

# GEOGRAPHY

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<p>Paper 9696/01 Core Geography</p>
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## General comments

The candidates appear to have found this examination accessible and performed as well in all sections of the examination, as has been the case in previous seasons. It was pleasing to note the improved level of performance from some centres in Zimbabwe and Brunei. In general, candidates appeared capable of attaining some marks on all of the questions in **Section A** and **B**. The distribution of attempted questions in **Section C** was far more concentrated with a very high proportion of candidates attempting **Question 9** with, few attempts at 10 and virtually none at **Question 11**.

Rubric errors were extremely rare and the vast majority of candidates attempted all 7 questions that were required. There was evidence that some candidates were forced to rush the final section of their last answer, but most appeared to have allocated their time between the three sections effectively. This was not, however, true within questions.

Many candidates spend too much time on answering parts of the questions carrying relatively low allocation of marks at the expense of those parts of the question carrying higher marks. This could be due to a failure to recognise the significance of the different command words, **identify**, **describe** and **explain**. When asked to identify or name a feature, the marks will be awarded in full for a correct identification. It is not necessary to provide further description or explanation. If support to back up the identification is required from the resource, then it will be stated in the question. Similarly, description does not require an explanation to accompany it for allocation of the marks. Candidates should be encouraged to view the mark allocation as an additional indication of the level of demand of the question.

In **Section A** there are encouraging signs that candidates are becoming better prepared in the use of resource material. Most observe the material carefully and certainly the better answers exploit the material provided throughout the whole of the answer. Performance over all five questions of **Section A** remains variable. Few candidates are able to deal with equal competence across the five syllabus areas covered. The most common 'blind spot' is that of Atmosphere and weather.

In **Sections B** and **C** it is important that definitions, when required by the questions, are given accurately. Thus, for example, in **Question 9**, terms such as birth rate and fertility rate will receive little credit if expressed in vague or only general terms. The definitions in all such questions do not require lengthy explanation. In the case of some of the physical geography questions a **well annotated** diagram can often achieve most, if not all, of the marks, such as in the case of **Question 6** in the definition of the terms saltation and traction.

The use of diagrams, particularly in **Section B** was often disappointing. It was usually the annotation of any diagrams that was the weakest element. Well annotated diagrams can be successfully employed as part of explanations and will always be rewarded by examiners.

The use of English, spelling and legibility was generally of a high standard. The use of specific geographical terminology in many descriptions and the employment of appropriate local examples are areas in which improvement could be sought.

**Comments on specific questions**

**Section A**

**Question 1**

- (a) Most candidates were able to give some indication of the global nature of the hydrological cycle, but many were unable to achieve both marks as they failed to relate it to a river basin, even though the diagram was provided.
- (b) The vast majority were able to correctly identify two stores, although a significant minority cited the river channel or clouds as stores. Was most commonly identified and only required a short sentence as a descriptor e.g. precipitation that is intercepted and stored in the leaves, stems etc of vegetation.
- (c) Candidates experienced most difficulty with this part of the question. There were many confused responses that made no distinction between throughflow and groundwater flow. They saw them both as essentially the same downwards movement of water from the surface under gravity. Better answers distinguished between infiltrated and percolated water and described the lateral movement of flows along slopes to channels or springs.

**Question 2**

This question generally provided the weakest answers of all questions in **Section A**.

- (a) Many candidates appeared to experience difficulty in interpreting the diagram and thus were unable to identify winter fog and winter mean relative humidities.
- (b) Most were able to point to the increases in annual precipitation and in rain days as well as the reduction of snow cover in urban areas. The explanations for this were more limited. Pollution was widely mentioned, but few were able to explain its contribution in terms of the production of hygroscopic nuclei. The impact of the urban heat island upon convection was rarely mentioned, although its influence on snow cover was observed.
- (c) The higher annual and winter mean temperatures in urban areas were generally observed but not commented upon. The urban heat island effect was not well understood and indeed was not mentioned by many as a cause. Many ascribed the higher temperatures to pollution that formed a blanket that trapped heat. The ability of buildings to absorb radiation more readily than vegetation and to re-radiate it at night raising temperatures was only mentioned in the best few answers.

**Question 3**

Reasonably answered by most candidates, although part (c) formed a discriminator between good and more moderate responses.

- (a) Most were able to interpret the Peltier type diagram and gain both marks.
- (b) Freeze-thaw was commonly identified and usually accurately described and accompanied by appropriate diagrams. Occasionally the fluctuation of temperature around 0 C and the requirement for frequent repetition of the process were not mentioned. A minority of answers incorrectly identified thermal fracture, even though the diagram shows annual mean temperatures below 0 C.
- (c) There was a far greater range to answers. Weak answers described chemical weathering in general or merely repeated its parameters from the diagram. Many failed to explain the role of temperatures in speeding up chemical reactions. Similarly, the role of water in processes such as carbonation or hydrolysis or the production of humic acids in tropical conditions was found only amongst better answers.

#### Question 4

Most were able to interpret the resource and gain marks in **(a)** and **(b)**. Some candidates failed to understand median as a measure, even though it was given in the key.

- (a)** Most correctly identified Sub-Saharan Africa and were able to cite corroborating data from the diagram.
- (b)** The vast majority of answers accurately cited figures exhibiting the different ranges of life expectancy for Central America and Western Europe, although fewer noted the different means or the similarity in the total range (approx. 12 years).
- (c)** Whilst most cited two ways in which life expectancy might be increased, a number of these were extremely vaguely expressed, for example, "improved medical facilities". Located examples also were often poor and added almost as an afterthought ('e.g. Kenya' at the end of the account). Better answers were able to relate the ways of increasing life expectancy to the circumstances of the located examples, such as strategies to deal with HIV/AIDS in many African countries.

