above. Also, many omitted that idea that for water droplets and clouds to form there should be the presence of condensation or hygroscopic nuclei. Thus, as in previous years, answers to the Atmosphere and Weather question were disappointing. However, some candidates did score excellent marks with a thorough understanding of the role of latent heat in furthering uplift after condensation level had been reached. A good understanding of the principles involved will always score good marks.

Question 3

- (a) This was the question that was most often ignored in **Section A**. Although the photograph was clear with a number of very well defined features, most candidates found it difficult to interpret the main features. Photographs are an invaluable teaching resource, especially for such a visual subject as Geography, and need to be exploited more in teaching. Discussions with teachers clearly indicate that photographs are used, but there was little sign of this in answers to part (a). Teachers might find this photograph a useful teaching aid. The concept of producing an annotated diagram of the features shown was also unknown to most candidates. Many resorted to textbook-type cross-sections of 'theoretical slopes'. Also, many identified the debris on the toe-slope as talus or scree.
- (b) This was a two-part answer with many candidates ignoring or only paying scant attention to the effect that landslides have upon slopes. Candidates seem to find it difficult to explain the relationship between shear stress and shear strength, even when they are mentioned. Explanation of causes leaned very heavily on simple loading of slopes by construction or on undercutting by road building. The role of heavy rainfall was recognised but mostly in terms of increasing the weight on slopes. The relationship between water content and shear strength was unknown. Thus, there was little understanding of detailed causes, but there were a few excellent answers explaining the role of pore water pressure, lubrication and the development of shear planes. The distinction between slides and flows and between rotational and planar slides was discussed by a few with good diagrams. Understanding of the effects of landslides on slopes was often limited to a brief discussion of screes. Slope changes as a result of landslides were poorly understood.

Question 4

- (a) As mentioned earlier, many candidates find comparisons between sets of data difficult. This was evident in answers to this question. Shape was interpreted in a variety of ways, but mostly in terms of whether the age-sex pyramids were top or bottom heavy. Many answered without data support and some described the pyramids in great detail, age cohort by age cohort, but made little reference to shape. There seems to be a general inability to synthesise a complex diagram or table. This was true also of the better candidates.
- (b) There were some excellent answers to this part of the question with the implications of the question clearly recognised. The mark scheme worked well in this respect. However, many answered without reference to the demographic Transition Model, whereas others answered purely in terms of the Model and failed to relate it to the question as set. Also, there was an over concentration on falling birth rates, emancipation of women and other factors, forgetting that changes in death rate were also relevant and that there was a time dimension to the evolution of age sex pyramids. This was a disappointing response and shows that asking a Demographic Transition Model question in a slightly different way than normal, causes problems.

Question 5

This was the best answered question in **Section A** with most candidates gaining quite good marks and many gaining very high marks.

- (a) The figure was interpreted correctly by most candidates, although a significant number interpreted the arrows as indicating numbers rather than just directions. This often led to statements inferring that more refugees had moved to Iran than to Pakistan even though the figures indicated otherwise. Also, some failed to interpret the difference in numbers in terms of the total number of refugees. Thus, many wrote about 'by far the greater number' moved to Pakistan.
- (b) The impacts of refugee flows were well described although there was a tendency to answer in purely negative terms. The positive role of refugees was generally ignored. Occasionally refugees were treated as migrants with reference to shanty towns, etc., but this was rare. There were many excellent well-balanced arguments with some candidates using first-hand knowledge of the effects of refugee flows. It is always exciting and rewarding when Examiners read answers with local knowledge. Candidates should be encouraged to do this more.

Question 6

- (a) The vast majority identified the correct regions.
- (b) The question of the reliability of data was a mystery to most candidates although some did recognise that un-foreseen events might invalidate the projections. The problems of conducting population censuses were identified by some candidates.
- (c) This proved more difficult than might have been expected. Many candidates failed to realise that, with North America already urbanised a lower percentage increase would be expected. This seemed to defeat many, although there were some excellent responses. The marks tended to polarise between the two extremes.

Section B

Question 7

Hydrology and Fluvial Geomorphology, was the most popular question, with **Question 8**, Atmosphere and Weather, predictably the least popular. As noted in previous reports, candidates still experience difficulties with basic geomorphological concepts. Weathering is often confused with erosion, attrition and abrasion are often interposed and hydraulic action is confused with cavitation. Where diagrams were asked for, there were some excellent attempts. However, as noted earlier, the ability to produce clear annotated diagrams is a skill that not many possess.

- (a) Most coped well with the definitions of solution and suspension load. However, a sizeable minority still write about solution load involving the finer particles. The definition of suspension was often accompanied with a diagram which was useful, if correct. Most identified velocity as important in the entrainment and transport of sediment load, with a sizeable number using the Hjulstrom relationships. Few went beyond velocity to discuss turbulence, friction, channel slope, etc. Thus, it was often difficult to award the full three marks.
- (b) Answers to this question were unusual in that many candidates regarded oxbow lakes as a depositional landform. There is some slight deposition involved in their silting up, but oxbow lakes cannot be regarded as depositional landforms. Most chose levées and floodplains although some used point bars and slip-off slopes in the latter case, often placing them on the wrong side of the channel. Answers involving levées and floodplains were much better with the basic principles being clearly understood. However, the details were often lacking with little mention of the gradation of sediment size on the floodplains away from the river channels. Diagrams were often good, although the vertical exaggeration of some of the levées made them look like Mount Everest. A slight drawback to some of the better answers was a failure to explain why the river is depositing its load. There was also a failure to mention loss of velocity/energy in shallower water. The contrast between frequent smaller floods, which produce repeated deposition next to the channel thus building up the levées as opposed to bigger floods which spread right across the floodplain, was rarely mentioned.

- (c) There were two parts to this question. Whereas good answers did integrate the two parts, in the majority of cases the answers were in two parts. There was a general inability to relate the processes of erosion to the landforms that are being created. As noted earlier, the processes of erosion were often confused. Hydraulic action was only correctly described by very few. The process of corrosion is a mystery to many. Pot holes were often mentioned, but with very little idea as to their mode of formation. Many candidates chose waterfalls for their landform, but could not relate them to the processes that create them. Knowledge seems to be compartmentalised with little cross-thinking.

Question 8

- (a) Most candidates were able to make the distinction between short and long wave radiation. However, many wrote about long wave radiation being reflected, rather than being absorbed and then re-radiated from the earth's surface. Answers to part (ii), temperature inversions, were often missing.
- (b) This question proved to be very difficult for most candidates. Most could not get beyond a superficial statement about specific heat capacity. Very few could relate this to global distribution of temperature. Many answered at the local scale with accounts of land and sea breezes. However, many did realise that ocean currents were important in the global distribution of temperature, but knowledge of specific currents was limited. The low marks received for this part tended to depress the marks for the complete question. Even the better candidates struggled with this part.
- (c) The range of greenhouse gases provided in the answers was limited. Carbon dioxide was always mentioned, but water vapour was almost completely ignored. The majority of the answers concentrated on the production of greenhouse gases by the burning of fossil fuels. Few realised the importance of forests in reducing the production of such gases. Inevitably, a sizeable minority wrote about the hole in the ozone layer which was completely irrelevant. Considering the publicity given to global warning, it was surprising how limited and inaccurate many of the answers were,

Question 9

- (a) Exfoliation and salt crystal growth were generally well explained, although some were unaware that repeated wetting and evaporation were need for salt weathering to operate. Freeze-thaw weathering was understood although some candidates failed to mention the need for repeated cycles for the efficient operation of the process. The better candidates mentioned the contrast between areas of the globe which were continually frozen for several months, and more temperate areas where temperatures fluctuated frequently across the 0°C boundary.
- (b) Answers were generally sensible and well balanced between the two components. Rock structure was given more emphasis than rock type, although there were some good accounts of carbonation and, candidates familiar with granite, used their knowledge to good effect. However, far too many answers still referred to hard and soft rock without any reference to process. References to limestone as a soft rock are, unfortunately, still common and still incorrect! The accounts of the role of vegetation in weathering were encouraging. Most realised the protective role of a vegetation cover and many were able to write in an authoritative way about chelation. Vegetation as a factor in weathering was often answered better than the role of rock type and structure.
- (c) Plate tectonics is popular with candidates and there were many good answers with excellent diagrams. Ocean ridges were almost invariably described and explained correctly, although the level of detail varied. Many thought that ridges just appeared when magma pours out of sea floor spreading rifts. The explanation of trenches was more limited. Most could not explain that trenches marked the region where oceanic plates are 'dragged' down into the asthenosphere. Many assume that a simple diagram of subduction explains the process.



Section C

Question 10

This question was overwhelmingly popular

- (a) Very few were able to define Infant Mortality Rate in its entirety. Many forgot the 'per year' and many answered in term of 'per thousand population' rather than 'per thousand live births'. Most were able to write convincingly on part (ii). Lack of immunity to diseases was picked up by most, but specific examples of diseases would have helped.
- (b) This was a very broad question and could be answered in a variety of ways. Most of the elements mentioned in the marking scheme appeared in answers but with variable detail. The better candidates did mention that educated mothers would then pass on their knowledge to their offspring, thus creating a permanent change.
- (c) There were some excellent answers to this question, which was very encouraging. However, many produced unbalanced answers, concentrating too much on either MEDCs or LEDCs. Also, there was a temptation to write in terms of simple contrasts such as what is good about MEDCs was bad about LEDCs. This involved simple statements of good versus poor healthcare. Most ignored the fact that many people in MEDCs do die before old age. The more perceptive candidates raised the issue of what constitutes old in different parts of the world.

Question 11

- (a) This part presented few problems. Most candidates could write about push and pull factors, but specific examples were often lacking. Also, many answers just repeated the same factors, positive and negative, depending on whether they were describing push or pull. A few wrote about international rather than internal migration; a misreading of the question.
- (b) The mark scheme worked well for this part. Most candidates, between them, identified most of the issues. The subtleties involved in 'constraints' was missed by many. More specific examples would have illuminated the concepts being discussed.
- (c) Some candidates seemed confused over the phrase 'may be identified'. Most used rural-urban, urban-rural and rural-rural as the major patterns and could write convincingly about these processes. Good marks were achieved. If candidates interpreted 'may be identified' in a different way and the answers were convincing, then this was credited.

Question 12

There were very few answers to this question, probably no more than ten or a dozen, thus it is impossible to generalise. Those that did answer it, clearly knew what world cities were although the factors that led to their development were rarely distinguished from the basic process of urbanisation. What makes World Cities different from other large cities was often unclear. Analysis of Fig. 5 for part (c) was limited.