#### Question 5

- (a)** Nearly all candidates correctly identified the relevant zones.
- (b)** Although most identified the greenbelt as the zone where set down and settlement were likely to be limited, many had little understanding of the nature of greenbelts. Many did not see it as an area where development is restricted and instead speculated on the nature of industrialisation or even polluting activities to discourage settlement in such areas.
- (c)** Most expressed counterurbanisation as a movement away from the urban area, although some persist in viewing it as the same as suburbanisation. The reasons given for counterurbanisation were usually generic, particularly the negative externalities of the urban environment. Comparatively few accounts were able to link these with actual located examples. Many merely mentioned large cities such as London, New York or Paris without and information that was specific to that location. By far the most successful answers were those from some centres in New Zealand or Zimbabwe, where candidates selected and developed local examples such as Auckland or Harare

#### Section B

#### Question 6

This was a popular question that produced many good responses.

- (a) (i)** Traction and saltation were adequately described with some candidates producing well annotated diagrams. Many did not appreciate the link between velocity and entrainment.
- (ii)** Helicoidal flow was far less well explained. Many accounts only described it as a corkscrew type of flow. The better accounts demonstrated the flow in the form of a diagram of a channel cross section located on a meander bend.
- (b)** Many responses produced diagrams showing a channel pattern of islands/eyots and dividing channels. Annotation and explanation of the processes were often very limited. Very few mentioned the effect of declines in energy in sediment laden rivers, the role of vegetation or of the unconsolidated materials and the impact of river erosion. One exception was provided by some centres from New Zealand, who were particularly effective in describing the flow regimes of rivers influenced by melt waters in glaciated areas.
- (c)** Surprisingly few candidates were able to provide adequate descriptions of flood plains. Some drew cross sections of flood plains showing bluffs, alluvium and levées, but were unable to develop the descriptions much beyond the diagram. Some even confused flood plains with deltas. The problems of the human occupation of flood plains rarely went beyond the danger of flooding for settlements. Some accounts did realise the attractiveness of flood plains for human occupation due to the rich alluviums and developed the attendant problems relating to their drainage and flooding.

### Question 7

Quite popular and often answered well.

- (a) (i) Most candidates described the differences between insolation and terrestrial radiation, although some failed to distinguish between short and long wave radiation.
- (ii) The majority were able to describe some aspects of the formation of dew although the role of radiant cooling of the earth's surface was at times misunderstood.
- (b) Candidates seemed to struggle with this section of the question. Most produced reasonably accurate diagrams showing the incidence of solar radiation at the equator as compared with the poles. There was, however, a widespread misconception that the differences were due to distance from the sun or that the atmosphere was thicker at the poles. Very few accounts referred to the effects of the tilt of the earth in its orbit around the sun or to the impact of clouds in equatorial and other areas.
- (c) Most candidates made a reasonable attempt at this part of the question. The knowledge of lapse rates has undoubtedly improved, as most answers contained temperature/height diagrams that correctly showed the relative positions of environmental and adiabatic lapse rates in conditions of both stability and instability. Also the summary of likely weather conditions was generally accurate. The explanations of stability and instability, however, were far less secure. They were often confused and contradicted the diagrams. Many candidates did not associate adiabatic lapse rates with rising/falling parcels of air and hence they found it difficult to distinguish dry and saturated adiabatic lapse rates from the environmental lapse rate.

### Question 8

This was the least popular of the questions in the physical geography section and usually yielded the poorest marks.

- (a) (i) Very few defined either flow or heave with any degree of accuracy. All that was required was the definition of a downslope movement of materials, under gravity, by the expansion and lifting of particles in the case of heave or the addition of sufficient water content to make particles fluid in the case of flow.
- (ii) Very few gave any sort of account of the conditions under which rockfall might occur. Generally the best that was offered was the trigger effect of earthquakes.
- (b) Slope form and development are clearly topics that candidates find difficult and most seem to lack preparation on the subject. Many were unable to give two significant physical factors affecting slope form despite the wide choice available (rock type, rock structure, earth movements, climate, vegetation etc). Even those that did produce two factors (usually climate and vegetation) were unable to associate them with any impact upon slope form.
- (c) This part of the question on plate tectonics came to the rescue of many. The nature of plate boundaries is well understood and accurately described by many. Some of the diagrams leave something to be desired, but generally showed the relationships of subduction and divergence with volcanoes. Ocean trenches and in particular, island arcs caused more problems and were generally less well described.

### Section C

The vast majority of candidates answered **Question 9**. A few attempted **Question 10** and only a handful of answers to **Question 11** were received.

### Question 9

This question was very popular and, on the whole, successfully answered.

- (a) Most candidates could define birth rates, but experienced considerable difficulties with fertility rate. The most common omission from birth rates was the fact that they were measured over **one** year. Fertility rates were often not understood at all and even the more accurate definitions often failed to record that the rate represents the **average** number of children each women of child bearing age will bear.

Many candidates wasted time by then giving lengthy descriptions of the uses that might be made of these measures, which was not required by the question.

- (b) Most candidates identified the inverse relationship between fertility rates and education. A large number of answers were unable to extend the explanation beyond the increased knowledge and take up of family planning. Few, if any saw any link with men's education. Most of the exemplification tended to be generic, often at the level of MEDCs and LEDCs and many of the arguments were more concerned with the links with material advancement rather than with education per se.
- (c) By far the most common choice was that of China, with only a few opting for Singapore or their own country. The development of the one child policy in China is well known and, by and large, was accurately described, often with considerable detail concerning changes in policy over time. Many answers were limited by their failure to address **the extent** to which the policy had been successful which was the point of the question. On many occasions only the final sentence evaluated the policy as a success in terms of producing a reduction in birth rates. Better answers considered the wider demographic, social and economic implications often employing the outcome of one child, two parents and four grandparents as a framework with which to review the strategy. Answers using a country other than China were perhaps more variable in quality, but did produce, on occasions, some insightful and informed responses.

### Question 10

A less popular choice with a wide ranging levels of response. The question was more popular amongst some centres in Zimbabwe, where it was often well answered.

- (a) (i) There was some confusion over the term refugee. Many failed to distinguish refugee status from that of an international migrant in that the fear of persecution was not made evident as the reason for the person living outside of their own country.
- (ii) Examples of a refugee migration were often disappointing as they were not always appropriate to refugee status and even when they were, they often failed to indicate destinations, scale or time of the movements.
- (b) Most candidates successfully interpreted the diagram by following through the pathways leading to deportation. Only the better answers developed any explanation of these pathways.
- (c) Many responses had difficulty in defining culture. Instead they dwelt upon racial intolerance or prejudice as acting as a barrier to acceptance without expressing any cultural dimension. Better answers did focus upon such features as language, religion, food, dress and family or community life. As such they were often able to provide useful and apposite exemplification. Even so, there was a significant lack of evaluation, as most were descriptive and viewed cultural differences only in a negative manner. There was little sense of nations that are culturally diverse or where migrants are welcomed to fill niches in the labour market.

### Question 11

Very rarely answered. There were a few answers that exploited local knowledge and keen observation that were a delight to read. More, however, were vague, irrelevant or represented a complete misinterpretation of the question.

- (a)** On those occasions where the candidate produced a map this was well answered. Those that relied on description lacked reference points or indications of scale and size.
- (b)** The issues of development were often vague and ill focused. The more successful answers were able to demonstrate important factors in the local infra structure that were clearly lacking or capable of development, such as water supply or transport.
- (c)** The success of this section was dependent upon the expression of the development issues identified in **(b)**. Weaker answers merely repeated the material already covered earlier. The best answers were those that employed critical appraisals of the levels of response of authorities, utilising personal observation or exemplars that were clearly familiar to the writer.

# GEOGRAPHY

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**Paper 9696/02**  
**Physical Geography**

## General comments

The overall standard of the work of candidates continued to show improvement and Examiners were impressed by the number of very good scripts that they read. As ever there was a range of quality and it is hoped that in the comments on answers given below there will be guidance as to how some candidates might have improved on their performance.

Many candidates still needed to pay careful attention to the precise instructions given in the questions. This was particularly noticeable in answers to three of the questions linked to resources provided in the paper's Insert sheet where in some cases it seemed that the resource had been totally ignored. Similarly a number of the questions had two major demands and there were candidates who neglected to give sufficient attention to, normally, the second demand in such cases.

The better answers were ones in which good use had been made of examples, i.e. in which the examples were integrated into descriptive or explanatory detail and not merely quoted. These reflected well researched case studies. Similarly the better candidates used diagrams effectively to augment or clarify their text in response to the question whereas in other cases little thought had been given to their appropriateness.

There were only minor infringements of the rubric and Examiners continue to be impressed by the general standard of written English as well as the standard of presentation.

## Comments on specific questions

### **Tropical Environments**

#### **Question 1**

This was marginally the preferred choice from the tropical environments for the majority of candidates. Their choice in many cases may have been influenced by the accessibility of the part **(b)** question as this was generally much better attempted.

- (a)** There was a wide ranging response with some excellent answers in which candidates demonstrated a thorough knowledge of the dominant processes operating in tropical soils to explain their characteristics. Most of these were of latosols of the humid tropics with characteristics such as a thin humus layer, due to rapid decay of plant litter, a thick B horizon of red and yellow sesquioxides and leaching of silica all clearly explained and accompanied by diagrams showing horizons and scale together with the movement processes.

However there were many very limited answers. Some candidates chose to draw and explain a soil catena or to describe either clay or sand soils for which very limited credit could be awarded. There were also cases where candidates merely described the weathering profile of the humid tropics rather than a soil per se.

- (b)** This proved to be a very straightforward demand and there were many very good answers. Generally the tropical rain forest was better attempted with many able to give an accurate description of layering often well illustrated with helpful diagrams. The better responses to the savanna related the structure to the latitudinal changes from humid forest margins to the arid zones with accurate descriptions of appropriate trees shrubs and grasses. Nearly all candidates were able to relate the vegetation differences to the climate regimes to a greater or lesser extent although the seasonality of the savanna was often insufficiently stressed.

## Question 2

Generally less popular than **Question 1** and also generally less well attempted in both parts

- (a) The description of the landform was generally at best limited and in some cases totally ignored. Many candidates only considered the rounded boulders and thus took a very restricted view as to what they should write about. Hence there were many accounts restricted to an explanation of exfoliation and in some cases an inappropriate account of freeze thaw processes. Nevertheless there were candidates who recognised an exhumed landform of the bornhardt/tor type and who proceeded to give good explanations of chemical weathering processes, the influence of jointing and the eventual exhumation of core stones and a bornhardt surface as illustrated by the photograph.

There were weaker candidates who took the question as an opportunity to write all they knew about tropical landforms and/or weathering with little or no reference to the photograph at all.

- (b) For many candidates this was taken as an opportunity to write about the exploitation of the tropical rain forests with accounts of shifting slash and burn cultivation, extraction of timber resources and destruction of the forest for cattle ranching or plantations. These approaches often ignored or paid scant attention to the requirement of 'why management of the ecosystem was so difficult'. Other less good approaches referred only to the problems of inaccessibility and the vast scale of the tropical rain forests for effective management.