GEOGRAPHY

Paper 9696/12
Core Geography 12

General comments

This was the first examination in June of the changed syllabus. This allowed candidates to select five questions from the six that comprised **Section A** of the paper. In most cases this seems to have worked to the candidates' advantage as they were able to play to their strengths by balancing their answers towards either physical or human geography. A significant minority, however, attempted all six questions in **Section A**. This was most commonly found amongst weaker candidates. It was unclear whether this stemmed from a failure to read the instructions or was an attempt to gain some additional credit. Of course, only five answers were counted and the candidates merely wasted their time in attempting six questions.

Candidates appear to be well prepared in terms of the balance of time between the three sections of the paper as there were very few instances of failure to answer all sections or that the final section had been rushed due to a lack of time. Most candidates appear to have found the paper accessible and there were many very encouraging performances from both individual candidates and some Centres. In recent examinations the ability of candidates to comprehend and describe the various data sources that are given in **Section A** has continued to show improvement. Candidates clearly inspect the source material thoroughly and attempt to use it in their responses. There is, however, an increasing tendency for some candidates to regurgitate the data in full, giving every last detail of a table, flow chart or population pyramid. This gives rise to long, tedious answers that fail to identify the salient features that are required by the questions. It often means that they fail to identify any overall tendency within the data such as in **Question 4**, the fact that males die at younger ages than females. Similarly, in **Question 5**, it was the **pattern** of net migration that was required not an exhaustive list of net in-migration and out-migration from each country.

In **Section B**, the use of diagrams continues to be disappointing. The diagrams are often well executed and apposite, but the annotation and links with the text remains poorly developed. Part **(b)** of all the questions required the use of diagrams and well drawn accurate diagrams with good explanatory annotation could gain most, if not all, of the marks available. **Section C** usually demands the use of exemplification and case studies and will always reward the use of local examples where appropriate. Unfortunately the use of such local observed examples remains rare and it remains more common to see the use of often inaccurately described 'textbook' case studies.

A significant number of candidates produce prepared answers particularly in part **(c)** of questions in **Sections B** and **C**. These are often based upon questions that have been asked in previous papers and as such are usually only of, at best, partial relevance. This suggests that in these cases preparation and/or revision has been very selective and has not covered the whole of the syllabus.

The use of English and the quality of the handwriting remains generally excellent and it is heartening to acknowledge the excellence of the geographical knowledge and spatial appreciation that was again demonstrated by some very able candidates from a wide range of Centres around the world.

Comments on individual questions

Section A

Question 1

This was generally well answered with most candidates gaining reasonable or good amounts of credit. Most successfully identified throughflow and baseflow in **(a)** and were able to identify in **(b)** that filtration differed from percolation in that it represented the entry of water into the surface. Many accounts were less successful in describing a further difference of percolation as the downward movement of infiltrated water through pores and interstices of soil. Part **(c)** was less successfully answered and generally discriminated

between the good and average answers. Many weaker answers merely put into words the flow diagram Fig. 1. Better answers were able to describe the nature of the stores and flows and thus explain the process by which precipitation reached the river channel.

Question 2

The least popular of the questions. Most of the credit was earned in **(a)** and **(b)**. The types of uplift were usually correctly identified and most were aware that in Fig. 2B the air was warmed by radiation from the earth's surface. The buoyancy of the air and its relationship with surrounding air was less described. In part **(c)** the process of uplift, cooling and condensation was poorly explained by most candidates. Whilst the terminology of dew point, hygroscopic nuclei, and even relative humidity are frequently employed it is clear that few have any understanding of the processes occurring or how that might give rise to both clouds and precipitation. Better candidates realised that the processes were essentially the same in both figures except that the ascent of the air was a forced ascent (hence conditional instability) in Fig. 2A.

Question 3

This was generally well answered with most answers recognizing the types of weathering and being able to gain some credit from their description. The problem for some candidates was that they described the nature of the processes of freeze thaw and exfoliation in **(b)** rather than solely the climatic conditions. This meant that they repeated the processes again in **(c)**. The broad outline of the climatic parameters were described by most, although often without any figures or the repetitive and diurnal change of temperatures below and above freezing required for an effective operation of freeze thaw. In **(c)** the processes were usually described with some accuracy although few were able to indicate the end product of the weathering in terms of blockfields, granular disintegration (freeze-thaw) or the detachment of surface sheets (thermal fracture).

Question 4

Most candidates found this question accessible and were able to attain reasonable or good amounts of credit. Most correctly identified the two age groups in **(a)** although a significant minority appear to have misread the question giving the answer in terms of gender or percentages rather than age group. In **(b)** many identified the basic pattern of Fig. 4, but often failed to support their observations with evidence from the graph. Others cited the percentages of deaths for each of the age groups but failed to distinguish any overall pattern. The better answers were those that organized the data into groupings of age groups and cited the general aspects of their mortality. Most answers to **(c)** identified valid reasons for the low percentage of deaths below 50 years in MEDCs, such as healthcare provision, sanitation, nutrition and living conditions. The weakness of the answers lay in the failure to provide any explanation as to why these factors led to so few deaths. Some answers strayed into an explanation as to why LEDCs had higher death rates.

Question 5

Another well answered question, with most candidates gaining credit in each part of the answer. Nearly all candidates correctly identified Argentina in **(a)**. In **(b)** many candidates lost credit through an inability to frame their answer in terms of a pattern of net migration. Also some candidates did not appreciate the nature of net migration and assumed it was total migration. There were some very accomplished descriptions of the patterns within the data demonstrating that some candidates have come to terms with the demands of organizing and describing complex patterns of spatial data. Weaker answers gave general descriptions of push pull factors in **(c)**, whilst better answers recognised that migration decision making is both complex and individual. They then identified a number of pull factors and possible constraints upon a young adult migrating from Brazil.

Question 6

This was often the weakest answer in **Section A** as a significant proportion of the answers failed to correctly interpret Fig. 6. Many failed to correctly identify the categories of settlement in **(a)** as they had difficulty in separating the settlement sectors and reading off the correct totals on the y axis. The same occurred in **(b)** with many assuming that the top figure on the y axis represented the total amount in that category. Many answer failed to gain much, if any, credit in these two sections of the question. Part **(c)** was frequently poorly answered as the growth rate was often misidentified and the reasons given limited only to rural-urban migration. Few mentioned the continued impact of natural increase or the stage that LEDCs are at in the processes of urbanisation.

Section B

Question 7

This was quite a popular question, but with a very mixed range of quality in the answers.

- (a) Both helicoidal flow and laminar flow were known to candidates and often the definitions included useful diagrams. Turbulent flow was widely seen as encompassing eddying but fewer related it to channel roughness, reduction in depth or increased velocity.
- (b) Generally oxbow lakes were better known than river cliffs. The latter produced some very fanciful diagrams that appeared to confuse rivers with the sea. The diagrams of oxbow lakes were far better although they often demonstrated considerable confusion between the respective roles of erosion and deposition. Better answers employed well annotated diagrams to earn most, if not all, of the marks
- (c) Where candidates concentrated on the outcomes of urban growth such as the production of impermeable surfaces, storm drains, channel straightening and bank strengthening they were usually able to relate these changes to channel flows in terms of discharge and velocity. Where the approach was through general catchment changes in land use through disafforestation, candidates were generally far less successful in relating it to channel flows beyond a vague mention of flooding.

Question 8

This was the least popular question in **Section B** and produced answers that were either very good or very weak.

- (a) Generally the terms were understood in (i) except for some confusion between short and long wave radiation. Radiation cooling at the earth's surface was less well understood in (ii); many not associating it with the night time loss of long wave radiation.
- (b) There were some useful and well annotated diagrams that demonstrated the greater amount of atmosphere that requires heating at the poles and the effect of the seasonal tilt of the earth. Poor answers persist in the erroneous assumption that it is distance from the sun that is the crucial factor in global solar energy receipt.
- (c) There were a number of excellent answers that displayed a knowledge of greenhouse gases, the green house effect and how human activities, largely through the exploitation of fossil fuels, disafforestation and agriculture may have affected global warming. Poor answers displayed confusion between the greenhouse gases and the ozone layer and little appreciation of the greenhouse effect or the nature and causes of global warming.

Question 9

This was a popular question with good responses in parts (a) and (b). Part (c) was answered well by few candidates.

- (a) Many candidates obtained full marks for both the definitions and for the useful diagrams that were used to demonstrate sea floor spreading.
- (b) Diagrams of convergent plate margins have improved considerably in recent examinations both in their accuracy and in their annotation. The link with landforms remains weaker as most candidates concentrate on the processes rather than the outcomes in terms of ocean trenches, fold mountains or volcanoes.
- (c) The nature of mass movements and their impact upon slopes remains an area of the syllabus that candidates explain very poorly. Some accounts did classify mass movements into falls, slides and flows but were unable to either describe them in any detail or to give any indication of their impact upon slopes. The most successful answers were generally those that showed diagrammatically the types of mass movement in conjunction with the slopes on which they occurred. They thus demonstrated how the mass movement had changed the slope profile.

Section C

Question 10

Many candidates did not understand the terminology used in this question and thus produced very weak or irrelevant answers. Where the terminology was understood candidates were able to attain very good levels of credit.

- (a) Most candidates were aware that carrying capacity was related to population/resource levels but were unable to express it as the **maximum** number of people that an area can support. The constraints limiting the capability of resources to feed the population was understood by very few. Many answers rehearsed descriptions of overpopulation .
- (b) Better answers showed a clear understanding of under and over population and how it related to population densities. However, exemplification was generally weak. Weaker answers discussed birth rates and population growth rather than key elements of population, resources and technology.
- (c) Many candidates launched straight into China's one child policy, which was often described in some detail. Only the better answers offered any evaluation of its success in terms of the population / resource balance. Most saw success and failure only in demographic or social terms. There were a few cases where candidates used local examples of government policies which usually provided more evaluation and hence credit than found elsewhere.

Question 11

Popular with some good answers.

- (a) Some candidates did not understand the term stepped migration or settlement hierarchy and hence obtained little credit from this part of the question. When stepped migration was understood candidates were successful in obtaining credit.
- (b) Most candidates limited their descriptions to push factors influencing migration from urban areas, but often the exemplification was weak or lacking. Many accounts began with push factors with emphasis on the environmental, but drifted into accounts of the attractions (pull) of rural areas.
- (c) Generally this was answered in a competent manner with most candidates able to distinguish different types and destinations of migrants in different age groups. The better answers were those that organized the age groups being considered and provided strong support for their typology.

Question 12

Many candidates were hampered by the lack of any detail of an example or examples of a shanty town.

- (a) Weaker answer merely consisted of a description of rural to urban migration or described the environmental conditions found in shanty towns. The better responses dealt with the scale of urban migration and population increase as well as the shortages of supply of housing and jobs.
- (b) Most candidates were able to provide some valid reasons for the removal of shanty towns. The better answers were those that centred their reasons on good examples.
- (c) The weaker answers listed generic improvements to housing, sanitation and water supply without any specific detail or any assessment of the success or failure. The better answers invoked case studies or examples that were located and detailed as to the actual policies. There were some examples of great detail of such schemes together with mature assessment of their impact upon the quality of life of the inhabitants.

GEOGRAPHY

Paper 9696/1
Core Geography 13

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Most candidates found this question accessible and were able to attain reasonable or good amounts of credit. Most correctly identified the two age groups in **(a)** although a significant minority appear to have misread the question giving the answer in terms of gender or percentages rather than age group. In **(b)** many identified the basic pattern of Fig. 4, but often failed to support their observations with evidence from the graph. Others cited the percentages of deaths for each of the age groups but failed to distinguish any overall pattern. The better answers were those that organized the data into groupings of age groups and cited the general aspects of their mortality. Most answers to **(c)** identified valid reasons for the low percentage of deaths below 50 years in MEDCs, such as healthcare provision, sanitation, nutrition and living conditions. The weakness of the answers lay in the failure to provide any explanation as to why these factors led to so few deaths. Some answers strayed into an explanation as to why LEDCs had higher death rates.

Question 5

Another well answered question, with most candidates gaining credit in each part of the answer. Nearly all candidates correctly identified Argentina in **(a)**. In **(b)** many candidates lost credit through an inability to frame their answer in terms of a pattern of net migration. Also some candidates did not appreciate the nature of net migration and assumed it was total migration. There were some very accomplished descriptions of the patterns within the data demonstrating that some candidates have come to terms with the demands of organizing and describing complex patterns of spatial data. Weaker answers gave general descriptions of push pull factors in **(c)**, whilst better answers recognised that migration decision making is both complex and individual. They then identified a number of pull factors and possible constraints upon a young adult migrating from Brazil.

Question 6

This was often the weakest answer in **Section A** as a significant proportion of the answers failed to correctly interpret Fig. 6. Many failed to correctly identify the categories of settlement in **(a)** as they had difficulty in separating the settlement sectors and reading off the correct totals on the y axis. The same occurred in **(b)** with many assuming that the top figure on the y axis represented the total amount in that category. Many answer failed to gain much, if any, credit in these two sections of the question. Part **(c)** was frequently poorly answered as the growth rate was often misidentified and the reasons given limited only to rural-urban migration. Few mentioned the continued impact of natural increase or the stage that LEDCs are at in the processes of urbanisation.

Section B

Question 7

This was quite a popular question, but with a very mixed range of quality in the answers.

- (a) Both helicoidal flow and laminar flow were known to candidates and often the definitions included useful diagrams. Turbulent flow was widely seen as encompassing eddying but fewer related it to channel roughness, reduction in depth or increased velocity.
- (b) Generally oxbow lakes were better known than river cliffs. The latter produced some very fanciful diagrams that appeared to confuse rivers with the sea. The diagrams of oxbow lakes were far better although they often demonstrated considerable confusion between the respective roles of erosion and deposition. Better answers employed well annotated diagrams to earn most, if not all, of the marks
- (c) Where candidates concentrated on the outcomes of urban growth such as the production of impermeable surfaces, storm drains, channel straightening and bank strengthening they were usually able to relate these changes to channel flows in terms of discharge and velocity. Where the approach was through general catchment changes in land use through disafforestation, candidates were generally far less successful in relating it to channel flows beyond a vague mention of flooding.

Question 8

This was the least popular question in **Section B** and produced answers that were either very good or very weak.

- (a) Generally the terms were understood in **(i)** except for some confusion between short and long wave radiation. Radiation cooling at the earth's surface was less well understood in **(ii)**; many not associating it with the night time loss of long wave radiation.
- (b) There were some useful and well annotated diagrams that demonstrated the greater amount of atmosphere that requires heating at the poles and the effect of the seasonal tilt of the earth. Poor answers persist in the erroneous assumption that it is distance from the sun that is the crucial factor in global solar energy receipt.
- (c) There were a number of excellent answers that displayed a knowledge of greenhouse gases, the green house effect and how human activities, largely through the exploitation of fossil fuels, disafforestation and agriculture may have affected global warming. Poor answers displayed confusion between the greenhouse gases and the ozone layer and little appreciation of the greenhouse effect or the nature and causes of global warming.

Question 9

This was a popular question with good responses in parts **(a)** and **(b)**. Part **(c)** was answered well by few candidates.

- (a) Many candidates obtained full marks for both the definitions and for the useful diagrams that were used to demonstrate sea floor spreading.
- (b) Diagrams of convergent plate margins have improved considerably in recent examinations both in their accuracy and in their annotation. The link with landforms remains weaker as most candidates concentrate on the processes rather than the outcomes in terms of ocean trenches, fold mountains or volcanoes.
- (c) The nature of mass movements and their impact upon slopes remains an area of the syllabus that candidates explain very poorly. Some accounts did classify mass movements into falls, slides and flows but were unable to either describe them in any detail or to give any indication of their impact upon slopes. The most successful answers were generally those that showed diagrammatically the types of mass movement in conjunction with the slopes on which they occurred. They thus demonstrated how the mass movement had changed the slope profile.

Section C

Question 10

Many candidates did not understand the terminology used in this question and thus produced very weak or irrelevant answers. Where the terminology was understood candidates were able to attain very good levels of credit.

- (a) Most candidates were aware that carrying capacity was related to population/resource levels but were unable to express it as the **maximum** number of people that an area can support. The constraints limiting the capability of resources to feed the population was understood by very few. Many answers rehearsed descriptions of overpopulation .
- (b) Better answers showed a clear understanding of under and over population and how it related to population densities. However, exemplification was generally weak. Weaker answers discussed birth rates and population growth rather than key elements of population, resources and technology.
- (c) Many candidates launched straight into China's one child policy, which was often described in some detail. Only the better answers offered any evaluation of its success in terms of the population / resource balance. Most saw success and failure only in demographic or social terms. There were a few cases where candidates used local examples of government policies which usually provided more evaluation and hence credit than found elsewhere.

Question 11

Popular with some good answers.

- (a) Some candidates did not understand the term stepped migration or settlement hierarchy and hence obtained little credit from this part of the question. When stepped migration was understood candidates were successful in obtaining credit.
- (b) Most candidates limited their descriptions to push factors influencing migration from urban areas, but often the exemplification was weak or lacking. Many accounts began with push factors with emphasis on the environmental, but drifted into accounts of the attractions (pull) of rural areas.
- (c) Generally this was answered in a competent manner with most candidates able to distinguish different types and destinations of migrants in different age groups. The better answers were those that organized the age groups being considered and provided strong support for their typology.

Question 12

Many candidates were hampered by the lack of any detail of an example or examples of a shanty town.

- (a) Weaker answer merely consisted of a description of rural to urban migration or described the environmental conditions found in shanty towns. The better responses dealt with the scale of urban migration and population increase as well as the shortages of supply of housing and jobs.
- (b) Most candidates were able to provide some valid reasons for the removal of shanty towns. The better answers were those that centred their reasons on good examples.
- (c) The weaker answers listed generic improvements to housing, sanitation and water supply without any specific detail or any assessment of the success or failure. The better answers invoked case studies or examples that were located and detailed as to the actual policies. There were some examples of great detail of such schemes together with mature assessment of their impact upon the quality of life of the inhabitants.

GEOGRAPHY

Paper 9696/21
Physical Geography 21

General Comments

This examination was very much in line with those of the recent past and elicited a similar level of response from candidates. The trend for candidates to concentrate their attention upon hazardous and coastal environments at the expense of tropical environments continued. Virtually every candidate answered one of the questions from hazardous environments. There was a welcome increase in interest in arid and semi-arid environments to add to those from Africa, where it has always been more popular. Coastal environments is the most popular second choice of environments, but is often weakly answered. Many candidates demonstrate understanding of marine processes, but not of the landforms or of the influence of geology upon coastal development. In the case of hazardous environments, many candidates do not gain a balance in their preparation between the physical nature and causes of the hazard and its human consequences. There is a tendency to concentrate on the latter at the expense of the former.

Each of the four environments on the paper has one question that contains a resource material. There remains a tendency for many of the candidates to make little use of the resource and to write in general terms about the topic. Thus in **Question 6 (a)**, many candidates wrote about the causes of tornadoes in the mid-west of the United States but failed to comment on the actual nature of the tornado as was shown in the diagram.

The use of diagrams drawn by the candidates within answers has improved in recent examinations with more accurate draughtsmanship and better labelling. The annotation of such diagrams, however, is still very limited and leads many candidates to describe the diagram in detail in the text which rather negates the use of the diagram in the first place.

In part **(b)** of many questions there is a requirement for some degree of assessment or evaluation on behalf of the candidate. This is signaled by command terms such as 'to what extent', 'evaluate' or 'assess'. In order to access Level 3 within these questions candidates do need to address this aspect of the question, yet many continue to ignore or give scant attention to any evaluation.

Generally, candidates use their time appropriately and there are hardly any examples of rubric infringements. The use of English, by and large, is excellent and in most case the handwriting was clear and legible.

It is pleasing to note that there were some exceptional scripts, demonstrating both knowledge of physical processes and a keen spatial awareness such that the Examiners felt that little more could be achieved by a candidate under examination conditions.

Comments on individual questions.

Tropical Environments

Question 1

There were very few answers to this question, most of which were disappointing.

- (a)** Apart from the fact that both climates were seasonal in nature, little appeared to be known of the characteristics of monsoon and seasonally humid climates. Very few answers gave even an outline of precipitation and temperature figures as examples of the two climatic types. This would have made a good starting point for any explanation of the differences between the two climatic types. It was anticipated that explanation would have involved a contrast between the influence of the seasonal movement of the ITCZ and the impact of differential heating between land masses

and the oceans. Good answers might have suggested that both climatic types could be influenced by seasonal movement of the ITCZ.

- (b) The few answers seen gave little more than an outline account of carbonation as illustrated by the production of caverns and stalactites and stalagmites. It was anticipated that good answers would point to the increased rates of chemical weathering found in the tropics producing large scale karstic features. These are represented not only by a range of karst landforms such as caverns, pavements, dolines and poljes, but also by the development of tower karst and cockpit country.

Question 2

This was the more popular of the two tropical environment questions, but still with relatively few answers.