Better candidates recognised the need to discuss management strategies to limit and control exploitation and explained the difficulty posed by lack of sufficient resources in what are mainly less economically developed countries, especially in controlling illegal operations. The best answers were those in which candidates showed an awareness of the fragility of the ecosystem with so much of the nutrient store in the biomass and that management was essential to avoid total depletion of that nutrient store with an effect on diminishing returns, loss of biodiversity and in some cases the implications for global climate change.

## Coastal Environments

### Question 3

This was by far the more popular question on coastal environments but one in which a number of candidates achieved a higher mark for part (a) than part (b) despite the difference in weighting of the mark allocations.

- (a) The characteristics of each wave type were generally well known and mostly illustrated with diagrams showing the nature of the waves and some indication of beach form.

However there were often instances where the written text was at odds with what the diagrams revealed. Most candidates recognised that constructive waves had a strong swash element which led to the building up of a beach with better candidates showing a berm together with removal of material down shore. This would lead to a steepening of the beach profile yet a majority of candidates seemed to equate the process with a shallower one and conversely that destructive waves would lead to a steepening of the profile. The best candidates recognised that there could be localised steepening as destructive waves plunge to remove material, or throw up a storm beach in some circumstances, but that overall material carried down a beach levels out the profile. Diagrams of the best candidates often effectively showed some original beach profile and forms and how they might be modified by the two types of wave action

Examiners rewarded well those candidates who displayed such genuine understanding. There were some candidates who erroneously related destructive wave action to cliff erosion with the creation of stacks etc. and headlands and bays. The question clearly indicated that both wave types operate on the beach system.

- (b) In many of the answers read by Examiners, there was no mention of the word profile at all and it was clear that the term was not understood as candidates often included examples of the arrangement of headlands and bays, i.e. the plan form of a coast rather than the profile of cliffs, i.e. their shape as seen in cross section.

Candidates were generally able to explain the significance of factors such as wave energy, sub-aerial processes and geology but mostly in very general terms and not how they might affect the form of a cliff. The influence of geology was all too often with reference to hard and soft rocks with few candidates able to draw on specific examples of either rock types or locations. Geological structure was similarly treated, in most cases, with a lack of fine detail regarding, for example, dip orientation and how that might affect a cliff profile. At the other end of the scale there were good answers, particularly where candidates had undertaken field work or desk study of an actual stretch of coast whereas many of the weaker candidates merely presented the text book model of cliff retreat with wave cut platform, caves, arches, stacks and stumps.

#### Question 4

Not only was this the less popular choice but answers were generally of a lower quality.

- (a) As with the photograph provided for **Question 2(a)**, the majority of candidates failed to pay sufficient attention to the first demand of the question, i.e. to describe the resource provided. Some candidates ignored the map totally and only presented the conditions necessary for reefs to exist, other candidates described the complete succession of fringing reefs, atolls and barrier reefs illustrated from text book type diagrams. Hence only those candidates who did describe features and the scale of the Great Barrier Reef from the map could achieve maximum credit for this first demand.

Conditions necessary for reefs to exist were generally well known and differentiation between answers came from the degree of accuracy regarding temperatures, salinity, depth and so on as well as coverage. Some candidates were keen to advance theories regarding the origin of coral atolls, but these were not relevant in the context of the question set.

- (b) Examiners accepted a range of types of fragile environment from coasts with non-resistant rocks subjected to high energy waves to dune systems and salt marshes as well mangrove and coral coasts. Naturally some of the choices offered more scope than others with regard to how they can be protected. The best answers were based on well learnt case studies where candidates revealed good knowledge of their chosen environment as well as an understanding of how coastal processes can interact or how human management can be effective or might disrupt the coastal system. Examples of hard and soft engineering were often given for protecting vulnerable erosion coasts or legislation to protect coral, dune and other environments subjected to human erosion or pollution.

#### Hazardous Environments

#### Question 5

As in previous years, Hazardous Environments proved the most popular option taken by candidates. Hence there was a large response to both questions but with a majority opting for **Question 6**.

- (a) This was generally well attempted, with better answers being the ones well focused on the where and why of the question rather than those which went through the genesis of hurricanes and added some generalised effects. Candidates who recognised that hurricanes develop within a relatively narrow band ( $10^{\circ}$  –  $15^{\circ}$  either side of the equator) over warm seas and travel mainly westwards to encounter populated areas were well credited. Similarly in addressing the 'why', good candidates included the high winds, torrential rains and storm surges generated by hurricanes and their devastating effects, especially in less developed countries with dense populations. The addition of some appropriate examples, such as hurricanes Mitch and Katrina or the cyclones from the Bay of Bengal marked the very best answers.

Less good answers were often those where candidates were able to cite episodes of flooding, land slides and widespread destruction without attributing these effectively to the storm surges, high rainfall and fierce winds created by the hurricanes.

- (b) Some candidates spent time on the generation of hurricanes and the times of year when they are likely to be active in certain areas. However the principal requirement was to recognise that the development and tracking of hurricanes is now effectively monitored from satellites. Most candidates were aware of this and the better ones were able to develop their answers with more precise detailing and address the question of 'to what extent', e.g. that hurricanes may change direction unexpectedly. They also recognised that the expensive advances in prediction were more available and effective in the developed world for such areas as Florida than in the developing world for areas such as Bangladesh.

There was a much greater range of coverage and quality in answers to the second demand of the question. Providing adequate warning, strengthening buildings and evacuation were covered by most but differentiation came from the degree of fine detail and exemplification. Good candidates demonstrated that ameliorative action can be more effectively applied in, say, Florida than in Bangladesh. Other good answers gave examples of the need to protect against flooding and landslides which were often exacerbated by forest clearance or inappropriate land use.

### Question 6

This attracted, by a large margin, the most answers in the examination and the majority of these were of an acceptable A Level standard of achievement. Although the subject matter of the question was generally well known by candidates, there was a wide range of proficiency in applying that knowledge to meeting its specific demands.