- (a) The vegetation of the savanna biome is not as well known as that characterising the tropical rainforest. Most pointed to the drought resistant nature of the vegetation, but were unable to develop the vegetation types much beyond grasses and the baobab tree. The ability of ground cover plants to survive dry seasons and germinate during the rains, as well as the incidence of deciduous tree species such as the Acacia, were rarely noted. Few candidates made any mention of the variation in environmental conditions and hence vegetation across the biome. Even the role of fire was often unrecorded.
- (b) Fig. 1 was poorly utilised by most candidates. Rather than review the different types of forest clearance that was taking place, they all tended to be seen as the same process leading to the same results in terms environmental impact, i.e. soil erosion and global warming. Very few answers pointed out that soil leaching and degradation will occur fastest where there is the greatest loss of biomass (e.g. clear felling). Burning on the other hand could lead to short term gains in terms of soil nutrients and longer term impacts will depend upon inputs of fertilizers and the nature of ground cover vegetation. The most obvious approach would have been via the nutrient cycle, but few took that opportunity.

Coastal environments

Question 3

This was a very popular question. Most candidates gained reasonable or good levels of credit, although part (a) was more successfully answered than part (b).

- (a) The conditions under which coral thrive are now widely appreciated by candidates. There is a tendency for many to produce a list of conditions (such as sea temperature depth, salinity etc.) without relating them to coral itself. The major forms of fringing reefs, barrier reefs and atolls are also well known, although the diagrams were often less than robust and poorly labelled. Apart from their location in relation to islands the nature, scale and shape of these coral forms was only developed by the best answers. It also would have been useful for candidates to demonstrate some appreciation of the nature of coral itself even if simply expressed as marine organisms that live in colonies and secrete external skeletons.
- (b) Examiners saw a greater range of answers to this question. Weaker answers were those that concentrated upon constructive and destructive wave action, marine processes and hard engineering solutions to coastal protection. Better answers, of which there were some outstanding examples, were those that described erosive activity in high and low energy coastal environments as well as the influence of geology as illustrated through particular examples or stretches of coastline. Some Centres made particularly telling use of the Dorset coastline in this instance. The better answers did attempt to debate the extent to which the physical factors could be controlled, pointing out the limits imposed by both cost and effectiveness of coastal protection schemes.

Question 4

This was less popular than **Question 3** and certainly less successfully answered. Candidates appear far less prepared upon aspects of coastal sedimentation than they are on coastal erosion.

- (a) The formation of beaches and the nature of beach profiles appear to be a part of the syllabus that candidates do not thoroughly prepare. Whilst the general impact of constructive and destructive waves in the formation of beaches was described, the processes were not related to the micro-features of beach topography shown on Fig. 2. Few answers identified the drop in height towards the sea with the accumulation of coarser material at the storm beach and berms produced by strong swash. The role of swash and backwash in sorting and combing material to form cusps and runnels was rarely mentioned. Instead many answers concentrated on the retreat of the cliff line.
- (b) The best answers approached this question through the operation of a sediment cell, such that the supply, transport and deposition of sediment could be viewed as natural processes and an assessment made of the ways and extent to which they can be influenced by human activities. Relatively few answers adopted this approach. Most began with sediment transport through longshore drift and its interruption through human activities by the placing of groynes. Some did develop coastal sedimentation through examples of spits and salt marshes and gave some description as to the impact (usually destructive) of human activities.

Hazardous environments

Question 5

This was the most popular question on the paper. The nature of hazard prediction is now far better prepared by candidates and thus most were able to gain reasonable credit on this question. Many were restricted by a limited appreciation of the purpose and instrumentation of the methodologies they described. It is appreciated by Examiners that this is an ever changing field of research and does require preparation beyond that found in many textbooks.

- (a) Most answers were able to give a range of methods employed for the prediction of eruptions. The best answers were those that gave both the instrumentation and described how the method gives a signal of imminent eruptions. They described for instance how seismic activity could be measured by seismometers and the frequency of such activity indicates the imminence of an eruption. Weaker answers mentioned the use of seismographs without indication what was being measured or how or why they were used in terms of prediction. Similar variation characterised the measurement of surface and sub-surface temperatures, the analysis of gases released from fumaroles and the employment of satellite photography and study of past eruptive activity.
- (b) Many candidates found greater difficulty in dealing with the methods of earthquake prediction and often repeated the same weaknesses as were evidenced in (a). Better answers gave a full description of the methodologies and made a sensible judgment that they were less successful than those employed for volcanoes. This was backed with good exemplification of the successful evacuation of volcanic sites contrasted with the extensive fatalities consequent upon earthquake activity such as that recently experienced in Haiti. Candidates from some Centres produced exceptionally good answers to this question with well developed reasoning and exemplification.

Question 6

The less popular of the questions in hazardous environments, but a question that produced some very accomplished responses.

- (a) The nature and causes of tornadoes are much better understood than has been the case in the past. Even so there was a tendency in this question to dwell on the climatic circumstances under which tornadoes occur in tornado alley in the USA rather than to use Fig. 3 to describe the nature of tornadoes and their relationship with anvil clouds and rotating winds of considerable velocity. The actual weather conditions pertaining to the USA were often somewhat confused, particularly in the detail of higher level inversions and the impact of wind shear, none of which was actually required for a successful answer.



- (b) Most answers correctly distinguished between the more localised hazardous impact of tornadoes as compared to the large scale of hurricanes. Weaker answers tended to concentrate only upon the hazards consequent upon wind speeds. The better answers, of which there were many, described storm surges, heavy rainfall and the primary and secondary hazards that resulted from hurricanes. This was contrasted with tornado hazards by the use of well developed examples detailing both the respective nature of the hazards and their impact upon fatalities and property.

Arid and semi-arid environments

Question 7

Desertification seems a relatively popular area of study. This question produced a very wide range in the quality of the responses.

- (a) Most answers associated desertification with soil deterioration but far fewer saw it as the spread of desert conditions into semi-arid areas located on desert margins. The causes were described in terms of human activities, the most prominent of which were deforestation and overgrazing. The better accounts suggested that drought could be significant and provided good exemplification of human activities in specific locations (such as the Aral Sea area or Sahel) that led to a general deterioration of the ecosystem and not simply soil erosion.
- (b) Many answers were significantly hampered by a lack of any knowledge of actual methods or areas where attempts had been made to restore lands that had suffered desertification. These answers made only vague generic sorts of suggestions such as reforestation or irrigation through damming. No judgment was made as to the feasibility of these methods or as to their likely impacts upon desertified areas. The better answers were able to cite actual examples of measures that had been taken in parts of the Sahel, Syria, Jordan, or in the Aral Sea areas and were able to evaluate both their costs and their effectiveness.

Question 8

This was the least popular of the questions in this environment and produced many weak or indifferent answers.

In both parts of the question most answers made little use of Fig. 4.

- (a) The landforms of linear and crescentic dunes together with yardangs were identified by most candidates. Their extent and relative distribution on the map were, however, ignored. The diagrams tended to be very basic, lacking in detail scale and annotation. In the case of the dunes, wind direction and nature were rarely indicated and the scale of yardangs poorly illustrated. The explanations were often, at best, outline and failed to take into account the distinction between vegetated and moving dunes shown on the map.
- (b) Most responses pointed to the existence of wadis, seasonal and permanent rivers and Lake Chad as evidence of water action. The ability to describe and explain these landforms was far more varied. Generally the description and explanation of wadis were far more successfully accomplished than the other landforms. The map could have been usefully employed in indicating evidence for a wetter past, but was rarely utilised. Even comments on the former size of Lake Chad failed to indicate that much of the area is now occupied by products of wind erosion and deposition. Similarly the explanation of the nature of wadis was not used to suggest that the amount of erosional and depositional activity required was unlikely to occur from current levels of water action.

GEOGRAPHY

Paper 9696/22
Physical Geography 22

General Comments

The format and content of this examination was much in line with those of the recent past and elicited a similar level of response from candidates. The trend noted in past examinations for the majority of candidates to concentrate their attention upon hazardous and coastal environments continued. Very few answers were received for tropical environments, although the question on desertification appeared to attract some candidates to attempt arid and semi-arid environments. Despite the focus upon just two study areas it appears that not all parts of the syllabus in these areas receive the same amount of preparation by candidates. It is noticeable that avalanches and mass movements are far less understood than tectonic hazards. Similarly, coastal sediment seems to be less well prepared than the processes and products of coastal erosion. In all sections of the paper there are questions that combine aspects of physical geography with human response. Many candidates attempt these questions but fail to find a balance between these two aspects of the question preferring to concentrate on human activities. In order to gain good marks it is necessary to demonstrate an understanding of the physical processes that underpin human actions.

Half the questions on the paper contain some form of resource material. This material is poorly utilised by many candidates who write in general terms about the question topic rather than the resource provided. Thus in **Question 5** candidates wrote in vague terms about avalanches without ever utilising the material shown on two different forms of snow avalanche. In **Question 7**, the location of areas at risk from desertification were only seen as being peripheral to deserts with no attempt made to look at and explain their overall pattern of location.

Diagrams that candidate draw themselves as part of their answers have shown some improvement in recent years in terms of their accuracy. Annotation, however, remains poor as does their integration and use within the text. Often the diagrams remain more as an ornament than an integral part of the answer.

In part **(b)** of most questions there is a requirement for some degree of assessment or evaluation on behalf of the candidate. This is usually signaled in the question by the use of command terms such as 'to what extent', 'evaluate' or 'assess'. In order to access Level 3 in their responses, it is important that candidates address these aspects of the question, yet many continue to ignore or give scant attention to these question commands.

Rubric infringements were rare and limited to a handful of candidates who attempted 4 or even 6 questions. The use of English is generally admirable and in most cases the handwriting is clear and legible. There was a wide range in the quality of the scripts both between and within Centres. It is however, pleasing to acknowledge the excellence of some of the geographic skills and spatial awareness that is demonstrated by candidates from a wide range of Centres across the globe.

Comments on individual questions

Tropical environments

This is the least popular of the environments with few answers and these were often of a poor standard.

Question 1

- (a)** There was a recognition that the weathering shown in Fig. 1 was primarily the result of chemical weathering, but most accounts were at best vague as to the type or operation of such weathering. The removal of surface layers was mentioned although the process was again poorly described. It was anticipated that successful answers would describe either hydrolysis or carbonation acting on lines of structural weakness. The weathering plane could be identified as a basal surface of



weathering. Subsequent stripping of the surface layers would reveal corestones that were further acted upon by sub aerial processes to form castle koppies or tors.

- (b) The tropical rainforest was the most common choice and the accounts concentrated upon deforestation and subsequent deterioration of soils or the likely contribution to global warming. Both the nature of the clearance and the subsequent land use were poorly developed as most assumed total destruction and devastation. The use of the term ecosystem in the question was an indication that more was sought than an account of vegetation destruction and soil erosion. The question also required some discussion of the extent to which these ecosystems were threatened, necessitating some judgment and argument to be developed by the candidate.

Question 2

- (a) Many answers saw the ITCZ as a limb of the Hadley cell, but were unable to develop it as a convergence zone. Its role in equatorial areas in promoting uplift and hence cooling and condensation was often described. The seasonal movement of the ITCZ with the thermal equator was rarely described and its effects in producing precipitation in seasonally humid climates did not appear to be widely understood.
- (b) The relationship between vegetation and climate appears to be an area of the syllabus that is little studied as judged by the answers to this question. There was a vague association of the luxuriance of the tropical rainforest with high temperatures and rainfall as contrasted with the more limited xerophytic vegetation in areas of seasonal drought. Little climatic data was produced to support this, nor was there much detail on the nature of the vegetation or its climatic adaptations. Virtually no answers developed any other factors that might influence tropical vegetation such as soil type, altitude or even human activities. Few answers gained more than very basic levels of credit.

Coastal environments

Question 3

This was a very popular question, but with a wide range of quality of the responses.

- (a) Most recognised the theory of coral reef formation as that of Charles Darwin. Although the idea of the subsidence of the volcanic island was widely understood, far fewer answers developed the significance of changing sea levels for coral growth or how and why the initial fringing reefs developed into barrier reefs and atolls. Weak answers spent most of their time in describing the different levels of volcanic activity evident in the diagrams. The most common alternative theory that was stated was that of Daly. Better answers briefly described the changing temperatures and sea levels during and after the ice ages and their implication for coral growth.
- (b) Candidates were generally far more successful in describing the processes of marine erosion than they were of applying these processes to the landforms of rocky coastlines. Hydraulic action and cavitation are usually adequately described, but attrition and abrasion still cause confusion amongst many candidates. It was anticipated that candidates would demonstrate the effectiveness of marine processes in the production of landforms in high energy environments. Most accounts gave generic descriptions of stacks, stumps and arches, whilst better accounts utilised real examples of coastal landforms. Only the best answers suggested that rock type and structure had a role to play as does sub aerial erosion and weathering.

Question 4

This was less popular than **Question 3** and generally less well answered.

- (a) The sources of coastal sediment do not appear to be well known as most assumed that it was the sea bed that produced most material. Had there been some appreciation of sediment cells, candidates would have found it easier to cite rivers and estuaries as well as the products of coastal erosion as the prime sources. Accounts of transportation usually centred on longshore drift which was accurately described. Few, however, described how sediment was moved by sea water, i.e. in terms of suspension, traction, saltation, etc.



- (b) There has been some improvement in the quality of diagrams showing spits and saltmarshes in that the shapes of the landforms are more realistic. Weaknesses remain with the general coastal configuration where spits develop and in the indication of wind and wave direction, although longshore drift is accurately shown. Spits are better explained and described than saltmarshes, which are seen as vague accumulations of sediment behind a spit. The extent to which these landforms are threatened by human activities often did not extend beyond a description of groynes or of the impact of pollution and tourism.. Very few realized these fragile environments could also be threatened by natural processes, such as storm activities or changes in coastal transportation of sediment.

Hazardous environments

Question 5

The less popular of the hazard questions and one that yielded generally poor levels of credit.

- (a) As most candidates were unable to distinguish the nature of the snow avalanches shown in Figs 3A and 3B they were not able to describe likely causes beyond suggesting the incidence of loud noises. It was anticipated that answers would relate powder avalanches to the accumulation of snow on smooth frosted surfaces whilst slab avalanches would be related to intensely cold periods with high wind speeds. Most answers ignored the diagrams and gave vague general descriptions of avalanches. Preventative methods were given as tree planting, snow fences or artificially triggering avalanches. These were poorly described with few indications of how they might work. Many candidates ignored the instruction to limit their accounts to one method.
- (b) This was generally poorly answered as landslides were often the only mass movement considered and there was little appreciation of the physical circumstances of their occurrence. Many answered the question along the lines as to what human activities brought about landslides. As such they itemized mining, quarrying, road cutting and the like without relating the activity to either the landslide or to the hazards that may have been produced. Better answers saw mass movement as as being triggered when shear strength of slopes was exceeded by sheer stress. They correctly argued that in most cases this was the result of tectonic or volcanic activities and were able to cite examples of the hazardous impacts of landslides consequent upon earthquakes or tropical storms or lahars produced by volcanic eruptions. Human activities such as those at Aberfan or at dam bursts were acknowledged as having some role in creating slope instability and hence some hazardous effects.

Question 6

Very popular and producing some very accomplished answers.

- (a) The material ejected from volcanoes is well known by most candidates. Most answers were able to describe ash clouds, lava bombs, lava flows and pyroclastic flows. The precise nature of this material and the hazards that they produce were less well developed. Amongst some candidates there was some confusion over the nature of pyroclastic flows and their hazardous effects. Better answers often illustrated the hazardous effects with appropriate and accurate exemplification.
- (b) Most candidates are now well aware that volcanoes do not erupt without warning signs and thus animal behaviour is not the only means of prediction. Many answers pointed to the emission of smoke and ash, higher groundwater temperatures, gas emissions, bulging and most importantly the increase in seismic activity. What was less certain was how these were monitored and how they were used in prediction. Better answers were able to use effective exemplification, not only to demonstrate the methodologies but also to illustrate their effectiveness in bringing about timely evacuation thus saving lives.

Arid and semi-arid environments

Relatively few answers were attempted on arid and semi-arid environments and they were almost exclusively limited to **Question 7**

Question 7

- (a) The map (Fig. 4) was ineffectively used by most candidates, apart from the association of areas at high risk of desertification with the margins of deserts. It would have been useful for some sort of grouping of these areas such as sub-tropical areas, eastern coastal fringes, continental interiors. The incidence of drought which could lead to desert encroachment could thus have been explained in terms of the climatic conditions pertaining to each group which tend to produce a risk of increasing aridity.
- (b) Desertification is obviously a popular area of study, but both its nature and causes are not always well understood. By and large candidates were far happier dealing with the human causes of desertification. This was seen as the product of deforestation and overgrazing, but surprisingly not as a product of population increasing beyond the low carrying capacity of these marginal lands. Better answers were able to provide good exemplification from the Sahel or the dust bowl or even south eastern Spain. Candidates were far less secure with possible natural causes of desertification. The marginality of these semi-arid areas was appreciated by only the better answers, which indicated the ways by which small changes in rainfall incidence can quickly lead to vegetation loss, soil deterioration, wind erosion and deposition of dunes.

Question 8

There were surprisingly few answers for what was a rather straightforward desert question.

- (a) This was a relatively straightforward task of producing diagrams, descriptions and explanations of common dune types. Crescentic, linear, transverse, parabolic, dome and star shaped dunes could all have been included. In the few answers seen candidates progressed no further than the first two types.
- (b) Here was an opportunity (not taken) for candidates to contrast the shaping of desert landforms by wind and water action in both the present and a possible pluvial past. Wind erosion and deposition could be argued to be sculpting present day landforms, but not producing the scale or extent of the landforms themselves (i.e. individual dune shapes as against vast sand seas). Similarly, the episodic nature of sheet and stream floods, although often very intense in their short term impact, are unlikely to produce the landforms of the desert piedmont or vast complexes of mountain fronts riven by wadi systems. There was ample opportunity for the development of examples or case studies



GEOGRAPHY

Paper 9696/31
Human Options 31

General comments

With a number of new Centres entering candidates for the first time, a great diversity of responses was seen in terms of approach, depth and detail. A spectrum of quality was observed from outstanding geography demonstrating detailed up-to-date knowledge (AO1), strong conceptual understanding (AO2), and skills in data interpretation (AO3) and in evaluation (AO4); to those which were incomplete or faulty in some way and hard to view as being of A Level standard.

The performance of candidates would be enhanced by developing a few examination skills and disciplines referred to below in the question-specific comments, but distilled here for ease of reference. Careful attention should be given to:

- the question set, breaking the wording down into its constituent parts and planning a response which includes all of them
- the command word(s), framing the response accordingly, e.g. a description for “Describe”, an explanation for “Explain” or “Suggest reasons”
- relevance, as only material which is pertinent to that which is asked can be credited, rather than content which has been learned, reproduced and is correct. Including irrelevant material may obscure the thread of a response and consumes valuable time to no gain.

Overall, the main feature of responses was the lack of in-depth analysis. Even in carefully planned, factually accurate responses which were spatial in conception and clearly located, it was the higher order skills of application, analysis and evaluation which marked out higher-achieving candidates from those of pass quality. Whilst moderate candidates did offer opinions or judgements, for example about success, it was the ability to substantiate these which identified the more able.

The options *Environmental Management* and *Global interdependence* remain the more popular, but some high quality work was also seen on *Economic transition* as an option. It was good to see the use of home country and home region examples and case studies from a range of locations including Kenya, Zimbabwe and, for the first time, the UK. Several resources in the Insert were purposefully global, whether the changes in forest area in Tables 1A and 1B, flows of oil in Fig. 2 or percentage share of GDP in Fig. 3. In contrast, Fig. 1 showing an actual industrial estate in Thailand represents the examination of a syllabus topic in an unfamiliar context.

In the first examination on the revised syllabus, the question paper comprised elements of continuity and elements of change to demonstrate the types of questions that can be set on some of the new content. **Question 3(b)** was about a named located scheme to produce electrical energy, now differentiated in the syllabus from a national energy strategy. **Question 5(b)** was about the World Trade Organization (WTO), a new element under **3.1**. Lastly, newly industrialised countries (NICs) were the subject of **Question 7(b)** in the context of the global economy. For the interest of those preparing candidates for this option, the variant question paper 9696/32 also carried a question on NICs, **Question 8(a)**.

Examiners noted two particular aspects of what was set that caused difficulties, especially for weaker candidates. One was how to interpret **Question 3(b)** at the appropriate scale (see question-specific comments below). The other was in relation to **Question 6**, where a significant number of candidates seemed to miss or overlook the stem “Using examples of tourist destinations” and to jump straight to explaining carrying capacity in (i) and related circumstances in (ii) simply in a general or theoretical manner, so limiting the marks that could be awarded. Examiners commented that the grasp of the WTO’s work was moderate and the evaluation of it often weak (see question-specific comments below).