- (a) The best answers included a good global coverage of the distribution coupled with it linked to the different nature of tectonic plate margins such as the constructive margin of the Mid Atlantic Ridge, the destructive margins around much of the 'Pacific Ring of Fire' and the collision zone through south central Asia. Examiners did not require full coverage of all the epicentres shown, but many candidates paid too little attention to distribution and instead gave protracted and detailed accounts of all types of plate boundary with just an occasional mention of an example rather than the global pattern.
- (b) 'How earthquakes occur' was less well known and many candidates repeated the interactions at plate margins including a repetition of sets of three or more diagrams. However there were those who realised that earthquakes were shocks generated by sudden movement of crustal rocks with many detailing the build up and sudden release of pressure at the focus from which seismic waves are generated. The best candidates detailed the link between earthquake magnitude at the epicentre and depth of focus with relevant examples.

Although obviously well rehearsed, too many candidates merely listed some or all of a range of possible measures such prediction, monitoring, warning, building design and education with little or very imprecise detailing. Better answers were based on examples with realistic detail on how buildings could be made earthquake proof or how land use zoning might be effective and so on.

### Arid and Semi-Arid Environments

#### Question 7

As in previous years 'Arid and Semi-Arid Environments' was the least favoured topic of the physical options. Generally the quality of answers to the questions was lower than those to the other three options.

- (a) This was generally not well attempted and very few candidates provided an adequate explanation of the process of wind erosion, e.g. that it was abrasion caused by the sand particles carried by wind and not the wind itself, although the wind strength was an important factor, and that it was most effective within a restricted level above the ground. Examiners were prepared to allow deflation where it led to a lowering of the ground surface, but it was not necessary for full credit. The effects of wind erosion was not well addressed by most candidates. Although gourls, mushroom rocks, yardangs and zeugens were features that figured in many answers, the detail of their scale, form and formation was sadly lacking in the majority of answers.

- (b) Answers were generally restricted to a limited description of thermal fracturing and salt crystallisation together with freeze-thaw (frost shattering). The latter was not accepted as being relevant unless candidates specified some specific conditions of altitude where there might be sufficient temperature fluctuations around freezing point as well as the presence of water in rock joints or pore spaces, rare in arid and semi-arid environments. Better answers included some detail of the processes of exfoliation and granular spalling from heating and cooling, with subsequent expansion and contraction, and included the presence of chemical and part chemical processes in such environments.

The second demand of the question was often ignored or treated very superficially. Explanation for block disintegration such as chemical weathering (e.g. oxidation) into joints on steep slopes or granular disintegration due to the mineral composition of rocks were all but absent and candidates who covered this aspect of the question rarely got beyond exfoliation and thermal fracturing to cover both types of disintegration.

### Question 8

Marginally more popular than **Question 7**, but again yielding generally disappointing answers although there was a higher proportion of good answers than in **Question 7**.

- (a) There were some quite good responses to this although the majority were partial ones. Candidates were able to deduce some relevant descriptive information from the diagrams such as the lack of leaves in A and its deep roots tapping the water table, i.e. a phreatophyte as well as the morphology of the cacti in B. Those who could input knowledge, such as the spread and near surface root system in B to maximise the opportunity of rare rainfall events or detailed the nature and structure of the of the plants (waxy surfaces, dense hairs, closure of stomata and needles) gained the extra credit. Apart from cacti, very few candidates were able to elaborate their answers with relevant named species to exemplify their descriptions or explanations.
- (b) Many candidates misinterpreted the question as how humans have adapted to the environments rather than how they have adapted the environments. Naturally there is common ground such as with the development of irrigation but the main thrust of answers needed to be focused on adapting the environment. There were relevant answers which included consideration of the exploitation of resources such as oil which could justify the cost of importing labour or providing desalination plants for the development of agriculture and cities. The rise of tourism was also highlighted by many candidates but also of relevance were references to nomadic herding and the importance of improved drought resistant crops in developing agriculture. As always, the best answers were those where candidates drew upon well detailed examples.

# GEOGRAPHY

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Paper 9696/03

Human Options

## General comments

In the first November session which saw the separation of Papers 2 and 3 into two examinations, Examiners welcomed candidates' having the full one hour and thirty minutes for responding to the Human Options. Many candidates still produced incomplete responses to the two questions they selected, but this was now more likely to be through a lack of knowledge or understanding, than through any difficulty with managing the time available.

There were a small number of rubric errors committed when candidates responded to more than two questions. Some chose one question from each of the four Options. This may be the result of misinterpretation of the written instruction on the question paper under each Option heading 'Only **one** question may be answered from this topic'. More rarely candidates answered both questions from the two Options for which they had been prepared. Either of these approaches resulted in brief and underdeveloped responses. In the event of a rubric error Examiners mark all the responses made and credit the candidate with the highest marks achievable within the rubric.

As in previous examination sessions, **Environmental management** and **Global interdependence** were the two preferred Options. **Production, location and change** was next in popularity, especially for Centres within Africa. Examiners noted that few Centres had prepared candidates for **Economic transition**, but that many of these Centres' candidates responded well to the questions on development and core-periphery. It is perhaps worth teachers reconsidering **Economic transition** as an Option. It offers candidates a valuable opportunity for learning about some major issues in the 21<sup>st</sup> century and for synthesis towards the end of their school geography. As an Option it should not be viewed as intrinsically more difficult or less accessible than the others.

Four areas might usefully receive some comment for teachers' information and in order to enhance candidate response in future. These are the understanding of terms and expressions, the issue of scale, the need for evaluation and assessment and the interpretation of materials contained in the Question Paper's Insert.