One marking approach of which teachers preparing candidates for the syllabus should be aware is that in parts (a) where there is no division into sub-parts, so in **Questions 1, 2, 3, 5 and 7** on this question paper, three bands of marks, **0–4, 5–7 and 8–10**, are now used to assist Examiners with differentiating responses. In all questions which ask explicitly for examples, responses without exemplar support may achieve a maximum of 6/10, i.e. the middle mark in the middle band.

Qualities of language and expression varied greatly from highly articulate responses, deploying subject terminology fluently and robustly, to some where meaning was unclear and where note-form or bullet points were used. Candidates are reminded that narrative responses are expected and that lists and notes do not show the development of ideas and arguments which is expected at this level.

A small number of rubric errors were seen, usually where a candidate wrongly attempted one question from each of the four options.

Comments on specific questions

Production, location and change

The two questions were of approximately equal popularity within the entry.

Question 1

- (a) Almost all candidates identified “physical factors” correctly and avoided including human factors in their responses. The main weakness was observed to be a tendency to reproduce material that had been learned in the manner that it had been learned, rather than directing it and applying it to the particular issues of “agricultural land-use and practices on farms”. Some moderate quality responses were limited in achievement by addressing land-use (literally what the land is used for), but not practices (what is done and/or how it is done).
- (b) A considerable diversity of approaches was seen and credited as much depended on the case study or examples taken in terms of agreeing or disagreeing with the quotation. Many responses were limited by the lack of understanding of profit and the profit motive, some simply interpreting it as commercial agriculture. No particular stance was anticipated by Examiners although higher-scoring responses tended to analyse both profit as a motive and other motivations, factors or influences such as government initiatives or the need to meet increased food demands in the context of population growth. Whilst the Green Revolution in Asia was used extensively, there was good material from home country offered by some candidates especially from Centres in Africa.

Question 2

Response quality to this question seemed to be limited by inattention to the question set in both parts.

- (a) An effective response required both close reading and interpretation of Fig. 1 and “evidence” to be given from it. Some candidates had clearly looked at Fig. 1 and noticed key features, but many responses included phrases such as “main road” rather than simply “Highway 504 to Bangkok”. Others found it hard to interpret Fig. 1 geographically in the light of industrial location decision-making. For example, the Gateway City Industrial Estate offers plots in the general industrial zone of varying sizes, suitable for businesses of different scales, for branch plants, service providers, start-up companies, etc. Although some realised that there was an assured supply of water and power, few recognised that Gateway City offers a secure location for enterprises. Some incorporated their own knowledge, either through examples from other locations, or by making conceptual points about elements that could not be seen on Fig. 1, such as the availability of financial incentives to locate on some industrial estates. A few linked this point in a speculative, but creditable manner to the IEAT (Industrial Estate Authority of Thailand) the office of which was shown on Fig. 1. Some responses were simply descriptive of Fig. 1, offering a developed list of what was shown. The mark scheme allowed a maximum of 6 marks for a response derived from Fig. 1 without the integration of a candidate’s own material, if done well.

- (b) In attention to the wording of the question here led some candidates to consider more than one country. In such a case Examiners marked the content about each country separately and credited the higher or highest mark. Other accounts covered both successes and failures, whereas the construction “either the main successes or the main failures” requires the treatment of one or the other. Of the two, “successes” was the more popular choice. Few good quality accounts were seen, most being simple narratives of industrial change without the necessary analytical and evaluate element. Examiners saw a surprising number of responses about the history of the iron and steel industry in the UK which both started well before the syllabus timeframe (in which after 1970, is given for guidance) and were not couched in terms of success/failure. Some better quality case studies of industrial change included the successes of a newly industrialised country, such as in one of the Asian Tigers, and the failures in an LEDC, such as Zimbabwe. The highest-scoring accounts combined factual detail with analytical comment, some identifying different outcomes in different locations or for different groups of people.

Environmental management

Both questions were very popular.

Question 3

Teachers preparing candidates for this option should impress upon them the importance of distinguishing a national energy strategy from a “named located scheme”. Some responses to (b) were mistaken in the scale at which they responded (that of a country) or offered something which was hard to treat as a single named scheme, e.g. HEP in Norway or a national energy budget.

- (a) There were few poor responses to this part-question and many good to very good answers were seen. Examiners were looking to reward the development of a combination of two elements: the disadvantages and limitations of non-renewable sources, such as depletion and pollution, and the advantages or benefits of renewables, such as meeting targets for emissions reduction or achieving greater energy security. Responses which catalogued simple opposites, such as “are running out” and “will never run out”, scored less highly than those who could also offer the distinctives of each. Whilst there was no specific requirement for examples, teachers are reminded of the general instruction which appears on the cover of the question paper. One Examiner noted that as the question was “at the global scale”, a case study about what one country is doing to increase the percentage of energy produced from renewables was not a good choice. Some of the very best accounts made reference to initiatives in both MEDCs and LEDCs and conveyed a truly global perspective.
- (b) The full range of response quality was seen. If an appropriate scheme was selected, the main challenge was to assess its success, rather than simply to describe it with or without a summary comment as to whether it can be regarded as having succeeded. Some candidates supported their responses with annotated sketch-maps helpfully. The fullest assessments of success operated in several dimensions: the economic, such as cost/benefit analysis or consideration of the implications of the availability of electricity for business and industry; the social, whether population displacement on the one hand or agricultural improvement through flood control and associated irrigation schemes; the environmental, including, for example, issues of loss of habitats, fish movements, sedimentation and tectonic risks; and the political, from cross-border electricity exports to aid, debt and corruption. The Three Gorges Dam in China, which is well-documented, featured heavily in responses, but use was made of a number of schemes from different countries. Many of these produced HEP, but any type of scheme was acceptable and there was good material on both nuclear and coal-fired power stations from certain Centres. In some responses it was good to see statistical data on generating capacity and comments on the realities of demand and supply whether the seasonality of river regimes or problems of maintenance.



Question 4

- (a) (i) The data in Tables 1A and 1B had the elements of straightforwardness and complexity sought by the setter at this level. The former allowed most candidates to achieve 2–3 marks and the latter enabled the more highly skilled, who saw more in the data, to achieve 4–5 marks. No mark was given for observing that Table 1A showed losses and Table 1B showed gains, as this was given in the headings. A full response was supported with names and data from the tables and consisted of comparative comments on both magnitude of changes in forest area and locations. Some candidates did not gain marks through failing to make comparisons (treating the two tables separately); by rewriting the data in words, rather than analysing it; through offering very general comments, for example only using names of world regions; or through not offering any data support. Many candidates observed the dominance of countries in Africa in Table 1A and of those in Europe in the more mixed list in Table 1B. Others noted that forest losses were much greater than gains, with the exception of China. This net loss, as a global concern, linked to the next element, (ii).
- (ii) Candidates used their wider knowledge and understanding of environments and responded satisfactorily to very well. There exist many reasons for global concern about the loss of forests from global warming and forests' role in processing carbon dioxide to the loss of diversity in forest biomes and forests' potential for medical discoveries. Better accounts retained the "global" aspect and avoided issues that were more local.
- (b) As noted in previous Reports, the format of this sort of question means that any environment or environments may be used as the basis for a response to part (b) and there was no requirement for candidates to restrict themselves to forests as some did. Many responses remained quite general: one Examiner reported that, "whilst candidates were able to write sensibly and reasonably securely on the problems ... few were able to draw on appropriately detailed knowledge of examples." A variety of environments were used, however, from complex transborder river catchments such as the Ganges or the Rhine; to small-scale examples, such as a named mine or squatter settlement. There was some evidence that large-scale environments, some global, such as "air" are hard to handle and to treat effectively and that candidates are better served by examples which are more manageable and can be more detailed. Some candidates differentiated effectively between the two elements "difficult to stop environmental degradation" and "to improve environmental quality", although it was acceptable to consider difficulty overall. Examiners observed that some candidates found selecting, applying and directing their material to the actual question set difficult to do. A large number of responses had a lot of content about why the chosen environment(s) became degraded, which, in this context, was not in itself creditable unless carefully applied. Many high-scoring accounts demonstrated the complex, dynamic and multi-dimensional nature of environmental degradation, different timescales and the interaction of stakeholders.

Global interdependence

In this the most popular Option, **Question 6** dominated the choices. **Question 5(b)** contained one of the elements introduced into the 2010 revised syllabus, the World Trade Organization (WTO).

Question 5

- (a) Few candidates had the skills to describe Fig. 2 adequately and to offer some explanation for the global inequalities observed. An overview was required, but only exceptionally did candidates 'stand back' from the map to consider the overall pattern. Weaker responses tended to focus on one region, such as North America, or the candidate's home region. Answers in which inequalities were brought out did so in the context of global North/South or identified significant destination areas for flows, such as Europe, and significant sources, such as Africa. Suitable explanations tended to focus on resource endowment, economic development and global trading relationships, such as the role of OPEC. Some high quality responses made important political and economic observations about the barrel price mechanism, demand and supply, and trading in a finite and diminishing commodity on which the world is heavily dependent.

- (b) This first question on the WTO invited candidates to display their knowledge of what it does and to offer some evaluation of it. As is the case across the Options, most candidates were more comfortable describing and explaining the WTO, than evaluating its work. Its core activities are to supervise world trade for its member countries and to liberalise world trade in order to promote economic growth. As part of this it is responsible for negotiating and implementing new trade agreements and for policing member countries' adherence to existing agreements. There was little detailed knowledge of examples but use was made of China's joining the WTO in 2001, the challenge to the Lomé Convention and the failure of the Doha round of trade talks. Examiners were surprised by then uncritical approach to the work of the WTO taken by most candidates, who seemed ready to pronounce it a good thing and very successful, but unable to substantiate this. At the lower end there appeared to be some confusion between the WTO and the World Bank.

Question 6

- (a) (i) From the responses received, Examiners wondered if a significant proportion of candidates had failed either to read or to register the stem, "Using examples of tourist destinations". Many not only did not offer examples in their responses to (a), but also did not explain carrying capacity in the context of tourism, taking instead the more general definition in terms of population and resources. A good definition was that carrying capacity is the maximum [important to include] number of tourists [not simply 'people'] that the resources of a tourist destination can support. Some candidates were able to develop this further, recognising different kinds of carrying capacity, such as physical capacity, e.g. bed spaces; service capacity, e.g. water; psychological capacity, both in relation to the quality of the experience for tourists and the perceptions of locals, as identified by Doxey's Irritation Index. There is also environmental capacity, which is the maximum before damage is sustained to any tourist environment, e.g. to a coast, such as the Costa del Sol in Spain; a world heritage site, such as Machu Pichu in Peru; or a national park, such as Kruger in South Africa. In each of these destinations the carrying capacity varies.
- (ii) The main pitfall here was to describe the consequences of carrying capacity being exceeded, rather than the circumstances in which this occurs asked for by the question. A full response consisted of two developed circumstances supported by examples. For instance, during the main summer holiday season in Europe (July/August), families flock to the Mediterranean coasts and islands for sun, sand and sea. At weekends and on public holidays, when the numbers are swelled by local people enjoying time off, carrying capacity may be breached. Some candidates used the 2010 World Cup in South Africa effectively or offered their own example. One was where heavy promotion of a resort had been overly successful in attracting visitors for whom tourist services from bed spaces to parking spaces were not then available.
- (b) Ecotourism is both a well-established and well-documented enterprise and firmly established within 9696. The full range of answer quality was seen. Examiners noted two main areas of deficiency in response: firstly the adoption of too permissive a definition of ecotourism, and secondly, where candidates had knowledge and understanding of ecotourism, a lack of attention to the specific demands of the question, in this case failing to address the ideas of "conserving the environment and empowering the local community". Ecotourism is a form of sustainable tourism and the term should not be used for all forms of tourism based on the great outdoors, from trips to the seaside to wildlife safaris. Whilst some of these places may have ecotourism initiatives, the locations are also used by mass tourism, adventure tourism and other tourism enterprises, so cannot be equated with ecotourism. Some high-scoring assessments focused on environmental conservation, identifying different elements of the environment, such as forest, wildlife, water bodies and evaluating impacts and outcomes. This was sometime framed in the context of carrying capacity, or in terms of economic gain or *greenwashing*, a term for calling something environmentally sustainable, or 'green', which is not, in order to attract custom. Whilst most candidates wrote that ecotourism provides jobs for local people, few were able to develop and direct the idea of work towards community empowerment, making the link, say, to improved standards of living, to the release of entrepreneurial gifts amongst men and women, or access to education enabling the next generation. The quality of examples used ranged from vague references such as "in South America" to tight, detailed, named, located cases some of which were supported with data or other evidence suggesting close study.

Economic transition

This Option is of growing popularity and was chosen by a number of new Centres preparing candidates for the examination.

Question 7

- (a) This was answered satisfactorily to very well indeed by most candidates. Examiners were looking for a combination of description of the trends in Fig. 3, using dates and percentages, and some explanation of them in terms of the global economy. Although these two things could be done separately, many candidates combined description and reasoning effectively. It was better to consider economic transition at the world scale from wider geographical understanding than to seek to offer specific and separate explanations of each of the five trends shown. Some candidates attempted to do this, but lacked the place- and date-specific knowledge to do so meaningfully and tended to write very generally or to ascribe significance inappropriately to isolated facts or events. Examiners were not seeking comprehensive responses, simply looking to establish that linked changes in the world economy were understood. A critical appreciation of Fig. 3 might include that the data was relative (percentage) not absolute (US\$ or equivalent) and that other parts of the world, such as the LEDCs and NICs of South America, were omitted.
- (b) Whilst Examiners had no pre-commitment to any particular position in the responses, many candidates developed the argument that government initiatives were very important, but that other factors also mattered. These 'other factors' ranged from the provision of aid monies to the existence of local entrepreneurs, from the Asian work ethic to the role of TNCs. Much depended on the countries chosen. In a few cases, countries were chosen which are not technically NICs, even if there is industry newly developed there. A detailed response on one NIC, done well, received a maximum of 10 marks, the question being phrased in the plural. There were two kinds of approach which restricted overall achievement. One was a way of writing which added examples but made and remade the same points in the new contexts, rather than furthering the argument and assessment. The other was candidates' inability to use their material in a manner different from that in which it had been learned, or, perhaps, used previously. In such responses, irrelevance became noticeable. Examiners can only credit that which is pertinent to the question set, not that which is factually correct or of geographical interest but irrelevant.

Question 8

- (a) (i) For the three marks, Examiners were looking for the identification of the core, the most developed region, of the periphery with lower levels of development and, perhaps, some socio-economic disadvantage and some sense of the relationship, flows or gradient between the two. This differentiated effectively, the last point being the element most often omitted. In a few cases, a lower mark seemed to be more an issue of expression than of conceptual understanding.
- (ii) Although the literature and models attest the dominance of core areas, not many candidates could outline firmly the characteristics that lead to this. The best descriptions were of economic dominance through flows of capital and migrants, business growth, investment decisions, infrastructure and the multiplier, making the core the preferred location for economic activity of all kinds. Some recognised that the core region usually contains the political capital and that it, as the seat of government, dominates by decision-making, prestige and inertia. Many responses were general and conceptual, but others developed supported points using one or more locational contexts which, in illustration, emphasised the appreciation of dominance.
- (b) This question may have appeared more challenging than it was. It provided core and periphery as one possible explanatory framework for regional disparities and invited candidates to assess whether this, or any other framework, was the best explanation for the chosen country. One approach seen was to use North/South as an alternative framework, in a country such as Italy or the UK, considering this alongside core and periphery. Some candidates considered the idea of 'Third Italy' effectively as a further development. Others took a more complex situation, such as in Brazil, and used another framework like Friedman's, identifying, for example, resource-frontier regions as well as core and periphery. Others introduced other explanatory strands, more socio-political in origin, such as ethnicity; government structures, such as federalism; or historical ones, such as conflict or colonialism. Any such element added substance to the assessment of extent. More modest responses tended simply to embrace core and periphery as fully explanatory in an uncritical manner.



GEOGRAPHY

Paper 9696/32
Human Options 32

General comments

A spectrum of quality of responses was seen from superb geography showing detailed knowledge (AO1), strong conceptual understanding (AO2), and skills in writing (AO3) and evaluation (AO4); to those which were incomplete and fragmentary. In some of these, questions and/or the resources in the Insert were misinterpreted and what was written was hard to regard as of A Level standard.

The options *Environmental Management* and *Global interdependence* remain the more popular, but some high quality work was seen on the other two options also. It was most welcome to see the use of home country and home region examples and case studies from a range of locations including Brunei, Malaysia and Pakistan, as this is part of the intention of 9696 as a syllabus. It is always more challenging for candidates to offer developed analysis and high level geographical understanding of examples from unfamiliar contexts, such as the Common Agricultural Policy (CAP) of the European Union (EU), in response to **Question 1**, or the Mezzogiorno in Italy in response to **Question 8**, because of the distance from their lived experience and context and the cross-cultural element involved.

In the first examination on the revised syllabus, the question paper comprised elements of continuity and elements of change which demonstrated the types of questions that can be set on some of the new content. **Question 4(a)** was about water quality, now included explicitly in the syllabus, although water pollution has always been found there. **Question 5(a)** was about different forms of aid, a new element under **3.3**, with part **(b)** on the impact of aid, a classic question in the literature. Lastly, newly industrialised countries (NICs) were the subject of **Question 8(a)** in the context of the global economy. For the interest of those preparing candidates for this option, the variant question paper 9696/31 also carried a question with a part on NICs, **Question 7(b)**.

Examiners noted two particular aspects of what was set that caused difficulties, especially for weaker candidates. One was how to interpret **Question 3(b)** effectively and so structure a response (see question-specific comments below). The other was the interpretation of the word 'aid' in **Question 5**. Whilst some had the technical definition anticipated in the syllabus and the mark scheme, a few candidates simply saw 'aid' as a synonym for 'help' or 'assistance' internationally and produced broader and shallower responses.

Two ways to enhance candidate performance in future would be to see better selection and quality of examples and/or case studies; and to pay more attention to the command words "assess" and "evaluate" where used, as these skills are needed in parts **(b)** to achieve awards in Levels 2 and 3, i.e. of 7/15 marks and above.

The Insert contained four figures of different styles and at different scales, which required a variety of skills to read effectively. **Fig. 1** was a model based on the familiar S-shaped adoption curve; **Fig. 2**, a comparative bar graph by world region; **Fig. 3**, a model at the local scale for the management of national parks in the USA (environmental protection in an unfamiliar context); and **Fig. 4**, a world map of the UN Human Poverty Index (HPI). All the part-questions based on these resources required the integration of information from the figure with the response; whether data in **Question 3(a)(i)** or features in **Question 6(a)**. This skill is a development of those exercised for the data response questions in **Section A** of the Paper 1 variants.

One marking approach of which teachers preparing candidates for the syllabus should be aware is that in parts **(a)**, where there is no division into sub-parts, three bands of marks, **0–4**, **5–7** and **8–10**, are now commonly used to assist Examiners with differentiating responses. In all questions which ask explicitly for examples, responses without exemplar support may achieve a maximum of 6/10, i.e. the middle mark in the middle band.

Comments on specific questions

Production, location and change

Question 1

This was the more popular choice within the option.

- (a) Most candidates interpreted **Fig. 1** correctly, although some failed to realise that the farmers adopting new agricultural methods in stages 2 and 3 were different farmers from those who had adopted them in stage 1.
- (i) Most candidates scored 2/5 or 3/5 straightforwardly, by contrasting the scale and rate of adoption between the two groups of farmers and offering an element of explanation, usually cost and ability to pay. The main weaknesses in responses were failure to include a description of the shaded area, termed a 'gap' in the key to **Fig. 1**; and the omission of any other explanatory factors, such as conservatism, resistance to change, avoidance of risk-taking, illiteracy, etc.
- (ii) Whilst moderate responses reproduced the explanation from (i) on cost and ability to pay, better ones suggested a number of other factors. These included the availability of government help, for example in agricultural training schemes, subsidised inputs or loans; the effects of witnessing the success of early adopters in stage 1; and the effect of change in communities where family, neighbour and friendship networks may be influential.
- (b) Examiners noticed a strong emphasis on agricultural change and the appropriate use of a range of examples and contexts, but limitations in the understanding of what management is and what management involves whether for individual producers, governments or supranational bodies such as the European Union (EU). Many candidates simply wrote of the consequences of agricultural change, whilst the experience and implementation of agricultural change as a process would also have been relevant and creditable. One Examiner wrote of "few convincing answers", but observed that the challenges of the physical environment could contribute usefully to the response.