There were no terms or expressions used in the questions which caused particular difficulty, but levels of understanding did, of course, vary. In **Question 1(a)(i)**, it was agreed at the Co-ordination Meeting to accept answers which interpreted 'concerns farmers' both as 'a concern to farmers' and as 'involves farmers', either meaning of the verb being valid. Some candidates had little appreciation of 'wind power plants' in **Question 3(a)**, referring to the structures as 'windmills' and to their construction material as wood, rather than to wind turbines and metal (or, increasingly carbon fibre).

Examiners observed that many candidates found difficulty responding to questions at the appropriate scale. One of the syllabus's Assessment Objectives for Understanding and Application involves recognition of the significance of spatial scale (2.4). So, for instance, in **Question 1(b)** some chose the Green Revolution generally, or the European Union rather than the '**one** country' required. In **Question 3(b)**, many candidates did not choose what can be seen as '**one** scheme to supply electrical energy', but dealt either with a whole energy sector, such as the world's nuclear power or hydro-electric power in Norway, or a country's energy strategy as a whole. For **Question 4(a)**, some candidates did not seem to have suitable examples 'at the **local** scale' and described broader issues such as air pollution in China or water pollution in Europe's rivers. For **Question 8(b)**, a few candidates interpreted 'core regions' not at the regional scale but as internal to large urban areas, i.e. taking the CBD as the core region, and so limited the potential credit that could be achieved.

One other aspect of candidates' responses, on which Examiners commented, was the tendency to produce descriptive rather than evaluative responses (see Assessment Objective 4). Questions asked for a variety of types of judgement in response; for example, assessing advantages and disadvantages in **Question 2(b)**; assessing the extent of success in **Question 3(b)**; and evaluating the ways in which income was used in **Question 6(b)**. Responses which are descriptive in character and which have little or no assessment receive awards within Level 1, that is 0–6 marks out of 15. Learning the language of, and developing skills in, assessment are vital for success in the subject at A Level. High quality evaluative responses are distinguished by such characteristics as the ability to observe positive and negative impacts or consequences (but not necessarily in a balanced manner); to question decisions; to point out uncertainties or conflicts; to argue a case and produce counter-arguments; to weigh evidence and to provide an overall conclusion. Where a question requires evaluation, responses that Examiners judge as Level 3 are often structured wholly as an assessment, rather than a candidate's first introducing material in a narrative manner and then evaluating it. That approach can lead to repetition as the candidate refers back, or to superficiality, for instance the comment 'it was a success'.

Candidates in general had few difficulties with interpreting any of the Figures or the Table contained in the Insert. It is perhaps worth restating the Setter's commitment to using a variety of styles of resource and to stimulating the application of geographical understanding to new contexts (Assessment Objective 3.5). So, for example, Fig. 2 took a standard means of representation (a pie chart) and a renewable energy resource (wind) but offered data from research conducted in Germany with which it is unlikely any candidate would be familiar. Some candidates did have difficulty interpreting Table 1 correctly. **Question 6(b)** asked 'How may the domination of the market for tourism in Africa by just four countries be explained?' Whilst most candidates read the data correctly as this meaning the four countries ranked 1–4, i.e. Egypt, South Africa, Morocco and Tunisia; a significant group of candidates chose any four countries listed in Table 1 about which they wanted to write. Examiners also noted that some candidates found reading the y axis of Fig. 4 difficult. So, for example, at time t4, quaternary industries have approximately 30% employment, not 90%, as some observed incorrectly.

Handwriting, the use of language and expression were so variable across the entry as to make generalisation meaningless. Candidates should, however, be reminded of the need to structure their responses to each part **(b)** in paragraphs, as it was quite common to find two or more sides of continuous writing. Whilst pressure of time may make this more likely, the ability to organise and structure a response is one aspect embedded in the level descriptors for judging the overall quality of candidates' responses.

### Comments on specific questions

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

**Question 1** on soil erosion and agricultural change was more popular than **Question 2** on the informal sector. Both involved the definition of a term, the use of an example and assessment.

#### **Question 1**

- (a)** Fig. 1 was included as a stimulus material. Some candidates drew on it for **(ii)**, but had to offer material of their own in order to achieve good marks.
- (i)** Most candidates achieved a mark for the loss, removal or wearing away of soil, but fewer achieved the definition's second mark which was given for the agents wind and water. Soil erosion is a concern to farmers for a number of reasons. These include the fundamental nature of soil quality to production, productivity, output and thus survival either in terms of sale or subsistence. Some candidates observed that soil erosion concerns farmers because they are the group who are the most involved with soil in terms of agricultural practices and decision-making. Examiners noted that all candidates had something to say here, but that expression was often too loose, for example, 'bad farming', to award much credit. Few candidates observed that soil erosion is irreversible, or that it reduces soil fertility by removing the more fertile topsoil and exposing lower and less fertile soil horizons.

- (ii) Many candidates failed to appreciate that the emboldened words **either** and **or** in the question meant that they needed to choose between arable farming and pastoral farming. If a candidate did write about both, Examiners marked both accounts and credited the better one. Given the requirement to use examples, general responses received a maximum of 3 out of 5 marks. Some responses were loosely expressed, such as 'good farming' or suggested that more care should be taken by farmers but without saying how. The best answers seen outlined several methods in the context of one or more countries, sometimes naming specific initiatives or observing the overall significance of breaking down traditional practices, such as total clearance of fields (arable) or overstocking (pastoral).
- (b) Candidates understood both what the role of government and what agricultural change might involve, but answers were rather disappointing because few candidates had sufficient specific knowledge about the country selected to develop a response. As a consequence this limited the assessment also. Some other candidates attempted to answer at an inappropriate scale (see General comments). Any type of agricultural change was, by the nature of the question, acceptable, although cases involving intensification or land reform were the most common. In the case of land reform, whereas it is valid to offer well-judged personal opinion, a senior Examiner suggested that candidates should be warned against simply producing 'a rant'.

## Question 2

- (a) Examiners marked this part flexibly, between (i) and (ii), to allow candidates to use the material they had to advantage.
- (i) The definition of the term *the informal sector* required some indication of how it is not formal, for instance that it is outside the law, unregistered, outside the tax system or perhaps uses unofficial premises. Many candidates observed that people find their own work to do or create their own jobs as they see a need or an opportunity. It involves both secondary industry (manufacturing) and tertiary industry (services), such as vending or water carrying.
- (ii) Although there was a tendency to lose sight of the word 'manufacturing' in the question and to stray into services, responses were generally sound to good, with some interesting and detailed exemplar support given. Some of the best were either about 'Jua kali' in Nairobi, Kenya, an example found in some textbooks, or the activities located in Mbare, Harare, Zimbabwe but any located example was acceptable.
- (b) Many candidates produced useful general observations about the advantages and disadvantages of developing the informal sector, but few candidates managed to link this to 'industrial growth' in the manner required. Few provided any supportive example(s) or a context for change. Some better candidates observed that some governments now recognise and support the informal sector with premises, training and, maybe, a measure of legal status and that this is significant because of the large percentage of workers within the informal sector. It was also highly creditable to compare the limitations of the informal sector (in terms of scale; quality of output; marketing etc.) with the potential of other forms of industrial growth, notably attracting investment by transnational corporations (TNCs) or encouraging import substitution or materials-processing forms of production.

## Environmental management

**Question 3** was one of the most popular questions on the paper. Many responses to **Question 4** were also seen. Issues of scale affected responses to both (see General comments, above).

## Question 3

- (a)(i) Nearly all candidates identified component failure correctly, but many omitted to give the data support required (30%).

- (ii) Candidates interpreted Fig. 2, a pie chart, well. Most recognised that high winds, lightning and icing together contributed to 15% of power plant failures in Germany, according to this research. A few candidates did not include icing. The descriptions and explanations given differentiated candidates well, from the simplistic 'it stopped' or 'because of high winds', to creative developed observations using geographical understanding. One candidate wrote, for example, 'Lightning during thunderstorms can strike wind turbines causing them to short circuit or blow a fuse.' Others pointed out that wind turbines may have capacity up to a certain wind speed, beyond which damage, overheating or malfunctioning may occur.
- (iii) Candidates recognised that the producers of wind power experienced problems as a consequence of wind power plant failure. Many accounts were largely financial, including ideas such as the cost of repairs, the loss of revenue, the need to pay compensation, the lack of profits to service the debt incurred by the initial investment. Better quality responses often made one or more observations in another dimension. This might have been social, for example the bad publicity created, or a loss of customer confidence. It might have been political, for example prosecution for failure to deliver on a contract, or a government withdrawing licences because of unreliability.
- (b) As explained above, a proportion of candidates wrote responses relating to one energy source in general or to one country's electricity supply. This made assessment difficult and meant that there was a lot of material to try to handle in the time available. More effective were responses which took the 'one scheme' required, naming and locating the chosen example and then giving some sense of the need and in what ways it has, or has not, been successful. Credit was given both for the power installation itself and for the network served. Candidates found suitable schemes to use on five continents, in MEDCs and LEDCs and involving the use of both renewable and non-renewable resources. Examiners noted that whilst some were large scale and published examples others had been developed by teachers using local sources of information, which is commendable and one of the strengths of this syllabus.

#### Question 4

- (a) The question used the terms 'comparative failure' and 'comparative success', recognising that few attempts are ever complete failures or successes, as candidates were themselves wise to do. Candidates needed to describe and explain the attempt (rather than the origins of the pollution problem) and its outcome. The best attempts were local, specific and detailed, for instance, in a particular city, a named campaign, dated with evidence and indication of what was, or was not, achieved. Instances of water pollution and air pollution seemed firm in candidates' understanding, but a small proportion confused land pollution, such as littering or waste dumps, with the broader issues of land degradation and derelict land. As a consequence, some accounts included inner urban decay and spontaneous settlement (rather than simply their associated solid wastes).
- (b) The responses were sound to good, although some remained superficial in the observations made and were narrowly founded on broad observations such as 'it is hard to tell who did it'. Better explanations touched on several dimensions: economic, for example, how to cost pollution, or how to fund the monitoring and legal processes needed; and political, for example, where pollution is a transborder or an international issue, or when officials are corrupt. Some candidates differentiated between point source and non-point source pollution, between sectors of the economy or between types of polluter, especially where profit-motivated industries prefer to pay occasional fines rather than make major investments in cleaner technologies. All agreed that, as a strategy, 'polluter pays' was unlikely to work. There was, however, some good quality consideration of instances where the strategy had had a measure of success, for example involving particular industrial releases or oil tanker accidents and the clean-up operations that followed. It was creditable in such cases to observe that some contamination may not be removed and that some damage, for instance the death of wildlife, cannot be 'made good' to use the question's terms.