Question 2

- (a) Labour is understood satisfactorily as a factor of production and most candidates addressed both quantity and quality, as required. Some turned it into a question simply on industrial location, whilst others recognised the implications of the quantity and quality of labour on production processes and systems. Creditable material included skills and skills training, mechanisation and automation, unionisation and migrant labour. Better quality responses were supported with examples from Nike producing trainers in southeast Asia to biotechnology on the Cambridge Science Park in the UK. One Examiner noted that some high-scoring responses "pointed out that both quality and quantity of labour combined to create some of the fast-emerging economies" of the world.
- (b) The issue of footlooseness is fundamental to industrial location and is itself changing over time with changes in technology, transport, communications and pricing structures. The question explained the term *footloose* in the phrase within the bracket in case any candidate was unfamiliar with it and as it does not appear in the published syllabus. Most candidates recognised that footlooseness varies with the type of industry, the locational context and the time period. Some could contrast weight-losing industries, such as minerals processing, with market-oriented industries, such as fashion, or weight-gaining industries with effectively ubiquitous raw materials, such as the drinks industry (water), but, overall, there was too great an emphasis on Weber's model. Some high quality responses made effective use of factors that distort or disrupt this picture, for example industrial inertia. There was little use of appropriate examples and some candidates simply described what they had learned about changes in the location of the British iron and steel industry over time. Few of those who could explain changes in the tie to raw materials actually offered an evaluation of the assertion, for example by pointing out that some manufacturing industries might be anchored to historic raw material sites thanks to government decision-making.

Environmental management

Question 3

This question was by far the more popular choice in this option, but many had difficulty working out how to approach part **(b)**.

- (a) (i)** Asking for “main features” is a regular demand in questions on both Paper 1, the Human Core and Paper 3, the Advanced Human Options, and one to which most candidates now respond effectively and some very well indeed. Weaker responses tended to describe the type of diagram (the axes, units, regions) rather than its content; to read off the data without analysis, or to omit or mistake the units. A few thought, despite the heading and the question stem, that this was oil, not coal, presumably from the unit mtoe – million tonnes of oil equivalent.
- (ii)** Most candidates wrote appropriately to very well indeed about the continuing importance of coal globally as a source of energy, because of issues of cost, resource endowment, reserves, low technological demand, ease of transport and its suitability for LEDCs and fuelling economic development, compared to many other sources. Low cost was the focus of simpler accounts. Coal’s lack of vulnerability to geopolitical risks (compared to oil) was only mentioned in a few outstanding accounts. A full response consisted of three well developed and supported reasons or more, simpler, ones. There was some confusion observed amongst weak candidates between coal and charcoal, an altogether different fuel.
- (b)** The full range of answer quality was seen in response to the issue of energy production to meet short-term needs and longer term priorities. One high level response began directly, “every country can be said to have the same short-term needs and long-term priorities to do with energy – they are, to meet rising demands and economic pressures; and to deal with environmental and future supply issues, respectively.” Some candidates found it hard to interpret the timescale and to identify the use of non-renewables now and in the short-term and the transition to non-renewables in the light of longer term issues of depletion, pollution and global warming, yet others did this very effectively. Different examples were used to support this, for example contemporary China, one or more European MEDCs or Malaysia and some made reference to the Kyoto Protocol and Copenhagen Summit (2010). Some better responses considered the particular issues related to the use of nuclear power in terms of emissions; uranium being non-renewable, but abundant, and its associated risks and hazards, from production to the disposal of wastes. The most common failing was the production of explanatory or narrative responses, rather than evaluative ones, so restricting the level of reward achieved.

Question 4

- (a)** Although the question asked how water quality may be improved, a significant proportion of candidates responded by describing and explaining how water becomes polluted, either making that the focus of the response or using it to preface the relevant content, some times at length. This latter approach wasted time and limited the overall outcome. Most responses related mainly to reducing or stopping pollution at source in a number of ways, from the Rhine Action Plan to introducing sanitation in areas of spontaneous settlement. Some also touched on the treatment or purification of water, such as Singapore’s NEWater scheme. It was rare to see comments on hard engineering, such as wells or pipes, or on biological intervention, for example the removal of vegetation from water, although both were creditable. The quality of responses could have been improved by attention to different groups of people (stakeholders) involved in improving water quality and by the detail and specificity of the examples offered. At this level, “e.g. Indonesia” or “in Australia”, are insufficient.
- (b)** Responses to this part of the question were restricted by two principal difficulties. One was identifying a suitable environment. There are still far too many candidates choosing an environment the vast scale of which makes it very hard to handle effectively. ‘Air’ is a good example of this. Global rainforest environments fared only slightly better. The second difficulty was identifying factors. Many responses were framed in terms of “air pollution, land pollution and water pollution” rather than specific factors, such as polluting secondary industry, rising population pressure, or the lack of government controls. Better responses tended to take a named and located environment such as an urban area, coral coast, national park or forest, often within south or southeast Asia. These were both at a manageable scale and allowed some specificity of factors. Whilst there were many effective explanatory responses, few managed a truly evaluative

approach and did as asked in assessing significance. For example, “the most important factor is population pressure resulting from illegal migration from neighbouring countries in pursuit of paid work”, was a rare kind of comment. Rarer still were those who considered significance over time, contrasting factors at the time a tourist resort was established for example, with factors leading to degradation in the 21st century and the phenomenon of unregulated mass tourism.

Global interdependence

Question 5

Examiners noted the satisfactory quality of some responses to this newly-appearing topic, but very few high level responses.

- (a) A full response covered at least three forms of aid. Of these humanitarian or relief aid, and tied aid, were the most frequently seen and the best understood. Teachers delivering this part of the syllabus should note the technical definition of aid, and not the general one referred to in the General comments, above. Good use was made of some recent examples of international aid, such as in response to the earthquake in Haiti which occurred in January 2010. Specific examples of the work of NGOs, such as Save the Children and *Médecins Sans Frontières* (MSF) were also used well, although most candidates simply named such charities.
- (b) This classic question proved well-suited to the first examination of this topic and yielded responses of all qualities. There were a number of characteristics which restricted the outcome. One was a tendency to confuse aid with trade and or loans/debt, sometimes through using the term *financial aid* which is a category that does not appear in the syllabus. Another, in common with other parts (b) was a lack of assessment, with what was written being descriptive (in Level 1) or mainly explanatory in (Level 2) rather than truly evaluative. Many candidates were, however, able to observe that relief aid saves lives and/or to identify factors which affect its delivery in-country such as corruption, misappropriation or diversion of aid, or the emergence of dependency. Some high-scoring accounts outlined how the domestic economy may be distorted, or sectors such as defence promoted for reasons of prestige, over elements which are key for social and economic development such as primary healthcare or girls' education.

Question 6

Responses to this question dominated the option.

- (a) Satisfactory responses, in the middle mark band 5-7/10, were mainly seen, indicating that candidates were able to interpret **Fig. 1** appropriately but that they lacked the skills and understanding to drive and develop the explanation into the highest band. Usually this was through limited attention to “how this model balances” the twin demands, i.e. access and conservation, the classic dilemma of managing many recreational environments. Hallmarks of better quality were the ability to import specific ideas and to integrate them with the evidence in **Fig. 1**. For example, trampling is avoided by the provision of marked trails. Off-road driving leading to ruts and loss of vegetation cover is avoided by the provision of surfaced roads (and, presumably, a bye-law framework policed by national park wardens). Some mentioned zoning as a spatial strategy of impact control: the front country providing what most tourists demand and find helpful, from campsites to services, whilst preserving the backcountry or wilderness. A few observed that most visitors to national parks want to stay in or near their vehicles. Some weaker responses counted and listed the features on the figure or seemed to assume that it was an actual national park in the USA, not simply a model.
- (b) This classic part-question was handled well by many candidates and very well indeed by some. Most organised their responses in the dimensions economic, social and environmental. Many recognised both positive and negative outcomes, although these varied. For example, if an ecotourism case was used, it was possible that few, if any, impacts were truly negative. Some very good use was made of tourist areas within Asia, such as Bali, Thailand, Sarawak and Temburong, Brunei. Less successful were most attempts considering impacts over time based on the life cycle model of tourism, for example in relation to the development of the Costa del Sol, which seemed to have limited potential as an approach unless the material was selected and directed very well. Marks of quality included the identification of impacts of different kinds on different groups of people, e.g. women, fishermen, migrant workers; or on different places, such as beach(es), forest and local settlements.

Economic transition

The two questions were of approximately equal popularity.

Question 7

- (a) A full response to this part consisted of the advantages and disadvantages both of the index itself and of the map representation, but these did not need to be fully balanced. This was within the reach of most candidates and done satisfactorily to very well indeed. For example, HPI is internationally recognised as a measure and calculated in a standard way. The world map gives an immediate clear visual impression, showing, for example, high human poverty within Africa. Disadvantages include that HPI is only available at the national scale so disparities within countries between genders, between urban and rural areas or between core and periphery regions are masked. The map has three broad classes without a scale of numerical values. Overall, candidates' critical appreciation of the map meant that most responses were weaker on the advantages. One high-scoring candidate observed that data was not available for a large number of MEDCs and yet poverty is a problem there also, for example for homeless people or the urban underclass.
- (b) This was a broad and inviting element which produced many satisfactory, but few good, responses. Most candidates knew to address social development and economic development separately but the latter tended to dominate both the content and the assessment. There was sound usage of material about China and some good use of material from the home country, for example about Indonesia and Nepal. Response quality was, in part, determined by the level of specificity and detail of the "attempts" presented, with place names and named initiatives, dates and statistics being creditable and adding both to the depth and the authenticity of the writing.

Question 8

This question combined a new element from the syllabus, NICs, in (a), with the familiar issue of the reduction of regional disparities in (b) and produced performances ranging from fragmentary to outstanding.

- (a) Few candidates had an adequate definition of *newly industrialised country (NIC)*, most re-using the words new, industry and country in trying to convey their meaning. Several definitions offered were simply mistaken, for example "NIC or better known as Trans-National Cooperation (TNC)". NICs are a varied group of nation states which have developed from being LEDCs and have experienced or are experiencing the growth and development of their secondary, tertiary (and in some cases, quaternary) sectors. It is possible to identify generations of NICs, for example the "Asian tigers", such as South Korea and the STICs, or second tier, which include Indonesia. Most candidates were able to identify some of the factors which help to account for their emergence and growth, although many accounts were quite general in the level of detail offered and broad in conception. Only the better ones conveyed much of a sense of "the global economy" found in the question. Factors could be suggested from different dimensions: social, e.g. education improvement; economic, e.g. attracting FDI; environmental, e.g. the availability of raw materials at price advantage; political, e.g. stable government or government planning; with better accounts underlying the factors' interaction and complexity.
- (b) The question required candidates both to have knowledge of one or more appropriate case studies and to show skills in assessment. Use was made of cases within Asia, such as Malaysia and Brunei, and beyond, for example the classic cases of Brazil and the Mezzogiorno in Italy, although these tended to be superficial and somewhat out of date. Examiners noted an overall lack of specificity about "attempts" with little use of named, located initiatives, and, also, the simple character of the evaluation made. It was common to find a sentence or two mentioning a few effects before stating whether the attempt worked or not. Such responses, depending on how detailed the content was, received no greater than modest Level 2 awards.