## Global interdependence

**Question 6** was rather more popular than **Question 5**.

### Question 5

- (a)(i) Most candidates knew what the term *invisible exports* means, but many found it hard to express clearly. There was in particular a tendency to re-use the word 'exports' rather than to explain that it is services provided by one country to another or some such expression. Some candidates did not make clear that invisible exports are sales or made in return for payment.
- (ii) Although the question asked for invisible exports (plural) from a country, many candidates focused on tourism as the single most important invisible export from the selected country. Better responses mentioned other invisibles such as education, insurance, banking or the granting of licences for fishing and aviation and gave some indication of their scale or overall significance. In explaining the importance of invisible exports, weaker candidates tended simply to observe that they employ people, bring in foreign exchange and make the country better known. Better quality responses often considered the issue of a negative balance of trade (visibles) and a better balance of payments (with invisibles). Many included the use of foreign exchange to meet diverse needs, from debt repayments to investment in infrastructure, from the import of pharmaceuticals to payment for tertiary education in other countries for outstanding candidates.
- (b) There were few good quality answers because candidates seemed unaware of the range of factors underlying the complexity of international trading patterns today and so were unable to weigh the importance of colonial ties. Weaker candidates wrote short, often emotive, answers about the domination of colonies by the colonising power and the continuation of this in a neo-colonial relationship, as MEDCs have disproportionate involvement in and influence over trading patterns. Few showed much appreciation of what today's colonial ties might be, for example, in relation to francophone countries or to the British Commonwealth. Better quality answers offered examples that were reasonably up-to-date and which may have had data support, for instance giving the percentage value of trade with different partners. Other indicators of quality were the recognition of the emergence of NICs and their trading relationships and the considerable role of other factors, such as trans-national corporations and foreign direct investment or trading blocs and protectionism.

### Question 6

- (a) Examiners observed that this unstructured part differentiated between candidates well. The weakest candidates simply described or rewrote the data given, seeing this, wrongly, as explanatory. Weak to average candidates provided an explanation made up of reasons relating to the four dominant countries only. Much of this related to attractions they might have such as the observation that all four were on the coast (without any consideration of all the other countries in Africa which also have coasts). Some tried simply to use general knowledge, such as of the Pyramids' location in Egypt. It was a little better when the point was made in such a way as to observe that Egypt provides a unique tourist experience in a world heritage environment. Good to very good candidates gave an explanation of multiple reasons using a comparative approach. They tried to address 'domination of the market', in that, for example, aggressive marketing is used to preserve and enhance market share. They also gave some sense of other African countries, both the further 6 named in Table 1 and the other 29 not named but for which WTO data was available. Whilst most of the reasoning related to these countries' likely difficulties, such as instability, deprivation or a lack of attractions, a few observed that the chosen development of small-scale tourism, such as eco-tourism, in some African countries will never rival mass tourism in terms of earnings. Some made good use of an appreciation of time scale and life cycle and contrasted the early development of Egypt and its consolidation phase (Butler) with later development elsewhere in Africa.

- (b) Many candidates began by describing tourism in the one or more countries they had chosen, rather than directing the whole response, as requested, to evaluating the ways in which income from tourism had been used. Selection and application of learned material to the actual question set are skills that are needed for success at A Level and credit can only be given for the relevant parts of any response made. Few candidates actually evaluated the uses of the income, most described what had been done with it, some in very general terms such as for 'infrastructure' or 'health'. Many responses suggested an implicit positive evaluation and a few simply had the word 'good' or used the term 'improvement' for what they mentioned. Better quality responses, which had the necessary evaluative element, considered issues of national budgets and decision-making and how to weigh the needs of different peoples and/or areas, such as core and peripheral regions or rural and urban environments. Some considered the rights and wrongs of reinvestment in tourism to maintain visitor numbers or to expand the sector, over the local population's needs for safe water, access to health care or schooling. Some questioned the idea that local people benefit from facilities provided for tourists and gave pertinent examples of enclave resorts, pricing structures and other forms of exclusion. Candidates who tried to consider the values involved in the decisions made, that is who truly tried to evaluate, were rewarded well. There was some good material produced on spending on environmental protection and on the use of income by local people as a distinctive of eco-tourism. Many candidates also made valid comments on the issues of leakage and corruption for diminishing potential income and on the tourism multiplier as a perceived benefit.

### Economic transition

Small numbers of responses were seen to both questions. **Question 7** appeared to be the more popular choice.

#### Question 7

- (a) Candidates managed to describe the stages of economic development in t1 and t4 according to Fig. 4, but could not explain the stages. Most suggested examples, as required, but some were simplistic, for example suggesting LEDCs for t1 and MEDCs for t4. Some candidates found it difficult to derive correct percentages from the diagram for the different sectors. A few candidates described all four times shown, not just the two that were needed. Few promising responses were developed sufficiently, in terms of the explanation of development over time and sectoral shifts, to achieve good marks.
- (b) Responses were of low to satisfactory quality, essentially because of the limited knowledge shown of the development policy of the chosen country. Some candidates presented the policy as a single priority such as 'decreasing the birth rate' or 'improving manufacturing' which is both unreal and inappropriate at A Level. Better quality responses considered several priorities, supported the response with detailed knowledge of the chosen country (places, plans and initiatives, dates, data etc.) and assessed these in a meaningful manner. Observations which, in identifying what has been achieved, differentiated between locations and or groups of people, received the highest level of award.

#### Question 8

- (a)(i) Describing Japan's core region posed few problems to candidates.
- (ii) The term *backwash effects* was understood by most candidates. The arrows shown on Fig. 5 may have assisted any who were unsure.
- (iii) Responses were satisfactory to very good from prepared candidates. Most explained an attempt in the periphery involving some form of development. This may have reduced backwash effects by deterring the migration of labour, adding value to local raw materials or attracting the investment of local capital from those with an eye for a business opportunity. Both Brasilia and Zimbabwe's growth points were used well as examples.
- (b) The full range of answer quality was seen. Most candidates indicated a sound understanding of the general reasons why core regions remain dominant and some provided a theoretical foundation for this. Fewer candidates included the necessary examples in support of their explanation, but some used the capital city and primary core region of their home country quite effectively, or a textbook case, such as Venezuela. Some candidates attempted to use an inappropriate example, such as London Docklands, which confused both the scale and the context for the analysis.